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An Alternative Method to Resolve the Classroom Problems: Mock Trial*

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ARTICLE INFO	ABSTRACT
	Purpose: Mock trial is an activity commonly used both in and out of the class in citizenship education. Mock trial is a simulation technique rooted in experiential learning. This study aimed to evaluate the Mock trial method used by a primary school teacher in Turkey to solve the problems faced during lessons. **Research Methods:** This research is designed as an intrinsic case study, which involves the use of Mock trials to solve the classroom problems. Participants were a classroom teacher and 20 fourth grade students attending her class. Research data were analyzed using inductive thematic analysis. **Findings**: Mock trial procedure was conducted during the last 15 minutes of the lessons at one-to-two-month intervals. The problem to be handled in the Mock trial is decided by the consensus of the

students and the teacher. Students solve the problem by acting out their roles as decided in the trial. In this way, students develop the skills of problem solving, self-control, responsibility, empathy, and communication. Also, they learn about the concepts of right and justice, and the functioning of justice system. **Implications for Research and Practice:** When Mock trial is to be applied to solve classroom problems, especially the problems students commonly experience in their school can be prioritized. Rules to abide before, during and after the trial should be set up first, and a democratic classroom culture characterized with respect, affection and confidence should be established. Students should be encouraged to concentrate on the solution of the classroom problems. Further research can be conducted on utilizing this method as an instructional method in different courses. Moreover, training programs can be held to inform the teachers about this method.

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Introduction

Mock trial is commonly used as an in-class and out-of-class activity in citizenship education. Theoretically rooted in experiential learning (Glancy, 2016), mock trial can be defined as a method in which students simulate a real-life situation about an issue by acting out the roles of judge, prosecutor, lawyer, witness in a classroom decorated like a real courtroom (Arthur & Wright, 2001). Simulations should be done based on the experiences in a setting arranged in a realistic way. Since the simulation aims to let students experience a situation in real life, the skills learned and improved can be transferred into students' real life afterwards (Bradley, 2006). Suggesting a learning model in the form of 'watch, learn and do', this simulation technique enables the students to evaluate the different perspectives of the problems faced, to make a decision choosing among different opinions for solution, to see the effect of different strategies on the decisions they have made and trace the consequences of their own acts (Wales & Clarke, 2005).

With the Mock trial method, students learn how court system works and they comprehend the significance of such juridical and democratic principles as justice, impartiality, prescription, freedom of speech, importance of evidence, presumption of innocence (Cassidy & Yates, 2005). Moreover, students learn the philosophical and historical basis of constitution, thus contemplate and discuss on the current practices within the context of past and now (Strickland, 2016). Beside enhancing students' awareness of and involvement with issues about citizenship-related issues (Smagorinsky, 1994), this method also improves students' skills of conflict resolution, problem solving, decision making, critical thinking, communication, cooperation and empty and senses of justice and social responsibility. It also builds up learners' self-confidence by supporting their social development (Ahmadov, 2011; Cassidy & Yates, 2005).

The efficacy of Mock trial depends on planning and structuring it properly. Mock trail is usually constructed on a fictional situation. This fictional situation is given to students before the court trial and students get prepared for the court issue and for their roles (Roe, 1987). It is important that a realistic courtroom setting is built and students work concentrating on their roles before the Mock trial (Glancy, 2006). Besides, the students who are going to take part in the trial should be selected by matching properly their skills and sophistication with trial roles. Apart from the defendant and defending team, high participation can be sustained during the court by giving students some roles such as reporter judge, witnesses and media groups (Roe, 1987). The trial should be run just like a real one, roles should be acted respectively, and teacher should play the role of observer and just take notes. The teacher should also be a facilitator, guide, task manager and should support the weak party in discussions (Ringel, 2004). During the trial, sufficient time should be allocated for the inquiry process. This is one of the most important processes of the trial (Roe, 1987). After the trial, class should make a discussion to examine the trial process. The teacher and other students should give feedback to the students taking role in the trial about the indicators of a good performance and goals (Glancy, 2006). The evaluation should be done in a holistic way, and the critical thinking, questioning, presentation

and participation performances displayed by each student should be assessed as a whole (Bengtson & Sifferd, 2010).

The use of Mock trials in education began with law education in 1970s. Mock trial activities have been commonly used in law education to train lawyers (Kravetz, 2001; Knerr & Sommerman, 2001). Mock trial activities have an important place in teaching constitutional law (Fliter, 2009), international laws (Ambrosio, 2006), global policy (Ambrosio, 2006; Jefferson, 1999), and politics (Ahmadov, 2011; Asal & Blake, 2006). Moreover, this method has been recently used in teaching economics law (Carlson & Skaggs, 2000; Hersch & Viscusi, 1998), and health rules and legislature (Smith, 1992). An analysis of the relevant literature reveals that Mock trial is used in social studies and history education (Patrick, 1991; Weiner, 2010), science education (Beck & Czerniak, 2005; Wheeler, Maeng & Smetana, 2014). Mock trial has been used as an active teaching method to teach candidate teachers discussion, questioning and argumentation skills (Helgeson, Hoover & Sheehan, 2002). It is seen that previous studies have been conducted mostly at tertiary or high school level, and trials were run about fictive or current global issues. The literature revealed no studies which uses Mock trials directly about classroom or school problems. The present study mainly discusses how Mock trial method should be used when it is employed directly to solve classroom problems such as behavior problems like violence and violation of classroom rules through a case study.

Mock trial is used in education because it is grounded on experiential learning and it is a method for simulation. Constructivist approach in education has been adopted in Turkey since 2005 and learning outcomes and activities have been integrated into all curricula in primary school as per cross-curriculum approach. However, many research findings suggest that citizenship education is conducted in accordance with a traditional teacher-centered approach (Bağlı, 2013; Ersoy, 2007; Toraman, 2012). In the present study, it is aimed to examine the Mock trial method used by a primary school teacher in Turkey to solve the problems she faced in her class. In this regard, answers to following research questions were sought:

1. How is mock trial method applied to solve the classroom problems?

2. What knowledge, skills, and values are taught to the students with mock trial method?

3. What are the attitudes and behavious of students towards mock trial?

4. What is the role of the teacher in the implementation of mock trial?

5. What are the challenges faced during the implementation of mock trial?

Method

Research Design

This research is an intrinsic case study which involves the use of Mock trials to resolve the classroom problems. Intrinsic case study is defined as the detailed exploration of a particular and extraordinary case (Stake, 1995). This study draws on intrinsic case study method since it examines an original and different situation. In this design, which involves an exploratory process in its natural environment, the researcher takes the intrinsic case as his/her guide rather a theory or generalization and he/she is bounded to the context. Since the researcher reconstructs the experiences of participants and readers, it is based on a constructivist philosophy (Mills, Durepos & Wiebe, 2010). Theories can partly be beneficial in intrinsic cases which examine such kind of specific situations because theories involve broader situations. Therefore, intrinsic case is a situation which develops in its own context. The researcher interprete the situation depending on the context just like an explorer. At the same time, the readers understand the situation and make meanings within the context. In this study, the practice of use of Mock trial method by a primary school teacher in Turkey to teach Human Rights, Ctizenship and Democracy lesson was considered as an intrinsic case.

Participants

The studied school was a state school located in the center of Newcity (codename) province in Turkey, which had a capacity of 800 students coming to school half of the day mostly from families of middle socio-economic status. The study was conducted with a classroom teacher and his/her students. This teacher, who has a creative and sensitive character and uses different instructional methods, applies Mock trial in her "human Rights, Citizenship and Democracy" course at fourth grade. With 20 years of total professional experience and she has been using Mock trial in her lessons for 8 years. A total of 20 fourth grade students attending her class participated in the study after their parents' consent was granted. Since the participating students started the primary school at their 5.5, they were 9 to 9.5 years old when the study was conducted. Participants were generally born and grown up in the same city. Students' mothers were generally elementary school graduates and unemployed. Their fathers were generally high school graduates and work as tradesman or worker.

Data Collection and Analysis

In this study, the data were collected through participant observations during classes and semi-structured interviews with the teacher and her students. Thus, triangulation was achieved in terms of both data and participants. The Mock trial processes conducted by the teacher was observed by the resarchers during her Human Rights, Citizenship and Democracy classes. The researchers collected the data accompanied with field notes as participant observers. Observations lasted about 6 months. Observations took a total of 24 lessons, with one hour each week at Human Rights, Citizenship and Democracy lesson. Following every Mock trial, individual interviews were conducted with each of the 20 students to get their general views about Mock trial sessions, which lasted about 15-20 minutes. After each trial, students

were asked about the roles they acted during Mock trial process, and after the implementation of Mock trials they were asked about their opinions on Mock trial as a method in general. The teacher was interviewed twice, first at the beginning of the observation and second after the analysis of the data collected through classroom observations and student interviews. During the first interview, the teacher was asked general questions about the purpose, reasons, and procedure of using Mock trial in her classes. After the trials ended, the data obtained from student interviews, classroom observations and initial interview with the teacher were analyzed and second interview with the teacher was conducted. During the second interview, the teacher was asked questions about why the trials were conducted, how the students were chosen and the problems faced regarding each Mock trial.

In this design, the data analysis focuses on interpretation of meanings and makes an effort to grasp the richness and complicatedness of the case. Research report is driven by the experiences and stories (Mills, Durepos & Wiebe, 2010). In this study, the data were analyzed using inductive thematic analysis approach via MAXQDA qualitative data analysis program. Data collected through observation and interview were comparatively analyzed focusing on experiences and meanings.

Trustworthiness and Ethical Issues

Trustworthiness in qualitative research can be enhanced through participant checks, participant consent, triangulation and peer examination (Merriam, 2013). In the present research triangulation was achieved collecting data through both observation and interviews with students and the teacher. Thus, the observation and interview data together with teacher-student statements were compared providing the opportunity to collect rich and detailed data. In this way, the agreeing or disagreeing aspects of the data could be revealed. In qualitative analysis, expert opinions are sought to ensure that data are interpreted truly (Glesne, 2014). During the analysis of this research, two experts were consulted for their examination of the analysis. Another method to enhance the trustworthiness is to examine the consistency between the analyst's interpretations of the participants' statements and participants' opinions, i.e. participant checks (Lincoln & Guba 1985). Following the analysis of the data the teacher was negotiated about the accuracy of the meanings extracted from the data. Additionally, we granted the participants' written and verbal consent to take part in the research. Moreover, students' parents were asked for their consent and only those students with parental permission were involved in the study. All participants were given nicknames during all phases of the research, and confidentiality of personal information about the school, class, the teacher and the students were preserved.

Results

Mock Trial Procedure

The goal of trials. Teacher Sevgi explained how she spontaneously began running trials in her class: "One of my students told me. I link the content I teach to real life. I said them they would be put on trial if they committed that crime. One of my students offered: *'Let's do then teacher! Let's set a court. I will be lawyer". This is how the idea came out."* It is understood that with the practice of Mock trial teacher Sevgi intended to involve the students while solving students' behavioral problems in the classroom, to enable them solve their own problems, to develop their self-control skills and thus to minimize the undesired behaviors in the classroom: *"When they see their faults on their own with the testimony, they realize the issue better and learn more effectively. When I make the decisions, they have to abide with the decision. However, they mistakenly believe that a higher authority gave an unnecessarily…But through it [Mock trial] they are better convinced."*

It seems that Mock trials were run mostly based on an example scenario made up by the teacher. When asked her opinion about using the actual classroom problems in trials instead of fictitious scenarios, teacher Sevgi asserted that fictitious problems would be less effective explaining as follows: *"I myself might have given a topic. However, the problems are solved more sustainably when I do it in this way... What can it ever work for us if we solve in the classroom a problem which do not even experience? Yes, they could learn the trial procedure, however they would not embrace the point since the topic is irrelevant, and the injustice they suffer could not be revealed."*

Timing. Teacher Sevgi stated that as the learners' level of maturity increases, she uses the method more effectively. Teacher Sevgi states that she expects the method to improve inquiry skills and certain moral and democratic values such as respect, affection, trust and empathy among learners. She further explains that she makes an effort to develop these skills and values during the first three years of primary school and begins to use the method by the fourth class: *"I use trials only after things are established and students know about me. I used the method after they knew, believe, and trust me and their classmates..."* Another aspect of timing that teacher Sevgi considers is the "frequency of trials". Mock trials were run in the classroom once every 45-60 days. Sevgi ran four Mock trials during the 6 months of study. As she explains below, she runs the trials not so frequently, because otherwise the impact of decisions taken in the trials may fade away, it may be at the center of students' lives or they may feel fed up with the trials: *"I'm in favor of running it rarely. I don't want it to be the focal point their lives… In order to prevent such concerns, I try to run trials duly and when very important events happen."* It was observed that Sevgi runs the trials generally in the last classes and during the last 15-20 minutes. Sevgi explained that the reason for running the trials towards the end of the lessons was to prevent the decisions given during the trials and the statements of the students who took roles from affecting negatively the other students and the friendship between students*: "When I run it during the last 20 minutes, they can't reflect it to the class. The next day they forget it".*

Introduction to the trial. At the beginning of the trial, the subject of the trial emerges and it is determined after being discussed by the class. Since the problem incidents occur during the break time, they are submitted to the court generally after the students tell the teacher about the problem and sometimes through teacher's observations in and out of the class. The teacher and students decide together the issue to be handled in the trial. Trials are generally run on common problems that concern all students, but individual problems are not handled in the court. Trials are run especially in the case of violent acts such as hitting the friends, giving harm to the classroom equipment (e.g. class register or the lamp etc.), misbehaving the peers (using bad language, mocking or excluding from the game etc.) and acting against the classroom rules (using the IWB without permission, playing with a ball in the corridor or classroom).

Rules of the trials. Teacher Sevgi set some rules with the students in order to run the trials effectively and to prevent possible negative attitudes. It is understood that she set these rules as a precaution not to affect the relationship between students negatively. These rules are as follows: listening to his/her friends respectfully during the trials, learning and applying precisely the decision of the court, deciding the subject of the trial together, being honest during the court, telling the events as they are, respecting the decision made by the judge, giving responsibilities especially about education at the end of the trial, performing the responsibility taken, caring about not to resend others, solving the problems with affection, respect and cooperation, and not ridiculing any issue after the trial. When any of them is breached the teacher reminds the students of the rules during and after the trial.

Running the trial. After the teacher decides with the students to run a trial, the trial procedure begins, which includes these steps: first, the teacher associates the problem with the topics of the course (democracy and human rights); second, the students are cast their roles; third, the classroom is set into the court arrangement; finally, the trial is held and the court decision is announced. In this study, a total of four trials were run about the issues of "Throwing chalks", "Running in the Classroom", "Excluding a Friend off a Game", and "Soaking the Class Register".

The teacher associates the issue with the lesson content sometimes before the trial and sometimes after the trial. Teacher Sevgi stated that while using the Mock trial she associates the trials with the topics of 3rd grade *World Knowledge* course such as "Abiding the rules of collective life and performing the responsibilities", "Getting on well with people around" "Being in solidarity and cooperation", "Felling affection and respect to people", "Abiding the class rules", "Using the school equipment carefully", and with the concepts in the 4th grade *Social Studies* and *Human Rights, Citizenship and Democracy* courses such as right, justice, laws, equality, human rights and freedoms.

After the teacher associates the subject of the trial with lesson, she casts the roles to the students. She generally runs the Mock trials with 6-10 students. While the roles of judge, prosecutor, lawyer and defendant are played by only one student, there are two witnesses in some trials and four in others. However, it was observed that those students who do not have any roles in Mock trials generally do not watch the trial and

they get occupied with something else. For these students who do not take part in Mock trials, teacher Sevgi states that "*They somehow react for not being selected. They feel offended since the teacher hasn't chosen them. They get bored and, thus, they try disrupting the class.*" Teacher Sevgi believes that she can solve this problem by selecting the students for the trial by turns. Moreover, she selects the students from voluntary students, whom she only declares the roles. It was observed that students are generally willing to take part in Mock trial, and they are especially more willing while teacher selects the judge. Teacher Sevgi explains below how she selects the students by matching their personal traits and the roles, the context of the incident to be handled in the trial (whether the students stay in or out of the event) and the situation:

> *I choose the witnesses from among the students who directly saw the event, can really tell the truth, won't falsify the event, can tell what she/he actually saw. I try to select an objective kid as the lawyer... As for the prosecutor role, I try to select a kid who can tell the truth and represent strong opposition. As for the judge role, I generally try to select a kid who is wise... relatively reasonable, and impartial.*

After roles are cast, the classroom is arranged for the Mock trial. The trial is run in the small space between the IWB and desks in the classroom with a capacity of 30 students. While the Mock trial is run, students stand next to each other in front of the board generally facing their friends. The teacher does not make any special arrangement for the court and students act out their roles with their routine school uniforms. Teacher Sevgi explains below why she does not arrange the classroom so as to simulate a real court: "*I was concerned that students could have been nervous if I had asked them to wear special costumes looking more serious? Thus, I preferred it to happen in a more improvised way, solving such small problems among us. I arranged the students in a circle. I wanted them to be equal in rank.*"

The student who acts out the judge in the Mock trial listens to the other students who play the roles of defender, offender, witnesses, lawyer, and prosecutor first, then makes a decision and declares it. Since there is no jury in Turkish courts, only the student in judge role makes a decision. When making decisions, students abide by the decisions and instructions designated by the teacher before. Some of the decisions made by the students included physical sanctions such as squatting, standing up for a while, imitating animals; educational sanctions such as not participating the physical education and sports lesson, reading books, doing extra tests, doing calculation homework; artistic sanctions such as bringing flowers to the class, singing, writing a poem; or other preventive sanctions like writing 'I apologize' or 'I will not do it again'. Teacher Sevgi does not intervene in the court's decision-making process and just makes sure that court decisions impose sanctions that will be beneficial for the students. Teacher Sevgi believes that what matters is not the sanctions imposed by the court, but to have the students notice their misbehaviors and not to repeat again. Thus, teacher Sevgi said that the sanctions given by the court are "Symbolic" and continued "*The important point is to judge the student in this process, i.e. to get aware of the misdeed. The decision is not very important*".

After the trial. After the Mock trial, the teacher does not make any evaluation or comment about the trial procedure, but just follows the changes in students' post-trial attitudes and behaviors. The effect of the court decisions on students' behaviors varies from student to student. Although most students do not repeat the same misdeed, a few of them continue to display the same negative attitude or behaviors. For example, Ceren admits that she hesitates to do acts that end up with certain sanctions in the Mock trials, saying "*I mean 'I say… if I do the same I am going to have the same sanction… so I shouldn't behave in that way but should behave in this way.*" Teacher Sevgi explained that the court decisions are really effective on students except for a few kids who are generally neglected in families and are especially diagnosed with attention deficit disorder and hyperactivity. On the other hand, students stated that the courts are not effective since the sanctions are not very deterrent, the same decisions are made, sanctions are applied at home, the punishments are not controlled, the sanctions are not imposed, not enough punishment is applied and it is not known who executes the sanction. One of the students, Ceren, indicated that the imposed sanctions are easy by saying "*If it [the punishment] is easy, one does it in five or ten minutes.*" Additionally, Seda, another student, asked the sanctions to be more effective saying "*They should be given unforgettable punishment*". Teacher Sevgi explains how the court decisions do not affect their friendship negatively based on their developmental characteristics as follows: "*Students generally leave the event behind... They take it like entertainment. I haven't seen them feel unhappy because they are punished. The student who is punished easily gets used to the situation. Since their friends make the punishment decision, it doesn't matter so much.*"

Learning Outcomes

After the application of the court, the students raised awareness about the problems in their neighborhood and made efforts to solve these problems. Teacher Sevgi explained below how she observed that their students behaved differently from the students in other classes and that they were more attentive towards their neighborhood: "*[Other] Children act very unconsciously... However, neither the child who is disturbed nor the one who is disturbed is aware. Mine [my students] are quite aware of it. They can immediately notice both the disturbing and disturbed person*". Selecting the issues to be handled in the court from among the actual conflicts among students ensured that students can find solutions to these conflicting situations in the court on their own and negotiate. Teacher Sevgi explains below how students became aware of their wrong attitudes and understand that conflicts are unnecessary:

> *There was a problem about excluding a student from a game... Students understood that they should solve the problem using other ways but excluding their friends from the game. They have heard from their own friends that it was not fair to exclude from the game the kid defended by their friend playing the lawyer... As a result, when they had problems with a friend during a physical education class, they preferred to negotiate with him instead of taking him out of the game.*

During the trials, students actively involved in the processes such as listening to the claims, defending, responding to questions, defending decisions, appealing, and they used their listening and speaking skills. Thanks to the interaction and

empathizing among students and collective decision-making during the course of trials, any prejudices among students against each other can be removed. Teacher Sevgi said that "*diminishing the conflict environment among students improves their positive communication skills such as listening to each other, understanding, finding solutions, and building empathy… The students who did not communicate with a student called "…." began to communicate and get on well with him*" and stated that after the court students began to use daily communication such as 'Good morning!', 'Thank you!', 'I apologize!', 'Have a nice day!', and 'Get well soon!' more. Involving students especially with low self-confidence in the court has strengthened their sense of self-worth and encouraged them to become active in society. Teacher Sevgi explained this situation by saying "*When they make a decision in the court, they feel that they are valuable. Because they have the authority and they are grad to be decision makers. This feeling affects them very much … I have observed that for the students who suffered problems and victimized to be listened and considered by everyone in the court gives them a feeling of worthiness.*" To illustrate the situation, she also gave the example of a student: "For example, just as Taha felt very worthless when he was excluded from the game, so he felt himself so valuable when he was found right at the end of the trial. Her point is supported by some students, who say such sentences as "*I feel very important when the court is run and I take part in it.*" As the students' self-confidence was enhanced, their ability to speak more courageously and defend themselves also improved. For example, Ceren mentioned about how she gained self-confidence saying "*For example, I used to be shy doing something in front of many people. But now I am used to, because I always act in the court. I am not shy anymore.*" Teacher Sevgi also emphasized that in addition to gaining self-confidence; especially those students who play the judge role improved their leadership skills.

Students learned to respect not only the different characteristics of their friends but also different opinions and rights in the court. For example, when one of their friends objected to a court decision, they listened without interrupting their friend's opinions and did not response disrespectfully. Teacher Sevgi explained this situation saying "*They have heard from their own friends that it was not fair to exclude from the game the kid defended by their friend playing the lawyer... In this way they learn to be more respectful to each other.*" During the court procedure, the students tried to understand the feelings of their victimized friends especially by putting themselves in their shoes. It was observed that when the defendant is given a non-proportional punishment, some students reduce the punishment empathizing with their friend and warn their non-empathic friends. Teacher Sevgi explained how her students try to understand and empathize with each other in the court saying "*For example, I have seen that while listening to their friend who was excluded from the game, both the students watching the court and those acting in the court empathized with him and expressed that they understood his feelings… I've seen that they did not repeat the same behavior again after they listened to what the victim experienced and how he felt.*"

While solving a class problem, students used their decision-making and critical thinking skills. In the court, while the student in the prosecutor role explains why it is a wrong behavior, the lawyer thinks about how to defend the defendant and the student in the judge role comes to a decision. Besides, the students are encouraged to

think critically while perceiving and explaining why a certain behavior is faulty before the court, and while discussing the problematic behavior and its consequences during the court.

Running the trial directly about their own misdeeds improved students' sense of responsibility towards their social neighborhood. For the students to think on the example scenario and to see its consequences was effective in preventing them from displaying the same wrong behavior again, and this developed their self-control. At the same time, students warned their friends about the misdeeds they observed. Since some of the issues handled in courts were related with the classroom rules, students' observance of the rules improved as they could better understand the classroom rules. Teacher Sevgi explained below how courts improved students' self-control skills:

In this way, a gentle warning system is developed among students when a student displays a wrong behavior. They can observe that people can be guilty but they can regret the misdeed. They prefer not to do it again. I've understood that after they understand their positive and negative aspects better, they do not repeat the same faulty behavior. Their experiences through courts led them behave responsively to their neighborhood, class, friends, school officials, teachers, families.

During the practice of Mock trials, students mostly used the fundamental concepts of "right, justice and punishment". Then, they started to use them in their daily lives. Teacher Sevgi that the sense of right and justice in their students is more developed than their peers. She also defined how her students learned the operation of a court and the duties and responsibilities of the individuals in a court:

As my students learned, comprehended and used the concept of right, they began to respect each other… Besides, they learned justice and to be fair. This [procedure] enabled them to learn to be fair and just. They comprehended meanings of the terms judges, prosecutors, lawyers, witnesses and applied their duties. I observed that they used these words more frequently after the court.

Students' Attitudes

It was observed that students displayed both positive and negative attitudes towards Mock trial process. Whenever it is negotiated to run a Mock trial, most students jump to their feet and cheerfully shout "hurray!" and so. And sometimes they offer the teacher to run a Mock trial. Students expressed that the practice of Mock trial had positive effects in terms of solving the problems in cooperation, learning lessons from the misdeeds, having fun, choosing a profession, punishing the guilty people, securing the justice, being an example to friends and not repeating the misdeeds. One of the students, Ayla, said that "*I think court is a correct option. This is because some children feel themselves worse when they do something wrong and prefer not to do it again.*" Ceren also expressed that she is glad about running trials by saying "*The court secures both justice and equality. I think it is fine.*" Most students just have fun assuming that the trial procedure is just a game. Indeed, teacher Sevgi expressed that they handle a classroom problem and they solve this problem through Mock trial in a funny way. Teacher Sevgi emphasized that "*although it is also possible to solve a problem more*

stressfully in the classroom, they manage to solve it in a funny way through drama method" and continued: "*Students solve classroom problems in cooperation on a democratic platform with affection and respect through a trial. On a favorable platform of debate, they examine an event from its good and bad aspects. The activity turns into a very enjoyable one for them.*"

A few students told that they were not pleased with the court as they didn't like their friends to be punished. Some students also seem to feel sad and worried depending on the role they are cast in the court. In addition to this, the students who play the role of the defendant in court and the students who play the role of witness and prosecutor feel uneasy. While the students playing the role of the defendant are concerned to be punished, the students in the witness role are concerned about the possibility of breaking up their relations with the students playing the defendant role. Serhat, who played the role of defendant in the court about 'chalk throwing" and the role of witness in the court about 'running in the classroom", said that he felt very different in both roles. When they are in the roles of witnesses or lawyers in the court, students were generally uneasy about how their friends will think about them. However, teacher Sevgi explained that the anxiety and sadness students feel during the court is slight and temporary since the court is a fiction, saying "*Students slightly get nervous, but they are not afraid a lot. So far, no student has refused to take part or being judged in the court.*" Beren indicated that the court they run in the class is not realistic, saying "*It is not a big deal if one gets a harsh punishment. It is because we are not actually doing something real. We are not in a real court or so*".

Teacher' Role

While implementing this method, the roles of the teacher changes depending on the phase of the trial: before, during and after the court. Before the court, teacher is supposed to prepare the students cognitively and emotionally, to establish a democratic classroom environment, to set the rules to be followed during the court, and to determine the time and subject of the court. Before the court, the teacher tries to teach the students such values as affection, respect, trust, and to teach them how to question intellectually. The teacher sets the rules during the first courts and makes sure that these rules are applied during and after the court process. Moreover, the issues to be handled in the court are negotiated with the students and they included the common problems of the students in the school.

It was observed that while the trial was run, the teacher associated the subject of the trial to the course, intervened in the student selection in accordance with the roles in the trial, and guided the students in decision-making process, and reminded them about their roles. During the decision-making process in the court, teacher Sevgi guided the students in cases of reducing the punishment and running the trial. She explained her intervention into the decision-making process of the court saying "*Some students don't want to do [the sanction]. I reduce the punishment to their level or they can't think. They sometimes impose very harsh punishments like 'squatting one hundred times' or 'not going out for the break one hundred times.'*" It was observed that teacher Sevgi intervened into the court decisions and changed the sanctions at the least. For example, in the trial about excluding a student from the game, Taha, a student who took refuge

from Iraq due to war and has just been learning Turkish, was first imposed the 'squatting' punishment. However, the teacher changed Taha's punishment from squatting to singing. When Taha did not sing, the teacher asked him to imitate three animals. In addition to these, as a guide, teacher Sevgi reminded the students of their roles. When students forgot their roles as a result of excitement during the trial, the teacher told them what to do in their roles. Sometimes she prompted students' words when they forgot what to say and got stuck. Teacher Sevgi states that she does not intervene the court too much saying "*While casting the roles, the kid assigned as the lawyer suddenly gets excited. He doesn't know what to say. I tell him that he will defend his friend. I remind their roles*". After the court, teacher Sevgi does not score or assess students' performances, but just observes the students' attitudes and behaviors after the trial. While observing the students' attitudes and behaviors, she does not take any notes, but just find out the repeated misbehaviors.

Problems Encountered

Problems caused by the students. When a Mock trial is run in the classroom, some students cause problems such as feeling anxious or resentful, getting offended, reflecting personal problems, trying to draw attention, resistance to abide with the court decision, and repeating unwanted behavior, which causes problems on the part of the teacher. It was noticed that especially certain students try to attract attention in different ways or to repeat the unwanted behavior. Teacher Sevgi explained this situation as follows: "*A student threw a piece of chalk into his friend's eye. We judged him in the court. The next lesson, to my surprise, Akif tied an eraser with a lace and he was swinging it in his hand. So, he wanted to do the same thing. He wanted to attract attention*". In order to prevent these problems caused from students, the teacher makes sure that personal problems are not handled in the court, students with personal problems are not given roles in the same court, she takes the relations between the students into consideration, she does not bring together the conflicting students, and she does not give them any roles that can put them into a new conflict. Teacher Sevgi further explained this situation as follows: "*For example, let's say there is a kid whom nobody loves. I try not to give a role to him with a completely opposite student whom he doesn't like. I pay attention. I try to select a judge, closer to him, who can understand him or have no involvement in the relevant event.*" Additionally, the teacher said that she usually runs the Mock trials in the last lessons and even in the last minutes of these lessons in order not to prolong the activity.

Problems related to learning environment. One of the problems the teacher Sevgi experienced while running the Mock trials is the small size of the classroom. There are 30 students in the classroom and students cannot move around easily during the court. Especially the teacher, who experience difficulty during role-play activities in the classroom, also face the same problem of inadequate physical space during the practice of Mock trial. This situation makes it difficult for students to effectively watch and participate in the trials. Teacher Sevgi emphasized the inadequacy of physical setting saying "*I struggle to run the trials with the limited conditions of the classroom*".

Problems related to teaching process. The teacher stated that the using Mock trials in her class does not yield great benefits, on the contrary it imposed additional burden on her. She expressed the problems she faces during the teaching process as follows: *"It takes time. I make a little more effort."* Teacher Sevgi stated that the practice of Mock trial does not make any good to her, on the contrary, the students acting in the court or watching the trial either speak loudly or wander around while the trial is run in the classroom, which causes excessive noise. This problem was also observed by the researchers during the study.

Problems caused from external agents. The teacher stated that she feels nervous, although she has not received any negative reaction from the school management, other teachers or the parents regarding the Mock trial. Teacher Sevgi explained her concerns regarding the parents as follows: *"From the parents' perspective, I don't know what the parents would think when they heard about it. When the child tells at home about setting a court, how would the parents take it… a question mark appears in side my head..."* Besides, teacher Sevgi pointed out that school management adopted a traditional teaching approach and teachers are expected to lecture and do test-based exercises.

Teacher Sevgi explained her views about the school management as follows: *"Well, if the management hears… generally there is no extra-curricular activities. Teachers generally work on the coursebooks. They always do the same things. The subject is taught and then the tests are done. When you do something different, you inform the management".* Teacher Sevgi also told that she informed her colleagues about the Mock trial and her experiences; however, she could not get enough support from them. Teacher Sevgi explained that her colleagues had difficulty understanding this method, they thought she used the trials for professional orientation and it worked only for professional orientation: *"I mentioned a few times about the method, but they couldn't understand. They said 'Then, most students in your class will become judges and prosecutors in the future'. They supposed that I used the method for professional orientation. In fact, I use it to solve the students' problems. They couldn't understand..."*

Discussion, Conclusion and Recommendations

Some of the results of this research differ from the Mock trial studies which handle fictional issues. Handling authentic problems from students' real lives instead of fictional ones brings about some advantages and disadvantages. It is emphasized in the relevant literature that, in trials about a fictive problem, learners develop such competences as conflict resolution, problem solving, decision-making, critical thinking, empathy, social responsibility, communication, effective listening and speaking, self-confidence, and cooperation, and they learn the basic concepts and functioning of the law system (Ambrosio, 2006; Cassidy & Yates, 2005; Smagorinsky, 1994). In the present study, it has been seen that students gained, in addition to the ones mentioned above, different competencies such as self-control, solving one's own problems and conflicts, being sensitive to one's problems, reflecting into one's live, responsibility, self-esteem and complying with class rules. First of all, for the students to have a say in the solution of the problem thanks to the Mock trials run in their classes

caused them to feel valuable and develop self-esteem. The fact that students tried to solve their own problems in court helped them to understand better and be able to solve their own problems and conflicts afterwards.

The students preferred to solve the problems on their own rather than having the teacher and the disciplinary board of the school decide about them. For students to solve classroom problems and their own conflicts was much more effective in encouraging them to think more about the issue and to embrace the basic moral values by reflecting them on their lives. Allowing the students to experience and contemplate on the event discussed in Mock trial in the classroom has developed students' self-control to avoid doing the wrong behavior again and ensured that the students become more aware of the problems in their neighborhood and warn their friends in order to prevent or solve the possible problems. Besides, students have transferred what they have learned into their real life. For example, after the trial on the exclusion of a kid from the game, a similar problem has not been experienced anymore. While this situation served in the long-run to encourage the adoption and implementation of class rules among students, it also made positive contributions to classroom management.

In the present study, students had more difficulty while working on their own problems compared to talking and discussing a fictional event. Some students felt nervous or sad with their emotions changing according to their roles. These findings are comparable to the results of Mock trial studies which handled real life situations. Especially if it involves conflicts, a realistic situation causes the participants to work with strong emotions in the court and seems to be more difficult than working on a fictive situation. Realistic situations also lead the participants to internalize their roles (Asal & Blake, 2006). Moreover, when you work on a realistic issue in a court, kids can be more sensitive with issues especially about human right violations. Some students may approach to the defendant or the victim more emotionally, and they can evaluate the subject of the court subjectively. This can prevent the students from acting objectively during the trial process, while it also increases the student participation and shed light to their lives (Ambrosio, 2006). In the present study, in order to prevent the negative effects of using a real situation in the court on the students, the teacher took some precautions such as pre-trial development of a democratic classroom culture based on respect and trust, running the trials towards the end of the lessons, setting rules before the trials in order not to affect the students' relations negatively before the trial, taking into consideration the friendship while casting roles, imposing symbolical sanctions, running the court with a drama-based approach, avoiding a formal procedure in terms of physical settings and costumes.

In this study, the court procedures about classroom problems were carried out differently from the Mock trial process. During the preparation period of the trials run about fictional issues, the fictive event to be handled in the trial should be designated, the purpose of the court should be declared, court setting and the costumes should be prepared, the students to take roles in the court should be selected, the students should get prepared; then the court should be run realistically, and an evaluation should be done after the trial (Cassidy & Yates, 2005). In this study, since the subject of the court

were selected from classroom problems, the process started with the distribution of the students' roles and rehearsal of the roles in cooperation. The teacher offered the students to solve a problem about which students complained through a trial in the classroom, then the roles were cast immediately in the classroom and the issue was discussed in the court. No sitting arrangement or costume changing was done. The trial process was carried out mostly in the form of role playing.

In the courts run with a restricted number of students, only a few victims, defendants, witnesses, prosecutors, judges and lawyers took place. No cross-examination or jury decision was involved in the trial process, which started with the speech of the defendant followed by the other participants' talk and finished with the decision of the judge. The trial was run based on the operation of the court system in Turkey. Since there is no jury in Turkish courts, the teacher also did not play the role of a jury. At the end of the court, there was no evaluation on the students' performance during the court, but only an observation was made so as to see whether the students were displaying the wrong behaviors again. It was observed that the court process was generally structured in a simplified form mostly in accordance with the developmental level of the students.

While the teacher implements the trial method, some students displayed negative behaviors such as reflecting their personal problems into the trial process, feeling nervous to decide about their friends, feeling offended for not taking part in the court, causing problems to be handled in the court just to attract attention, reluctance to comply with the court decision, repeating the unfavorable behaviors. In response to these, the teacher took some precautions such as giving roles to impartial students, avoiding handling the personal problems in the trials, making sure that the judge gives punishment according to the person. Moreover, the teacher had some difficulty due to the lack of adequate space in the classroom and pressure of time limit to complete the course content. It was indicated in the relevant literature that this method requires extended time and teachers face problems with timing (Ahmadov, 2011). In addition to this, the teacher thinks that this method has not been understood duly by her colleagues, school management and parents since in the traditional education system teachers are expected to lecture their lesson quite typically and do some test-based exercises.

As a result, the Mock trial process used by the teacher to solve the classroom problems achieved its goals and the students solved the problems themselves in court. Based on the findings of the present study and the experiences of the teacher studied here, the following precautions can be recommended for the practitioners who are to apply Mock trial with realistic classroom problems: First, common problems from students' real lives can be handled in the trial. Before the court, teacher should negotiate the rules to be applied during and after the trial to avoid the possibility of breaking relationships among students, and a democratic classroom culture should be established based on respect, love and trust. There is almost no research study on Mock trial in Turkey. This method is not exclusive to law education, but it can also be used in the education of various fields such as democracy and human rights, citizenship,

controversial issues, Turkish and foreign languages. The need for experimental and qualitative studies which will employ Mock trial method in these fields is obvious.

Limitations

Although it was initially planned to collect data with a video camera during observations, we failed to do so since some of the parents did not allow video recording. The data was collected with field notes during the observation process. In a similar vein, since some parents did not allow us to interview their children, these students did not take part in the trial process and interviews. This caused the teacher to restrict her practice of the method in the class to some extent. In addition, the observation process was limited to only Human Rights, Citizenship, and Democracy course. Therefore, the emergence of the incident handled in the court before the trial and the behavioral changes among students after the trial could not be observed. The data analyzed in this study is limited to the opinions of students and their teacher.

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Sınıf Sorunlarının Çözümünde Alternatif Bir Yöntem Olarak Kurgusal Mahkeme

Atıf:

Özet

Problem Durumu: Kurgusal mahkeme (Mock trial), vatandaşlık eğitiminde sınıf içi ve ders dışı etkinlik olarak yaygınlıkla kullanılmaktadır. Kurgusal mahkeme vatandaşlık eğitiminde kullanılan tdeneyimleyerek öğrenmeye dayanan bir benzetim tekniğidir. Kurgusal mahkeme, gerçek mahkeme salonu şeklinde düzenlenen bir sınıfta, öğrencilerin hakim, avukat, şahit, yargıç gibi roller alarak bir konu hakkında gerçek ortama ilişkin benzetim yapması olarak tanımlanmaktadır. Kurgusal mahkeme ile öğrenciler, mahkeme sisteminin nasıl çalıştığını öğrenmekte, adalet, tarafsızlık, zaman aşımı, ifade hakkı, kanıtların önemi, birinin suçu işlediği kanıtlanıncaya kadar suçsuz olduğu gibi yasal ve demokratik ilkelerin önemini anlar, anayasanın felsefi ve tarihsel temellerini öğrenerek geçmiş ve bugün bağlamında güncel uygulamaları düşünüp tartışır. Öğrencilerin vatandaşlıkla ilgili konulara duyarlığını ve katılımını artıran, öğrencilerde çatışma çözme, problem çözme, karar verme, eleştirel düşünme, iletişim, işbirliği ve empati gibi becerileri ve adalet ve sosyal sorumluluk gibi duyguları geliştiren bir öğretim yöntemidir. Eğitimde kurgusal mahkeme önce hukuk eğitimiyle başlamış daha sonra sosyal bilgiler, tarih, fen eğitimi, diğer disiplinlerarası alanlarda ve öğretmen eğitiminde kullanılmıştır. Kurgusal mahkemeler genellikle bir kurgusal olay üzerine yapılır. Öğretmen bir kurgusal olay oluşturur, öğrencilere görevlerini dağıtır, mahkeme sürecine hazırlanmaları için rehberlik eder, mahkeme sürecini kontrol eder ve değerlendirme yapar. Mahkemede gerçek durumlardan ve kurgusal olaylardan yararlanılır. Bu yöntemde genellikle kurgusal olaylar kullanıldığı görülmektedir. Alanyazında doğrudan sınıf ve okul sorunları üzerine kurgusal mahkeme uygulanan bir çalışmaya rastlanmamıştır. Bu çalışmada doğrudan sınıf

sorunları üzerine mahkeme yöntemi uygulandığında, bu yöntemin nasıl ele alınması gerektiği bir örnek durum üzerinden tartışılmıştır.

Araştırmanın Amacı: Bu çalışma, Türkiye'de bir öğretmenin, sınıfında karşılaşılan sorunların çözümü için uyguladığı mahkeme yöntemini değerlendirmeyi amaçlamaktadır. Bu araştırmada kurgusal mahkeme yönteminin sınıf sorunlarının çözümünde nasıl uygulandığı, öğretmenin rolünün, öğrenci kazanımlarının, öğrenci tutumlarının ve yaşanan sorunların neler olduğu anlaşılmaya çalışılmıştır.

Araştırmanın Yöntemi: Bu araştırma, kurgusal mahkemelerin sınıf sorunlarının çözümünde kullanılmasını içeren özgün/asıl bir durumun (intrinsic case study) çalışmasıdır. Bu çalışmada, özgün ve farklı bir durumun incelenmesini temel aldığı için özgün durum çalışması deseni kullanılmıştır. Araştırma Türkiye'de bir il merkezinde, 800 öğrenci kapasitesine sahip, yarım gün eğitim veren ve sosyo-ekonomik düzeyi orta sayılabilecek ailelerin çocuklarının öğrenim gördüğü bir devlet okuludur. Araştırmaya bu okulda görev yapan yirmi yıllık bir öğretmen ile bu öğretmenin sınıfında öğrenim gören 20 dördüncü sınıf öğrencisi katılmıştır. Bu araştırmada, veriler sınıf ortamında yapılan katılımcı gözlemler, öğretmen ve öğrencilerle yapılan yarı-yapılandırılmış görüşmeler yoluyla toplanmıştır. Araştırmada 6 ay katılımcı gözlem yapılmış, her mahkeme sonrasında mahkemeye katılan öğrenciler ile araştırma başında ve sonunda öğretmenle görüşmeler yapılmıştır. Araştırma verileri, MAXQDA veri analizi programında tümevarımsal analiz yaklaşımı ile temalandırılarak analiz edilmiştir. Gözlem ve görüşme verileri karşılaştırılarak analiz edilmiş, deneyimler ve anlamlar üzerine odaklanılmıştır.

Araştırmanın Bulguları: Mahkeme süreci sınıfta bir-iki ay ara ile derslerin son 15 dakikasında gerçekleştirilmektedir. Kurgusal mahkeme, kısa bir zaman içerisinde, sınırlı sayıda öğrenci ile gerçekleştirilmiş ve sınıf ortamının tam bir mahkeme şeklinde düzenlenmemiştir. Bu nedenle, benzetimden daha çok drama şeklinde uygulandığı görülmektedir. Mahkemede ele alınacak olayı öğrenciler ve öğretmenler birlikte konuşarak karar veriyorlar. Mahkeme konuları daha çok sınıf kurallarının çiğnenmesi gibi sınıf eşyalarının zarar görmesi gibi öğrencilerin ortak sorunları üzerine yapılıyor. Öğrenciler mahkemede aldıkları rolleri uygulayarak sınıf sorununu çözüyorlar. Mahkemede uyulacak kurallar öğrenci ve öğretmenler tarafından birlikte mahkeme öncesinde belirlenmiş. Öğretmen mahkemede öğrencilerin görev dağılımı, kısmen de mahkeme kararının verilmesi konusunda ihtiyaç olduğunda müdahalede bulunuyor. Öğrencilerde eleştirel düşünme, karar verme, sorumluluk, iletişim, empati, sorun çözme, öz kontrol, empati, katılım ve iletişim becerileri gelişiyor. Hak ve adalet kavramları ile adalet sisteminin işleyişi konusun da bilgi ediniyorlar. Öğretmen mahkeme sonrasında herhangi bir değerlendirme yapmıyor sadece öğrencilerin tutum ve davranışlarında yaşanan değişimleri gözlemliyor. Öğrenciler genellikle sınıf sorunlarını bu biçimde çözmekten memnunlar. Öğretmen bu yöntem ile öğrencilerde davranış sorunlarının azaldığını belirtiyor. Öğretmen bu yöntemi uygularken, eğitim sisteminin işleyişinden, öğrencilerden ve çevreden kaynaklanan kimi sorunlarla karşılaşıyor.

Araştırma Sonuçları ve Öneriler: Bu çalışmada sınıf sorunlarının çözümünde kurgusal mahkeme yönteminden yararlanılabileceği görülmüştür. Sınıf sorunlara ilişkin mahkeme uygulanacağında öncelikle öğrencilerin ortak yaşamından sorunlar mahkemede ele alınabilir. Mahkeme öncesinde, mahkemede ve sonrasında uyulacak ilkeler belirlenmeli, demokratik, saygı, sevgi ve güven içeren bir sınıf kültürü oluşturulmalıdır. Türkiye'de kurgusal mahkeme üzerine çok az çalışma yapılmıştır. Bu yöntem sadece hukuk eğitimi değil, demokrasi ve insan hakları eğitimi, vatandaşlık eğitimi, tartışmalı konuların eğitimi, Türkçe ve yabancı dil eğitimi gibi birçok alanda kullanılabilir. Bu alanlarda mock trial yönteminin kullanılarak yapılacak deneysel ve nitel çalışmalara çalışmalara gereksinim olduğu açıktır.

Anahtar Kelimeler: Kurgusal mahkeme, insan hakları, sosyal bilgiler, vatandaşlık eğitimi.

Career Indecision and Career Anxiety in High School Students: An Investigation through Structural Equation Modelling

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A R T I C L E I N F O	A B S T R A C T
	Purpose: The purpose of this study is to investigate the relationship between career indecision and career anxiety (career anxiety in terms of the effect of family and choice of profession) in high school students through structural equation modeling (SEM). **Research Methods:** The method used in the study is the relational model. The study group consisted of 444 students studying at 11th and 12th-grades. Research data was collected using The Scale for Career Anxiety and Career Decision Inventory. **Findings:** According to the model established, it was concluded that career indecision had an important effect on career anxiety in terms of family effect and choice of profession. In other words, for high school

students, as scores related to career indecision increased, their scores related to career anxiety they experienced in terms of family effect and choice of profession also increased.
Implications for Research and Practice: In order to decrease career anxiety that high school students experience during the career decision process, it is suggested to determine reasons for career indecision, and to plan career guidance process. In addition, supporting occupational development process with family guidance and professional counseling studies, giving weight to counseling services within the scope of attention, abilities and occupational values, supporting career research, and creating opportunities would also support professional decision-making skills. By this way, difficulties in decision-making related to occupational indecision and career anxiety may be precluded.

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Introduction

Preparation for career is one of the important tasks for adolescents (Akos & Niles, 2007). High school years is an important time period for preparation of adolescents' transition from school to work or to university life, and these preparations leads to a career decision in the future (Rowland, 2004). Career development which begins in childhood years continues through lifetime (Hartung, Porfeli &Vondracek, 2005).

According to Dogan and Bacanli (2012), career decision is an individual's selection of an occupational program or career by having a tendency towards the one which is the most suitable to him/ her among many choices. Brown et al. (1996) describe career decision as "thought processes in which a person integrates personal information with occupational information to access a career decision". Career research and career decision process are in the center of career development during adolescence (Super, 1957). Adolescents' career development is influenced significantly by factors like social conditions, role models and peer relationships (Gottfredson, 1981). According to Gati (1986), career indecision can be described as being unable to make a decision because of interceptive situations within the decision process. Career decision is a complex process. In this process, some adolescents may face indecisiveness. Adolescent students are mostly responsible for making decisions about a career field, occupational education or higher education. According to Mann, Harmoni and Power (1989), those kinds of decisions may have lifelong results for occupational future, psychological well-being, health and social acceptance of adolescents (as cited in Dogan & Bacanli, 2012, p.912). For those reasons, high school years reflect a time period that should be supported for adolescents' career development and career-occupation choices in the future.

In Turkey, high school students follow a tendency towards education on a common program at 9th and 10th-grades, and make field/branch choices after that. During transition to secondary education, some of the students have tendency towards occupational and technical education, and they make occupational choices. These choices, in addition to determining higher education programs they may be enrolled in the future, also determine their decisions in whether they will continue to higher education or not. Just as Cakir (2004) stated, it is quite difficult to expect high school students at such an early age to make realistic decisions. Many adolescents in this period experience career indecisions.

When the literature on career-occupational indecisiveness is reviewed, among reasons of indecision, there are self-esteem (Aydin, 2014), self-competence (Wulff & Steitz, 1999), locus of control (Woodburry, 1997), career beliefs (Peng & Herry, 2000), career decision skills (Mitchell & Krumboltz, 1987), and lack of information (Gati, Krausz & Osipow, 1996). In addition, it is seen that indecision is related to university education, peer equality, career beliefs, inner satisfaction, responsibility, tendency towards job life, experimenting with a job, standing up to uncertainty, risk-taking (Akkoc, 2012), focus of control and career result expectation (Buyukgoze Kavas, 2011), irrational beliefs related to job decision (Bacanli, 2012; Stead, Graham & Foxcroft, 1993), career beliefs (Mitchell & Krumboltz, 1987, Peng & Herry, 2000; Stead, Graham

& Foxcroft, 1993), and fathers' attitudes towards career development (Hamamci & Hamurlu, 2005). There are findings in the literature revealing that as career exploration behavior increases, career indecision decreases accordingly (Park, Woo, Park, Kyea & Wong, 2017).

It seems inescapable for young people who experience occupational indecisiveness and feel uncertainty about the future to experience career anxiety during the years they make almost irreversible and important decisions about their life. According to Mallet and Vignoli (2005), career anxiety is related to an individual's anxiety about academic and professional career, fear of disappointing family, and fear of going away from family and close friends because of a job or an academic necessity (as cited in Vignoli, Croity-Belz, Chapeland, Fillipis & Garcia, 2005, p.155; Vignoli, 2015, p.185). In other words, during high school years, career anxiety may come up in many subjects like students' failing to satisfy family expectations or being unable to achieve the goals desired, and not being able to choose the desired occupation.

Cetin Gunduz and Nalbantoglu Yilmaz (2016), in their scale development study they conducted with high school students in Turkey, determined career anxiety of high school students as career anxiety in terms of the effect of family and career anxiety in terms of the choice of profession. Accordingly, for the dimension of "career anxiety in terms of the effect of family", high school students felt anxious that their families would not understand their career plans properly, they would prevent them, or students would not be able to express themselves; and for the dimension of "career anxiety in terms of the choice of profession", high school students felt anxious regarding the appropriateness of the job they wanted to choose, whether they would be happy or not, and the possibility of disappointment. Especially when the effect of family is taken into account on the choice of profession and on the process of decision-making (Akdeniz, 2009, Ozyurek & Kilic-Atici, 2002), family influence on difficulties of decision-making (Bacanli & Hamamci, 2015), and anxiety that adolescents experience related to their families while making decisions become more understandable. Individuals who have difficulty in choosing a profession generally experience career anxiety (Fouad, 2007), and this situation seems to support the opinion that the effects related to families constitute a part of career anxiety. Similarly, in view of the fact that choice of profession is a multi-dimensional process, there are frequent changes in Turkish Education System, and the educational structure focuses mainly on academic success, it seems inescapable to experience anxiety in terms of the choice of profession as one of the dimensions of career anxiety.

Career anxiety is thought to be a kind of social anxiety because it concerns the status of an individual as a student or as a person who has a profession in society as a whole. During adolescence years, career anxiety increases gradually. Students become more worried about their academic and occupational future (Mallet, 2002).

Anxiety is one of the most investigated psychological constructs in experimental studies about career-occupational indecisiveness (Fuqua, Seaworth, & Newman, 1987). Goodstein (1965) separated anxiety as a symptom of career indecision from a more serious kind of anxiety, and in this process considered anxiety as a factor

preventing the gain of career development skills and of information that will lead to effective decisions. Career indecision and career anxiety are also important for career consultants. Anxiety of consultees constrains them from taking steps to overcome their indecisiveness about their career, and to decrease their anxiety (Weinstein, Healy & Ender, 2002). Occupational decision processes create stress leading to exploration activities (Blustein & Philipps, 1988). When the literature is reviewed, the relationship between anxiety and indecision is explained in two ways. The first opinion is that individuals who have a high level of anxiety have difficulty in decision making because of their anxiety in decision processes. The second opinion is that anxiety is a situation emerging after the difficulty experienced thereafter the decision making process (Aydin, 2014).

There are several studies in the literature about career indecision and anxiety (Corkin, Arbona, Coleman & Ramirez, 2008; Fuqua, Blum & Hartman, 1988; Fuqua, Newman & Seaworth, 1988; Fuqua, Seaworth & Newman, 1987; Hartman, Fuqua, & Blum, 1985; Kaplan & Brown, 1987; Mojgan, Kadir & Soheil, 2011; O'Hare & Tamburri, 1986, Oztemel, 2013; Saka & Gati, 2007). For example; Stead, Graham, and Foxcroft, (1993) pinpoint that there is a significant relationship between career decision and irrational beliefs with anxiety and its related dimensions. Miller and Rottinghaus (2014) stated that the existence of a meaning in life mediates relationship between career indecision and anxiety. It is observed that students with career indecision experience anxiety because they have difficulty in decision making (Goldstein, 1965), or they hold over decision making because of high level of anxiety (Haag-Mutter, 1986 cited in Aydin, 2014, p.33). In some studies, state anxiety was found to be the most powerful predictor of both career decision and also career indecision (Campagna & Curtis, 2007). In a study conducted with 133 undergraduate students, Fuqua et.al. (1987) emphasized the relationship between career indecision and anxiety. There is an important and consistent relationship between career indecision and several types of anxiety.

In the literature, studies related to career indecision and career anxiety are quite limited except for studies in career indecision and anxiety (Daniels, Stewart, Stupnisky, Perry & Verso, 2011; Vignoli, 2015). In this direction, the purpose of this study is to investigate the relationship between high school students' career anxiety in terms of family effect and choice of profession with their career indecision through the structural equation modeling. For this aim, the following hypotheses were proposed:

1. There is a significant relationship between high school students' career indecision states and career anxiety in terms of the family effect.

2. There is a significant relationship between high school students' career indecision states and career anxiety in terms of the choice of profession.

Method

Research Design

The research is based on the relational model. The relational model is a research model aiming to search for an existence or a degree of interchange between two or more variables (Karasar, 2012).

Research Sample

The study group consisted of 444 students from the 11th and 12th-grades from different high schools in Nevsehir city center in 2016-2017 academic year. In order to select the students, convenience sampling method was used. Among students, 59 % (n= 262) were at the 11th-grade and 41 % (n= 182) were at the 12th grade. 55, 2 % (n= 245) of the students were females and 44, 8 % (n= 199) were males. In structural equation model analyses, it is stated that sample size can be at least 10 times as much of a number of parameters predicted by the model (Jackson, 2003 cited in Kline, 2011, p.12; Moshagen & Musch, 2014). Moshagen and Musch (2014) indicate that for sample sizes exceeding 300, robust Weighted Least Squares estimation methods can give appropriate predictions. At the same time, Hoogland and Boomsma (1998) assert that in strongly kurtotic distributions, the sample size must be at least ten times as much of the number of free parameter (as cited in Wang & Wang, 2012). In this respect, it can be said that the number of the participants in this study is adequate.

Research Instruments and Procedures

In the study, The Scale for Career Anxiety (SCA) and The Career Decision Inventory (CDI) were used.

The Scale for Career Anxiety: In this study, the scale developed by Cetin Gunduz and Nalbantoglu Yilmaz (2016) was used to measure career anxiety of high school students. The scale includes 5 items about the family effect within the career development process, and 9 items about the choice of profession within the career development process (there are 14 items in total). SCA is scored on a 5-point Likert scale. Higher scores obtained from parts of the scale focusing on anxiety in terms of the family effect and the choice of profession means that career anxiety is experienced at a high level. In the development process of the scale, in order to test correctness of the structure as a model, Confirmatory Factor Analysis (CFA) was conducted ($\chi2/sd$= 2.518, RMSEA= 0.067, CFI= 0.95, NFI= 0.92, NNFI= 0.94, GFI= 0.92 and AGFI= 0.90). With respect to this research data, CFA was repeated in this study. Just like in the original factor structure, factor structure of the scale was determined to show the best model-data fit in two-factor first-order model ($\chi2/sd$= 3.22, RMSEA= 0.071, CFI= 0.94, NFI= 0.93, NNFI= 0.93, GFI= 0.98 and AGFI= 0.97).

In the development phase of the scale, reliability was measured by Cronbach Alpha internal consistency coefficient. The reliability of the scale in career anxiety in terms of the choice of profession was found to be 0.797, and the reliability in career anxiety in terms of the family effect was found as 0.742. As for the reliability of the scale used in this study, Cronbach Alpha reliability coefficient related to career anxiety in terms of

the family effect and the choice of profession was found as 0.835 and 0.865, respectively. McDonald ω (McDonald's omega) reliability coefficient was found as 0.85 and 0.87 respectively for career anxiety in terms of the family effect and the choice of profession depending on path coefficients obtained from CFA and amount of error.

The Career Decision Inventory: In this study, CDI developed by Cakir (2004) was used to measure high school students' career indecision levels. CDI consists of five factors as "Internal Conflicts (Internal)", "Lack of Self-Knowledge (Knowledge)", "Lack of Knowledge in Job or Field (Lack)", "Irrational Beliefs about Career Decision (Belief)", and "External Conflicts (External)". There are a total of 30 items in the inventory. Items are scored on a 5-point Likert scale. Low scores obtained from the scale indicate career decisiveness while high scores indicate career indecision.

In the development phase of the inventory, exploratory factor analysis was used in order to determine its structure. In this study, the factor structure of the inventory was examined using CFA. According to CFA results, it was determined that second-order CFA fit indexes of the inventory was found to be at an acceptable level ($\chi2/sd= 2.18$, RMSEA= 0.052, CFI= 0.97, NFI= 0.95, NNFI= 0.97, GFI= 0.97 and AGFI= 0.97). According to this, it can be said that 5 factors in the inventory constituted a single indecisiveness general structure. In addition, a moderate level, positive and significant relationship was found among factors of the inventory; and a high level, positive and significant relationship was found between indecisiveness general structure and the factors.

As for the reliability of the scale used in this study, Cronbach Alfa and McDonald ω reliability coefficients were re-calculated. Cronbach Alfa reliability coefficient of the inventory was found as 0.874 for Internal, 0.804 for Knowledge, 0.799 for Lack, 0.669 for Belief, and 0.680 for External. McDonald ω coefficient of the inventory was found as 0.87 for Internal, 0.81 for Knowledge, 0.80 for Lack, 0.68 for Belief, and 0.70 for External.

Data Analysis

The model established in order to explain career anxiety of high school students (in terms of the family effect and the choice of profession) in relation with the concept of career indecision was examined using SEM. Before starting data analysis, missing values or extreme values in the data and premises of the statistical process to be held were determined. It was detected that there were missing data among the data of 482 students. In order to determine whether there was one-way extreme value, standard Z-scores were examined. Raw scores obtained from factors of the scales were transformed into Z scores, and obtained Z scores were seen in a ±3 range. Multiple extreme values were investigated via Mahalanobis distance. In this investigation, it was found that there were multiple extreme values in the data. In this direction, each subject who included more than one missing value and showed extreme value was excluded from the data set, and a study group was constituted.

Univariate and multivariate normality assumptions were examined. Skewness-kurtosis coefficients for univariate normality was calculated and these coefficients

were found in the ±1 range; however, standardized skewness (z-statistics), which is calculated by dividing skewness coefficient of some variables to standard error, were determined to be bigger than 2.58. The distribution is considered non-normal when the standardized skewness (z-statistics) exceeds 2.58 (Buyukozturk, 2007). On the other hand, in normality analysis (Mardia test) conducted by the help of the LISREL program, it was found that the data did not meet multivariate normality assumption. In this condition, by using a prediction method that did not require the normality assumption, structural equation model analyses could be conducted.

Finney and Distefano (2013) state that in situations where the data is non-normal and/or is categorical, Weighted Least Squares (WLS), Robust Diagonally Weighted Least Squares (DWLS), and Satorra-Bentler chi-square can be used; and Finney, Distefano and Kopp (2016) state that in addition to these, Robust Maximum Likelihood prediction can also be used. Baghdarnia, Soreh, and Gorji, (2014) and Mindrila (2010) indicate that in conditions where the data is not distributed multivariate and normal, DWLS method can provide appropriate parameter predictions. In addition, in situations where continuous data do not meet normality assumptions or some/all variables are discrete, WLS method is suggested (Aksu, Eser & Guzeller, 2017; Browne, 1984; Kline, 2011; Schermelleh-Engel, Moosbrugger & Müller, 2003). However, it is stated that because the WLS method requires a big sample size, DWLS method gives better results for small samples (Kline, 2011; Mindrila, 2010). In this respect, in analyses, robust DWLS prediction method was used.

In data analysis, fit indexes were examined to reveal adequacy of the model tested. In the study, $\chi2/sd$, RMSEA (Root Mean Square Error of Approximation), GFI (Goodness of Fit Index), AGFI (Adjustment Goodness of Fit Index), CFI (Comparative Fit Index), NFI (Normed Fit Index), and NNFI (Non-Normed Fit Index) were investigated out of model fit indexes. If the $\chi2/sd$ value is less than 3, it is an excellent fit and if it is less than 5, it is admissible (Sumer, 2000 cited in Cokluk, Sekercioglu & Buyukozturk, 2010, p.271). If RMSEA value is less than 0.08, it is an acceptable fit; and if it is less than 0.05, it is an excellent fit (Browne & Cudeck, 1993 cited in Jöreskog & Sörbom, 1993, p.124). For GFI and AGFI, value greater than 0.90 indicates an acceptable fit and value greater than 0.95 indicates an excellent fit (Hooper, Coughlan & Mullen, 2008). For CFI, NFI, and NNFI, values greater than 0.90 indicate an acceptable fit and values greater than 0.95 indicate an excellent fit (Hu & Bentler, 1999). In the analyses conducted, LISREL 8.72 program was used.

Results

In this study, a model was created to explain high school students' career anxiety (in terms of the family effect and the choice of profession) related with career indecision. In the process of constituting the model, alternative models were tried with reference to literature. The goodness of fit indexes were examined about the models created, and the model giving the best results was identified.

Test of the Measurement Model

Three variables were described in the measurement model. These variables were career anxiety in terms of the family effect (family), career anxiety in terms of the choice of profession (profession), and career indecision (indecision) measured by using CDI. In Table 1, standardized coefficients-values (standardized factor loading) and t-values about measurement model were given.

Table 1

Results of the Measurement Model

Variable	Standardized factor loading	t	R^2	Variable	Standardized factor loading	t	R^2
Family				**Profession**			
CA1	0.74	15.65	0.55	CA6	0.65	15.06	0.43
CA2	0.84	22.00	0.70	CA7	0.73	16.68	0.53
CA3	0.72	14.73	0.52	CA8	0.59	13.06	0.35
CA4	0.72	15.07	0.52	CA9	0.67	15.60	0.45
CA5	0.59	10.95	0.34	CA10	0.49	10.50	0.24
Indecision				CA11	0.76	18.19	0.57
Internal	0.76	15.91	0.58	CA12	0.66	15.14	0.44
Knowledge	0.71	12.72	0.51	CA13	0.65	14.01	0.42
Lack	0.73	15.11	0.53	CA14	0.60	13.88	0.36
Belief	0.66	12.93	0.43				
External	0.66	11.37	0.44				

CA: Career Anxiety

It can be seen in Table 1 that standardized factor loads related to the measurement model were great. In addition to this, all factor loads were statistically significant ($p < .01$).

According to fit indexes obtained about the measurement model, it can be said that measurement model was fitted ($\chi2/sd= 3.47$, RMSEA= 0.075, GFI= 0.97, AGFI= 0.96, CFI= 0.95, NFI= 0.94, NNFI= 0.95).

Test of the Structural Model

After evaluating the statistical appropriateness of the measurement model, fit indexes and modification suggestions about the structural model were examined. It was determined that some modification suggestions made a significant contribution to chi-square value. In this respect, among observable variables of the same latent

variable (CA12-CA13), a modification was made. Fit indexes and acceptable ranges obtained after that modification were given in Table 2.

Table 2

Fit Indexes Related to the Structural Model

Fit Index	Model Values	Fit Index	Model Values
χ^2/sd	3.57	CFI	0.95
RMSEA	0.076	NFI	0.93
GFI	0.96	NNFI	0.94
AGFI	0.95		

When the model fit indexes and acceptable ranges were examined in Table 2, it could be indicated that the structural model was verified. After determining model fit, t- values between variables and standardized coefficients were examined.

When t-values related to the structural model established to explain high school students' career anxiety in terms of the family effect and the choice of profession related to career indecision were examined, it was determined that t-values of the model were significant. Standardized values about the model were given in Figure 1.
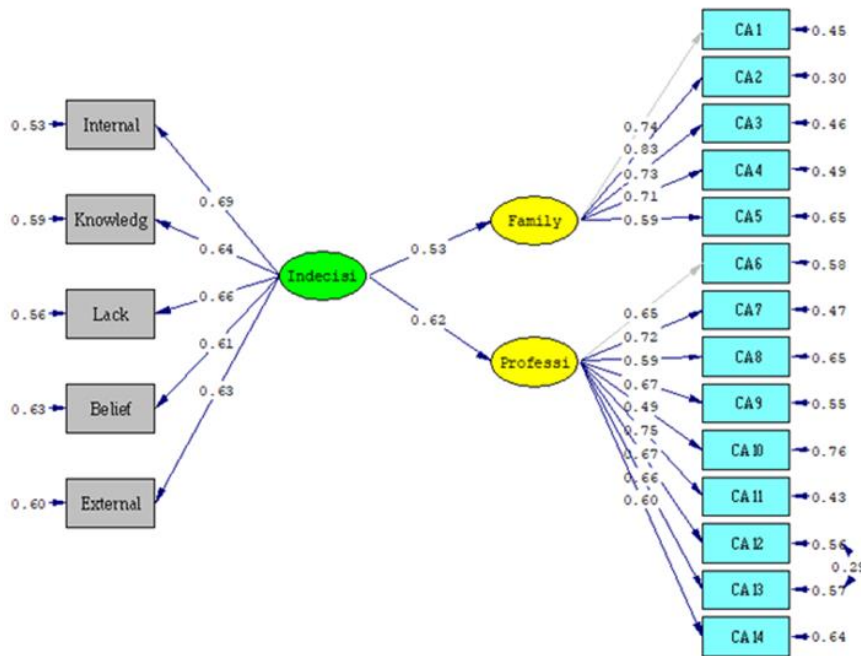
Figure 1. Path Diagram of Standardized Values

Standardized coefficient between latent variables below 0.10 is evaluated as small, about 0.30 is evaluated as medium, and over 0.50 is evaluated as a great effect (Kline, 2005 cited in Aksu, Eser and Guzeller, 2017, p.184). With respect to this, it could be implied that standardized coefficients between Career Indecision (Indecision) - Career Anxiety in terms of the Family Effect (Family) and Career Indecision – Career Anxiety in terms of the Choice of Profession (Profession) had a great effect. Regression equations obtained as a result of analysis were given below:

Career Anxiety in terms of the Family Effect = 0.53* Career Indecision R2 = 0.28

Career Anxiety in terms of the Choice of Profession = 0.63* Career Indecision R2 = 0.40

With reference to regression equations obtained, there was a positive and a statistically significant relationship between career indecision and career anxiety in terms of the family effect (0.53). In addition, career indecision score explained 28% of career anxiety in terms of the family effect. There was a positive and a significant relationship between career indecision and career anxiety in terms of the choice of profession (0.63). Nevertheless, career indecision score explained 40% of career anxiety in terms of the choice of profession. Accordingly, it could be stated that as the scores high school students obtained from CDI increased (as their career indecision increased), their career anxiety in terms of the family effect and their career anxiety in terms of the choice of profession also increased.

Discussion, Conclusion and Recommendations

Career indecision can be defined as an individual's changing career decisions or his/her being unable to make a choice when it is time to decide (Kuzgun, 2000). First of all, from the viewpoint of a student's career development, career indecision is seen as being unable to choose a university or an occupation (Callahan & Greenhaus, 1992). Anxiety is a negative emotion affecting them starting from primary school to graduate degrees (Zeidner, 2007 cited in Daniels et. al., 2011, p.411). Fouad (2007) implies that individuals who experience difficulty in making a career decision usually experience career anxiety. For those reasons, it is not surprising that anxiety damages students' self-competence in making career decisions (Daniels et. al., 2011).

In this study, the influence of students' career decision (career indecision) conditions on career anxiety in terms of the family effect and career anxiety in terms of the choice of profession was investigated. According to the findings, it was found that career indecision had a significant effect on career anxiety in terms of the family effect and the choice of profession. In other words, as high school students' career indecision increased, their career anxiety in terms of the family effect and the choice of profession increased as well. The literature also supports that there is a positive and a significant relationship between students' career indecision and anxiety (state and/or trait anxiety) they experience (Ali & Tariq, 2009; Corkin, Arbona, Coleman & Ramirez, 2008; Fuqua, Seaworth & Newman, 1987; Fuqua, Newman & Seaworth, 1988; Miller & Rottinghaus, 2014; Mojgan, Kadir & Soheil, 2011; Oztemel, 2013; Saka & Gati, 2007; Vignoli, 2015). However, there is limited research conducted in order to determine the

relationship between career indecision and career anxiety (Daniels et. al., 2011; Vignoli, 2015). In this direction, it can be asserted that research findings would make important contributions to literature. Daniels et. al., (2011) and Vignoli (2015) found that there was a positive and a significant relationship between career anxiety and career indecision. The result of this study is consistent with the results of the previous studies.

A positive relationship was found between career indecision and career anxiety in terms of the family effect and the choice of profession. As career indecision increased, the career anxiety experienced increased as well. It seems to be a natural process for students, who face difficulties related to the education system, parent expectations, being unable to find adequate educational and social opportunities towards self-knowledge, examination system, and the process of career decision, to experience anxiety in terms of their family and choice of profession along with occupational indecisiveness they experience. Another possible explanation regarding the research findings is that lack of information and inadequacy of coping strategies in terms of the choice of profession, self-knowledge and setting goals may be related to professional indecision and career anxiety. For example, Bacanli (2012) expresses that students who cannot make a decision about career experience more career decision difficulty. Kirdok and Harman (2018) found that high school students with an external locus of control experienced more difficulty in the decision-making process because of the lack of necessary information or inconsistent information.

In this respect, in order to decrease career anxiety that high school students experience in the process of career decision, it is suggested to determine reasons which make them indecisive about their career, and to plan a career guidance process. Adolescents who experience career indecision may experience indecision because of anxiety, but they may also experience anxiety for not being approved by their families because of career indecision, and for not being able to share their dreams with their families. Similarly, during high school years, career indecision may cause a feeling of anxiety related to the occupation to be chosen or dreams. It is beyond any doubt that psychosocial programs aimed at decreasing career indecision and career anxiety would support students. However, it is also crucial to support students before high school years in determining which schools to go and which occupation they want to choose. It is important to accept career development as a process, and support career development starting from the preschool period.

Similarly, in the process of occupational decision-making, reinforcing coping skills of students, improving decision-making strategies, supporting family counseling services, and providing support systems to adolescents via psychological counseling and career counseling services are possible venues for future studies. In addition, starting from preschool years, supporting occupational development process with family guidance and professional counseling studies, especially before the transition to secondary education and during secondary education, giving weight to counseling services within the scope of attention, fostering abilities and occupational values, supporting career research, and creating opportunities would also improve professional decision-making skills. By this way, difficulties in decision-making related to occupational indecision and career anxiety may be precluded.

In the study, it was concluded that as career indecision of students' increased, their career anxieties in terms of the family effect and the choice of profession increased as well. As they had difficulty in making decisions about their career, their career anxiety increased. As their career anxiety increased, it could be more difficult for them to choose the appropriate occupation. Goodstein (1965) underlies anxiety at the foundation of failure in career decision (as cited in Gordon, 2007, p.29). For this reason, in the high school period, when the career decision is important, it is suggested to analyze career anxiety of students, and to foster career guidance to decrease career anxiety. By following this direction, career decision process of individuals can be enhanced.

Anxiety interferes with the development of necessary skills for career decision-making process (Fuqua et. al., 1988). As a matter of fact, some students may feel anxiety about their decision even after they make a decision. For these reasons, in career guidance processes held in schools, career anxiety and career indecision should be evaluated together.

This study, besides helping us develop a viewpoint about career indecisions and career anxiety adolescents experience during high school years, has some limitations. First of all, the study is conducted with high school students at 11th and 12th-grades; as a result, it is impossible to discuss results for students at 9th and 10th-grades. In addition, data is not collected on the basis of a separation among different school types and fields/branches, and this is also regarded as a limitation. In future studies, studies including 9th and 10th-grade students and adults would help to understand the subject better.

Besides, in this study, the relationship between career indecision and career anxiety was investigated. However, variables like socio-economic situation, gender, and self-competence were not examined. In future studies, whether there are intermediary variables between career indecision and career anxiety can be investigated.

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Lise Öğrencilerinde Meslekî Kararsızlık ve Kariyer Kaygısı: Yapısal Eşitlik Modeliyle Bir İnceleme

Özet

Problem Durumu: Çocukluk yıllarında başlayan kariyer gelişimi yaşam boyunca devam eden bir süreçtir. Bu süreçte ergenlik dönemi kariyer gelişimi ve kariyer kararı verme açısından önemli dönemlerden birisidir. Ergenlerin sosyal ortamları, rol modelleri ve akran ilişkileri gibi faktörlerin etkisi ile kariyer gelişimleri önemli ölçüde etkilenmektedir. Kariyer araştırması ve kariyer karar verme süreci, ergenlik döneminde kariyer gelişiminin merkezindedir. Bu süreçte bazı ergenler kararsızlıkla karşılaşabilirler. Ergen öğrenciler çoğu zaman bir kariyer alanı, mesleki eğitim veya yükseköğretim seçenekleri ile ilgili kararlar almakla yükümlüdürler. Türkiye'de lise eğitimine devam eden gençler 9. ve 10. sınıflarda ortak programa dayalı bir eğitim

aldıktan sonra alan/dal seçimlerine yönelmektedir. Ortaöğretime geçişte öğrencilerin bir grubu ise mesleki ve teknik eğitime yönelerek meslek seçimlerinde bulunmaktadır. Yapılan bu seçimler gelecekte seçilecek yükseköğretim programını belirlemenin yanında, yükseköğretime devam edip etmeme yönündeki kararları da belirlemektedir.

Neredeyse yaşamları için geri dönülmez ve önemli kararlar aldıkları yıllarda mesleki olarak kararsızlıklar yaşayan, geleceğe ilişkin belirsizlikler hisseden gençlerin kariyer kaygısı yaşamaları da kaçınılmaz görülmektedir. Lise yıllarında kariyer kaygısı öğrencilerin ailelerinin beklentilerini karşılayamamak ya da üst öğrenimde istediği alanlara yönelememek, istediği mesleği seçememek gibi pek çok konuda kendisini gösterebilir.

Araştırmanın Amacı: Literatür incelendiğinde kariyer karasızlığı ve kariyer kaygısı arasındaki ilişkiyi inceleyen sınırlı sayıda çalışma bulunmaktadır. Kaygı ve kariyer karasızlığı konusunda yapılan çalışmalarda ise çoğunlukla üniversite öğrencilerinden veri toplanmıştır. Bu nedenle çalışmanın bulgularını kariyer karasızlığı ve kariyer kaygısı konusunda yapılan çalışmalara ışık tutması beklenmektedir. Bu amaçla çalışmada kariyer kararsızlığı ve kariyer kaygısı arasındaki ilişki yapısal eşitlik modellemesi ile incelenmiştir.

Araştırmanın Yöntemi: Araştırmanın çalışma grubu, 2016-2017 Eğitim Öğretim Yılı Nevşehir il merkezindeki farklı liselerin 11 ve 12. sınıflarında okuyan 444 öğrenciden oluşmaktadır. Araştırmaya katılan öğrencilerin belirlenmesinde uygun örnekleme kullanılmıştır. Araştırmaya katılan öğrencilerin %59'u (n= 262) 11. sınıf, %41'i (n= 182) 12. sınıf öğrencisi, %55,2'si (n= 245) kız ve %44,8'i (n= 199) erkektir. Araştırmada veri toplama aracı olarak Kariyer Kaygısı Ölçeği (KKÖ) ve Mesleki Karar Envanteri (MKE) kullanılmıştır. Lise öğrencilerinin aile etkisine ve meslek seçimine yönelik kariyer kaygılarını mesleki kararsızlık ile açıklamak üzere kurulan model yapısal eşitlik modeliyle incelenmiştir.

Araştırmanın Bulguları: Araştırmada lise öğrencilerinin aile etkisine ve meslek seçimine yönelik kariyer kaygılarını açıklamak üzere bir model oluşturulmuştur. Model oluşturulurken alan yazından hareketle alternatif modeller denenmiştir. Oluşturulan modellere ait uyum iyiliği indeksleri incelenmiş ve en iyi uyumu veren model açıklanmıştır. Yapısal eşitlik modeli analizinde ilk olarak ölçme modeli test edilmiştir. Ölçme modelinde üç değişken tanımlanmıştır. Bu değişkenler; öğrencilerin kariyer kaygılarını gösteren aile etkisine (aile) ve meslek seçimine yönelik (meslek) kariyer kaygıları ile mesleki karar envanteri ile ölçülen mesleki kararsızlık (kararsızlık)'dır. Ölçme modelinde tüm faktör yükleri istatistiksel olarak anlamlıdır (p < .01). Ölçme modeline ilişkin elde edilen uyum indekslerine göre ise ölçme modelinin doğrulandığı söylenebilir (X2/sd= 3.47, RMSEA= 0.075, GFI= 0.97, AGFI= 0.96, CFI= 0.95, NFI= 0.94, NNFI= 0.95). Elde edilen regresyon denklemlerinden hareketle, mesleki kararsızlık ile aile etkisine yönelik kariyer kaygısı arasında pozitif yönde istatistiksel olarak anlamlı bir ilişki vardır (0.53). Ayrıca, mesleki kararsızlık puanı aile etkisine yönelik kariyer kaygısının %28'ini açıklamaktadır. Mesleki kararsızlık ile meslek seçimine yönelik kariyer kaygısı arasında ise pozitif yönde anlamlı bir ilişki vardır (0.63). Bununla

birlikte, mesleki kararsızlık puanı meslek seçimine yönelik kariyer kaygısının ise %40'ını açıklamaktadır. Buna bağlı olarak lise öğrencilerinin mesleki karar envanterinden aldıkları puan arttıkça (mesleki kararsızlık düzeyleri arttıkça), aile etkisine yönelik ve meslek seçimine yönelik kariyer kaygılarının arttığı söylenebilir.

Araştırmanın Sonuçları ve Önerileri: Araştırmada mesleki kararsızlığın aile etkisine ve meslek seçimine yönelik kariyer kaygıları üzerinde anlamlı bir etkisi olduğu sonucuna ulaşılmıştır. Bir başka deyişle, lise öğrencilerinin mesleki kararsızlık durumları arttıkça aile etkisine ve meslek seçimine yönelik yaşadıkları kariyer kaygıları da artmaktadır. Mesleki kararsızlık ile aile etkisine ve meslek seçimine yönelik kariyer kaygısı arasında pozitif bir ilişki bulunmuştur. Mesleki kararsızlık arttıkça yaşanan kariyer kaygısı da artmaktadır. Araştırmada öğrencilerin mesleki kararsızlık durumları arttıkça aile etkisine ve meslek seçimine yönelik yaşadıkları kariyer kaygılarının da arttığı belirlenmiştir. Öğrenciler mesleki karar vermede zorlandıkça kariyer kaygıları artmaktadır.

Mesleki kararsızlık ile aile etkisine ve meslek seçimine yönelik kariyer kaygısı arasında pozitif bir ilişki bulunmuştur. Mesleki kararsızlık arttıkça yaşanan kariyer kaygısı da artmaktadır. Bu doğrultuda lise öğrencilerinin meslek seçim sürecinde yaşadıkları kariyer kaygılarının azaltılabilmesi için mesleki kararsızlık yaşamalarını sağlayan nedenler belirlenerek mesleki rehberlik sürecini planlamak önerilmektedir. Mesleki kararsızlık yaşayan ergenler kaygı sebebiyle kararsızlık yaşayabileceği gibi, mesleki kararsızlıklar nedeniyle de aileleri tarafından onaylanmamak, mesleki hayallerini ailelerine anlatamamak konularında kaygı duyabilirler. Benzer şekilde lise yıllarında mesleki kararsızlık seçilecek meslek ya da hayallerle ilgili kaygı hissedilmesine neden olabilir. Mesleki kararsızlıkları ve kariyer kaygısını azaltmaya yönelik psiko-sosyal programların öğrencilere destek olacağı şüphesizdir. Ancak öğrencilerin gelecekte hangi okula gitmek istedikleri, hangi mesleği seçmek istedikleri ile ilgili olarak lise yılları öncesinde desteklenmesi, mesleki gelişim bir süreç olarak değerlendirilip okul öncesi yıllardan itibaren mesleki gelişimin desteklenmesi önemlidir.

Anahtar Kelimeler: Kariyer kaygısı, kariyer kararsızlığı, ergenlik, yapısal eşitlik modellemesi.

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Examination of Factors Affecting Continuance Intention to use Web-Based Distance Learning System via Structural Equation Modelling

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A R T I C L E   I N F O

A B S T R A C T

Purpose: The present study aims to model continuance intention to use web-based distance learning system and reveal the relationship between structures. **Method:** In this study, factors affecting continuance intention to use a web-based distance learning system was examined with a sample of 104 students attending an initial teacher training program through a web-based distance learning system at Van Yüzüncü Yıl University. The structures used in the study were identified as a result of a detailed review of literature. Moreover, complex structure of web-based distance learning systems, which included many components, were analyzed.

Technology Acceptance Model and Expectancy Disconfirmation Theory were used in determining the model to be used, and comprehensive research was conducted. **Findings:** continuance intention to use web-based distance learning system was indirectly affected by perceived quality, perceived control, perceived usability; and was directly affected by satisfaction. **Implications for Research and Practice:** Similar studies can be conducted with different student/user groups by different distance learning centers and institutions that provide distance learning services. Web-based distance learning systems, which have become widely used especially by companies, can be expanded via studies to be conducted within these environments.

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Introduction

Widespread use of the internet, advancements in education technologies, and limitations arise from time and space have led to the existence and development of web-based distance learning systems. Better understanding of the structure of this system, which continues to become widespread through the important investments made around the world, especially in Turkey, is of great importance in terms of both the efforts made and the economic costs.

Distance learning, in its brief definition, is the act of learning in a way that teacher and student do not have to share the same environment (Moore and Kearsley, 2012). Maintaining this feature, the concept of distance learning has gained many new and different definitions in accordance with the developed models and understandings, and advanced technologies since it first emerged (Demir, 2013; Moore and Kearsley, 2012). Distance learning provides a more democratic learning environment and equal opportunities for anyone who wants to learn, facilitating access to resources without any limitations arising from time and space (Girginer, 2001). Users can learn anytime and anywhere, which means they can study at their own pace and without depending on the time of the class. The primary interaction in the learning environment through distance learning is between the student and the computer. The student is provided with a learning environment, which can be adjusted according to personal plans. Distance learning is a system established to meet the educational needs of people who cannot benefit from formal education for some reasons (Altiparmak, Kurt and Kapidere, 2011).

The present study aims to model continuance intention to use web-based distance learning system and identify the relationship between structures. To this end, models related to continuance intention to use web-services in the literature were examined, and these models were found to be shaped around Technology Acceptance Model (TAM), Expectancy Disconfirmation Theory (EDT), and Theory of Reasoned Action (TRA) (see Ajzen and Fishbein, 1980, 2005; Chiu and Wang, 2008; Lin, 2012; Roca, Chiu, Martinez, 2006). In this study, strengths of many models, which were experimentally validated, were included in the model. This study also aims to analyze the structure of web based distance learning system as well as some structures that are believed to affect the continuance intention.

The basic concepts used in this study were reported; proposed models and hypotheses were determined; the structural equation modelling was summarized in general terms; and causal relationship between the latent variables used in predicting the continuance behavior to use a web-based distance learning system was examined.

Research Hypotheses

H1.a: There is a positive correlation between perceived quality and perceived control in a web-based distance learning system.

H1.b: Perceived quality in a web-based distance learning system has a positive effect on perceived usability.

H1.c: Perceived usability in a web-based distance learning system has a positive effect on satisfaction.

H1.d: Satisfaction in a web-based distance learning system has a positive effect on continuance usage intention.

Technology Acceptance Model and Expectancy Disconfirmation Theory

The main structural model of the study comprises TAM and EDT. TAM (Davis, 1989) takes the factors affecting users' decision to use a new technology into account. Davis (1989) primarily proposed TAM as an addition to TRA. TRA is an acknowledged model in social psychology, in which the behavior of an individual is assumed to be the function of his/her intention to realize this behavior, his/her attitude towards this behavior, and his/her subjective norm. TRA is derived from the fact that tendency to perform certain behaviors is the pre-condition for real behaviors (Ajzen and Fishbein, 2005). Beliefs regarding the behavior to be performed create the attitude of that person towards the behavior, and then, this attitude and the subjective norms which include opinions acquired from the environment regarding the attitude join together, and behavioral tendency of that person is shaped (Fishbein and Ajzen, 1975).

TAM suggests that two certain dynamics in technological acceptance are priority dynamics, which are perceived usefulness and perceived ease of use. Perceived usefulness refers to the belief of a person who uses a certain system to the extent she/he can develop his/her work performance, whereas perceived ease of use refers to the belief of a person to the extent of his/her use of a system that can be independent of performing physical and mental effort. Perceived usefulness and perceived ease of use affect the attitude towards the decision to use a system, and in parallel to TRA, this attitude determines the behavioral intention, and whether it will result in the initiation of the real use of a system or not (Davis, 1989). This causal relationship has been confirmed in many experimental studies (see Mathieson, 1991; Moon and Kim, 2001; Taylor and Todd, 1995; Venkatesh and Davis, 1996, 2000; Venkatesh, 2000). TAM has been expanded by the addition of structures such as the self-efficacy of using computers, internet self-efficacy and subjective norms (Bhattacherjee, 2000; Compeau and Higgins, 1995; Eastin and LaRose, 2000; Hsu and Chiu, 2004; Igbaria and Iivari, 1995; Joo, Bong and Choi, 2000; Taylor and Todd, 1995; Venkatesh and Davis, 2000).

EDT or Disconfirmation of Expectation Theory is a widely accepted consumer behavior model used in estimating and explaining consumer satisfaction and consumer intention to re-purchase. According to EDT by Richard Oliver (1977), the customer has expectations before performing the purchase, and compares the performance she/he has received after purchasing or using the product and the performance she/he has expected from the product before purchase. If both performances are equal as a result of the comparison, the confirmation is achieved (Devebakan, 2006; Ozer, 1999). The expected result here is satisfaction.

Perceived Quality and Perceived Usability

Perceived quality structure was examined in this study in terms of information, service, and system quality. Information, service, and system quality pertain to the outcomes of quality, and contribute to the success of information systems. These structures are similar to the perceived quality in marketing. These three components were also examined as the outputs of quality structure by Roca et al. (2006). Gorla, Somers and Wong (2010) contributed to the information system success model by determining relationships between system, service, and information quality, and their relationship with organizational impact. Xu, Benbasat and Cenfetelli (2013) integrated these three components within the context of e-services, and found that system quality had a direct effect on information quality and an indirect effect on service quality. Therefore, in light of the relevant literature, these three structures were considered appropriate to be evaluated as perceived quality.

Perceived usability structure was examined in terms of perceived usefulness (PU), perceived ease of use (PEU), and cognitive absorption (CA). The PU and PEU are two important dynamics of TAM (Agarwal and Karahanna, 2000; Cheng, 2011; Saade´ and Bahli, 2005; Teo and Noyes, 2011). There are also studies in which CA was examined as perceived usability along with PU and PEU (Agarwal and Karahanna, 2000; Saade´ and Bahli, 2005). CA is defined as a pleasure taken from a software and a serious involvement in information systems (Agarwal and Karahanna, 2000). Pleasure refers to the perception of the use of a computer system as an individual pleasure in itself as well as its intermediary contribution (Davis, Bagozzi and Warshaw, 1992). Agarwal and Karahanna (2000) found out CA had a significant effect on PU and PEU. Perceived pleasure could be defined as a version of CA (Gomez, 2010). Perceived pleasure component has also been used in the literature along with PU and PEU. Teo and Noyes (2011) showed that perceived pleasure had an effect on PU and PEU. Cheng's (2011) research revealed that CA affected PU and PEU.

Information and system quality are seen as two important components of PU and PEU in the model of information system success (DeLone and McLean, 1992; Seddon, 1997). Moreover, DeLone and McLean (2003) revisited their study by adding service quality to the model of information system success. DeLone and McLean's (2003) and Lin and Lu's (2000) studies indicated that the model of information system success could also be used for websites derived from the fact that a website design could be approached within the context of the information system. From this point of view, relevant studies suggested that PU and PEU may be related to information system quality. Ahn, Ryu and Han (2007) found that system, information, and service quality had a positive effect on PU, PEU, and playfulness. Playfulness is, in fact, a similar concept to the concept of playfulness related to computer use. Playfulness is defined as an individual interaction with computers based on instant imagination (Webster and Martocchio, 1992). Roca et al. (2006) considered CA and playfulness as similar concepts. Therefore, we can tentatively say that CA could have an effect on system, service, and information quality by associating CA with playfulness defined by Ahn et al. (2007). Pai and Huang (2011) showed the relationship between service, system, and information quality, and PU and PEU. Moreover, Lin (2010) experimentally

confirmed that system and information quality related to PU. In a study conducted on the effect of perceived system quality on the continuance intention of educators to use motivation and e-learning system, Islam (2012) indicated a significant relationship between PU and perceived system quality.

Perceived Control and Perceived Usability

Perceived control structure was examined in this study under the dimensions of internet experience, and internet and computer self-efficacies. Bandura (1986) defined self-efficacy as beliefs of a person about his/her judgments, and skills regarding the capabilities she/he has to determine the organization and the procedure to follow so as to achieve designed performance types. Self-efficacy is explained within the framework of information systems as the user's self-assessment of the individual's own computer skills in completing the determined tasks. From this point of view, self-efficacy of internet use could be discussed separately from self-efficacy of computer use. An individual can successfully display a set of required behaviors to use internet or make use of the internet independently from basic computer skills (Eastin and LaRose, 2000). According to Hong and Cheng (2005), internet experience is another factor that may have an effect on e-learning. Basic technical skills displayed by a user in using internet may affect e-learning. Tsai, Lin and Tsai (2001) indicated that internet experience had an effect on perceived control and behavior. Teh and Yong (2011) discussed internet and computer self-efficacies under the dimension of information sharing self-efficacy. Roca et al. (2006) focused on computer self-efficacy and internet self-efficacy under the dimension of perceived control structure. Bhuasiri, Xaymoungkhoun, Zo, Rho and Ciganek (2012) addressed internet experience, internet and computer self-efficacies under the dimension of user characteristics in their research in which they examined the success factors in e-learning in developing countries.

The existence of the relationship between computer self-efficacy and PEU is based on the studies conducted by Davis (1989) and Mathienson (1991). Davis (1989) developed a concept of PEU and PU based on the self-efficacy theory, and suggested that self-efficacy, which is defined as an individual's judgement about himself/herself as to how well s/he can achieve the tasks s/he is meant to do for a prospective situation, is related to PEU. Causal relationship between computer self-efficacy and PEU was also experimentally reported by some studies. For example, Venkatesh and Davis (1996) found out that computer self-efficacy had a direct effect on PEU. Similarly, the fact that computer self-efficacy had an effect on PEU was also indicated in other TAM studies (Strong, Dishaw and Bandy, 2006). Igbaria and Livari (1995) indicated that computer self-efficacy had a direct effect on PEU; however, it did not have any effect on PU. As also indicated by Holden and Sinatra (2014), some researchers, who were interested in TAM, assessed the effect of users on technology acceptance within the context of e-learning self-efficacy (Grandon, Alshare and Kwun, 2005; Park, 2009) and internet self-efficacy (Lai, 2008; Ma and Liu, 2007).

Internet self-efficacy focused on how an individual deals with or will deal with (identify, maintain, make use of) internet today and in the future (Lai, 2008). Ma and

Liu (2004) identified internet self-efficacy as a measurement of using specific and certain skills for an individual when using an internet server rather than a judgment about the capacity of a person towards applying internet skills. Ma and Liu (2004) found out that internet self-efficacy explained 48% of the change in PEU and 80% of the change in the whole model. Pituch and Lee (2006) reported that internet experience did not have any effect on PEU.

CA was indicated to be an enjoyment taken from software and a serious inclusion in information systems (Agarwal and Karahanna, 2000). As also indicated by Usluel and Vural (2009), Cognitive Absorption Theory developed by Agarwal and Karahanna (2000) has been so far used in studies, which provides a framework for user and computer interaction such as acting, effective quality, personal innovativeness, as well as in studies on technology acceptance such as ease of use, usefulness and intention (see Chung and Tan, 2004; Ngai, 2005; Newman, 2005; Roca et al., 2006; Saade and Bahli 2005; Serenko, Bontis and Detlor, 2006; Shang, Chen and Shen, 2005; Qiu and Benbasat, 2005; Whitten and Wakefield, 2006; Zhang, Li and Sun, 2006). CA was relatively reported less in the studies on TAM although it is the pioneer of two important structures of TAM: PEU and PU (Zhang et al., 2006). To our knowledge, although there have been no previous studies conducted, which experimentally confirms the relationship between CA and computer/internet self-efficacy, there are some theoretical assumptions proposed within social-cognitive theory. The aspect that Sripada, Angstadt, Banks, Nathan and Liberzon (2009) referred to and studied regarding the question "Which factors are likely to affect the cognitive absorption of an individual?" asked by Agarwal and Karahanna (2000), and the studies conducted in the past (Agarwal and Karahanna, 2000; Roche and Mc Conkey, 1990) contributed to developing an understanding of this matter. Agarwal and Karahanna (2000) discussed that internet use behavior might be related to CA, and the same study indicated that individual characteristics might be effective in situations based on experiences. Previous studies presented that CA is determined by individual characteristics and environmental factors. These factors are used as personal innovativeness and perceived playfulness in the literature (Agarwal and Karahanna, 2000). In this study, individual factors are examined as internet self-efficacy and computer self-efficacy using social-cognitive theory. As indicated by Chandra and Fisher (2009), social-cognitive theory and CA could be associated with each other. According to social-cognitive theory of Bandura (1986), people behave neither based on internal stimuli nor external stimuli. Instead, human behavior was explained as a model of reciprocity among cognitive and individual factors and environmental phenomena. Bandura defined the concept of learning as information acquired within a cognitive process. Nevertheless, most of the thoughts and behaviors of human beings have a social origin, which means they include information obtained from the social environment (Stadjkovic and Luthans, 1998). Bandura's theory is based on triadic reciprocal determinism. These are individual, environment, and behavior. These three factors affect one another. According to Bandura, individual and environmental factors were not independent variables. They continuously affect each other. The individual creates, changes, and sometimes destroys his/her environment. (Bandura, 1986) The key mechanism, which affects human behavior in this dynamic relationship,

is self-efficacy. This theory refers to the fact that psychological processes require individual competency no matter what type it is; in other words, which moves will be made when dealing with situations, how much effort will be required, how long it will last and which strategies will be used are determined by individual competency. This proposition was experimentally reported in various contexts, such as complex decision-making processes (Wood and Bandura, 1989), computer skills acquisition and technology acceptance by users (Agarwal et al., 2000; Venkatesh, 2000). The relationships between CA and computer self-efficacy or internet self-efficacy structures were indirectly supported by theory in this way. *Perceived usability and satisfaction*

As also indicated by Soydal (2008), satisfaction is defined as "the disappointment caused as a result of the comparison of personal expectations with the perceived performance of a product or service" (Kotler, Jatusripiak and Maesiincee, 2000). User satisfaction is defined as "the subjective result of an interactive activity or experience" (Lindgaard and Dudek, 2003), and it is highlighted to be a key to keep the customer (Kotler, 1994). Bhattachejee (2001a, b) showed that PU is an important factor for satisfaction. Hayashi, Chen, Ryan and Wu (2004) found out that PU in three different online learning environments was related to satisfaction. Rai, Lang and Welker (2002) tested the success model in information systems, and showed that user satisfaction is easily affected by PU and PEU. De Lone and Mc Lean (1992) suggested that beliefs about information quality and ease of use affected user satisfaction. Woszczynski, Roth and Segars (2002) developed a model, which theoretically explains playfulness in computer interaction. It is found that user satisfaction might be a result of an enjoyable behavior, and a more satisfied user might be a user who enjoyed more. Lin, Wu and Tsai (2005) indicated a direct relationship between the perceived playfulness of a website and satisfaction. Joo, Kim and Kim (2011) showed that PU, PEU, and cognitive presence were all related to student satisfaction who took online university courses. The relationship between PU, PEU, and satisfaction were experimentally addressed in various studies (e.g., Rouibah and Hamdy, 2011; Wang, Lin and Liao, 2012; Wen, Prybutok and Xu, 2011).

Satisfaction and Continuance Intention to Use

Previous research showed that satisfaction had a positive effect on the intention to purchase (Bitner, 1990; LaBarbera and Mazursky, 1983; Oliver, 1981). Pioneering studies on the satisfaction of information systems found out a causal relationship between these structures (Bhattacherjee, 2001a, b; Chiu, Hsu, Sun and Lin 2005; Hayashi et al., 2004; Lin et al., 2005). Udo, Bagchi and Kirs (2011) showed in the study they conducted in which they used SERVQUAL scale to measure e-learning quality that satisfaction affected the continuance intention to use an e-learning system. Yet, in a similar manner, Limayem and Cheung (2008), Stone and Eveleth (2013), Chang and Lehman (2013), and Lin (2012) showed that there was a relationship between these structures.

Method

This study comprises two phases. In the first phase, a literature review regarding the subject was conducted, and the procedure to follow and conceptual framework were determined. In the second phase, the hypotheses of the research model were identified, and data were collected. Assessment application method was used in data collection. For the validity of the data collection tool, experts in educational sciences were consulted for the adaptation of the items in the tool to the Turkish language, and some items were translated when required. In cross cultural research, it is important that the translated items provide the same stimuli as the original items, and also they need to be equivalent (Teune and Przeworski, 1970). Reliability of each sub-scale was tested examining Cronbach's α coefficients; and then, the causal relationships based on the proposed theoretical model were analyzed using structural equation model (SEM). The proposed structural equation model in this study is given in Figure 1.

Data Collection

A measurement tool was developed to collect data which was applied to the students, who took pedagogical formation certificate program and used a web-based distance learning system in 2014-2015 fall term at Yüzüncü Yıl University. The measurement tool was applied to 180 out of 300 students, and the number decreased to 104 students after having removed invalid survey forms. For the validity of the data collection tool, relevant published studies were taken into account for various purposes as presented in Table 1.

Table 1

Relevant Studies Considered for the Creation of the Items in the Measurement Tool

Perceived usefulness and perceived ease of use items (Davis, 1989)
Cognitive absorption item (Agarwal and Karahanna, 2000)
Information and system quality item (Bailey and Pearson, 1983; Baroudi and Orlikowski, 1988; Delone and McLean, 1992)
Service quality (Kettinger and Lee, 1994, 1997; Parasuraman Zeithaml and Berry 1985, 1988; Pitt, Watson and Kavan, 1995)
Computer self-efficacy item (Compeau and Higgins, 1995)
Internet self-efficacy item (Hsu and Chiu, 2004; Torkzadeh and Van Dyke, 2001)
Internet experience item (Tan and Teo, 2000)
Satisfaction item (Oliver, 1980; Spreng, MacKenzie and Olshavsky, 1996)
Continuance intention to use item (Bhattacherjee, 2001b; Mathieson, 1991)

Proposed Model
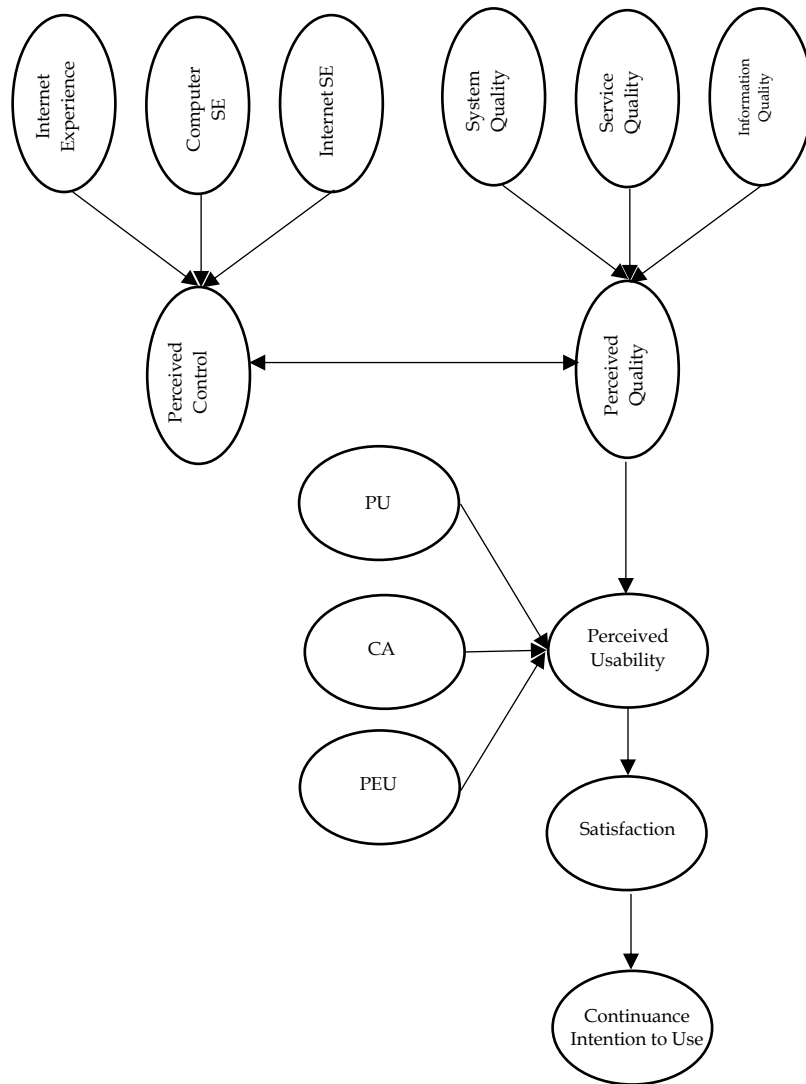
Figure 1. Perceived Quality, Perceived Usability, Perceived Control, Satisfaction and Model of Continuance Usage Intention

Structural Equation Model

Çelik and Yılmaz (2013), reported that Structural Equation Model (SEM) is a statistical methodology employed in both social and scientific research regarding behavior and education, and research in the fields of biology, marketing and medicine (Byrne, 1994; Kline 2005; Reisinger and Turner, 1999; Timm, 2002; Tomer, 2003). SEM is used in many disciplines to answer the research questions regarding causal

relationship between latent structures measured by the observed variables. Covariance structure between the observed variables is used to identify linear structural relationship between all variables in the model. Such models in social and behavioral sciences are named as "causal" models, and they include covariance matrix analysis of explicit variables derived from a linear structural model (Timm, 2002; Tomer, 2003). SEM provides researchers with an opportunity to determine direct and indirect effects between variables.

Results

Demographic Findings

In the first phase of data collection tool, questions were asked to identify demographic information of the participants and their internet use preferences. 53.5% of the participants were female, and 46.5% of them were male. As it can be seen in Table 2, the students who took pedagogical formation certificate program and answered this question were between the ages of 25 and 29, which had the highest percentage, with 49.0%. The lowest percentage was 3% with the participants who were between 35 and 39.

Table 2

Frequency According to Age Groups

Age	Frequency	Percent
24 years-old and below	38	36.5
25-29 years-old	51	49.0
30-34 years-old	12	11.5
35-39 years-old	3	3.0
Total	104	100.0

As it can be seen from Table 3, 44 of the students who took pedagogical formation certificate program used internet for 1-2 hours daily with a percentage of 42.3%. The number of students who used internet for 5 to 7 hours was 5, whereas the number of students who used internet for 7 or more hours was 7.

Table 3

Frequency of Internet Usage

Frequency	Frequency	Percent
Less than 1 hour	20	19.2
1-2 hours	44	42.3
3-5 hours	28	26.9
5-7 hours	5	4.8
7 or more hours	7	6.7
Total	104	100.0

The majority of students had not attended any online certificate program, and the number of those who had was 19 with the percentage of 19.4%.

Examination of the Proposed Model

Cronbach's α coefficient, which is one of the most frequently used methods in testing the validity of scales and the internal consistency of measurement tools, was used. Cronbach's α coefficient for the perceived quality structure was calculated as 0.888, for perceived usability as 0.839, and for perceived control as 0.880, which showed that each structure was highly reliable.
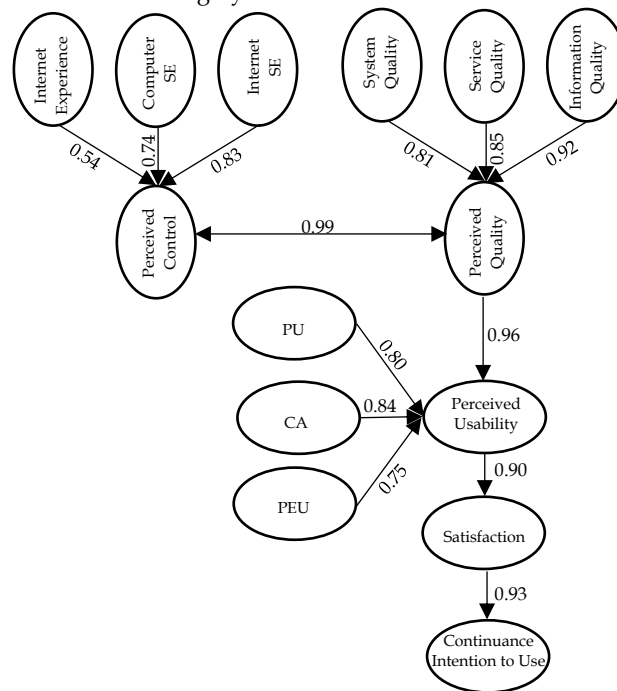
Figure 2. The Model of Perceived Control, Perceived Quality, Perceived Usability, Satisfaction and Continuance Intention to Use: Structural Model

Table 4

Research Hypotheses, t Values, R^2

Hypothesis	Path	Path Coefficient	t-value	R^2	Result
H1.a	Perceived Quality ← →Perceived Control	0.99	18.35	-----	Confirmed
H1.b	Perceived Quality→Perceived Usability	0.96	12.55	0.918	Confirmed
H1.c	Perceived Usability→Satisfaction	0.90	6.46	0.813	Confirmed
H1.d	Satisfaction→ Continuance Intention to Use	0.93	7.45	0.870	Confirmed

Path coefficients were found significant, and hypotheses were confirmed. An increase of 1 unit in perceived quality in an e-learning system would cause an increase

of 0.99 unit in perceived control. Similarly, an increase of 1 unit in perceived quality would lead to an increase of 0.96 unit in perceived usability; an increase of 1 unit in perceived usability would lead to an increase of 0.90 unit in satisfaction; and finally, an increase of 1 unit in satisfaction would lead to an increase of 0.93 unit in the continuance intention to use (see also Figure 2). Coefficient of determination (R^2) have been calculated to be 91%, 81% and 87%.

Discussion, Conclusion and Recommendations

Web-based distance learning systems as well as advancements in internet and communication have led to diversity in the forms of learning. Web–based distance learning is operated through these systems, the majority of which is web-based. These systems have many different names and learning environments. Some of the learning environments are M-learning, harmonized learning, virtual learning, and authentically-enhanced learning environments. Provision of successful learning environments in terms of e-learning applications is an important issue. The type of e-learning has taken users further from being a third party in learning process thanks to the advancements in web and the learning environments. These environments have become open to interaction thanks to Web 2.0, and have included users in learning process thanks to Web 3.0. It is therefore of great importance to examine the factors which affect continuance intentions of users to use these e-learning systems on which the users have centered. Thus, in this study, structures which may affect continuance intentionto use an e-learning system have been examined by reviewing the literature both in the light of the previous studies and the analyses conducted, and structural equation models. This study aimed to present the relationship between perceived quality, perceived usability, perceived control, satisfaction and continuance usage intention towards structures used in the models (see Chiu and Wang, 2008; Lin, 2012; Roca et al., 2006). The structures of TAM and EDT were combined with some other structures, and were examined. Firstly, it was suggested that perceived quality could be explained through system, service and information qualities, and these relations were confirmed. In the literature, it was identified that information and system qualities were used relatively more in the studies conducted on e-learning compared to the ones on service quality (SQ). However, SQ was identified to have an important effect of 85% in explaining the change in perceived quality. Perceived usability structure was aimed to be explained using PU, PEU, and CA factors, and these relations were also found to be significant. An important point to be mentioned here is that CA is included in many studies related to information systems even though it is used under different names such as perceived playfulness and perceived enjoyment, which are characterized as similar concepts in the literature. In another hypothesis, the effect of perceived quality on perceived usability was examined, and it was shown that there was a significant effect. Then, perceived control structure was examined using internet self-efficacy, computer self-efficacy and internet experience dimensions. Concepts, such as e-learning self-efficacy and e-learning experience, were observed to have been used in the studies carried out in recent years. It is therefore thought that e-learning experience will be useful to be examined as a different dimension as e-

learning continues to be widespread in Turkey. Hence, users were asked whether they had been involved in an online certificate program before or not in the demographic information section in the first phase of the study, and approximately 80% of the students were found not to have done so. Satisfaction was indicated to have a positive effect on the continuance intention to use. In the present study, the relationships between the structures were separately evaluated; and as a result, satisfaction was identified to have a direct effect on the continuance intention to use, and the other structures were identified to have an indirect effect. When the institutions, which provide online training and whose number is increasing, are considered, it will be especially useful to examine perceived quality structure in further studies. One of the limitations of our study was that only some of the students, who were enrolled in a distance pedagogical formation certificate program at Yüzüncü Yıl University, were given a questionnaire. Similar studies can be conducted with different student/user groups by different distance learning centres and institutions which provide distance learning services. E-learning systems, which have become widely-used especially by companies, can be expanded via studies to be conducted within these environments. The structure of web-based learning systems can be analyzed using different factors. It is possible to contribute to the institutions, which operate in this field, by guiding them with the help of comparative and similar studies to be conducted.

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Web Tabanlı Uzaktan Eğitim Sistemini Kullanmaya Devam Etme Niyetini Etkileyen Faktörlerin Yapısal Eşitlik Modeli ile İncelenmesi

Atıf:

Özet

Problem Durumu: Bu çalışmada, Yüzüncü Yıl Üniversitesi web tabanlı uzaktan eğitim sistemi ile formasyon eğitimi alan öğrenciler örneğinde bu sistemi kullanmaya devam etme niyetini etkileyen faktörler yapısal eşitlik modellemesi ile incelenmiştir.

Araştırmanın Amacı: Çalışmada yer alacak yapılar detaylı bir literatür taraması sonucunda belirlenmiş ve birçok bileşeni bir arada bulunduran web tabanlı uzaktan eğitim sistemlerinin karmaşık yapısı çözümlenmeye çalışılmıştır. Kullanılacak modelin belirlenmesinde Teknoloji Kabul Modeli (TAM, Technology Acceptance Model) ve Onaylanmayan Beklentiler Kuramı' ndan (EDT, Expectancy Disconfirmation Theory) faydalanılmış ve geniş kapsamlı bir araştırma yapılmıştır. Sonuç olarak bir web tabanlı uzaktan eğitim sistemini kullanmaya devam etme niyetinin algılanan kalite, algılanan kontrol, algılanan kullanılabilirlik yapılarından dolaylı olarak ve memnuniyet yapısından direk etkilendiği belirlenmiştir.

Araştırmanın Yöntemi: Araştırmanın iki aşaması mevcuttur. İlk aşamada konuyla ilgili literatür taraması yapılarak izlenecek yol ve kavramsal çerçeve belirlenmiş ikinci aşamada araştırma modelinin hipotezleri belirlenip veriler toplanmıştır. Verilerin toplanmasında ölçme aracı uygulanması yöntemi kullanılmıştır. Ölçme aracı formu geçerliliği ispatlanmış birçok ölçeğin birleşiminden oluşmaktadır. Ölçme aracında yer alan maddelerin Türkçe 'ye adaptasyonunda eğitim bilimleri alanında uzman kişilerden görüşler alınmış ve ayrıca gerektiği noktada çeviri konusunda da destek alınmıştır. Her bir alt ölçeğin güvenilirliği Cronbach's Alfa katsayıları incelenerek test edilmiş daha sonra yapısal eşitlik modeli (SEM) yardımıyla, ileri sürülen teorik modele bağlı nedensel ilişkilerin analizi yapılmıştır. Ölçeklerin güvenilirliğinin ve ölçüm araçlarının içsel tutarlılığının test edilmesinde en çok kullanılan yöntemlerden biri olan Cronbach's α katsayısından yararlanılmıştır. Algılanan kalite yapısının güvenilirliği Cronbach's α katsayısı hesaplanarak belirlenmiştir. Algılanan kalite yapısı için 0.888, Algılanan kullanılabilirlik 0,839, Algılanan kontrol 0,880 olarak hesaplanmıştır. Bu değerler her bir yapının yüksek derecede güvenilir olduğunu göstermektedir.

Araştırmanın Bulguları: Path katsayıları anlamlı bulunmuştur ve hipotezler doğrulanmıştır. Bir e-öğrenme sisteminde algılanan kalitede meydana gelen 1 birimlik artış algılanan kontrolde 0.99 birim artışa sebep olacaktır. Aynı şekilde algılanan

kalitede meydana gelen 1 birimlik artış algılanan kullanılabilirlikte 0.96 birim artışa sebep olacaktır, algılanan kullanılabilirlikte meydana gelen 1 birimlik artış memnuniyette 0.90 birimlik artışa sebep olacaktır ve son olarak memnuniyette meydana gelen 1 birimlik artış kullanmaya devam etme niyetinde 0.93 birim artışa sebep olacaktır. Belirlilik katsayıları (R^2) % 91, %81 ve %87 olarak hesaplanmıştır.

Araştırmanın Sonuçları ve Önerileri: Uzaktan eğitim sistemleri internet ve iletişim alanında yaşanılan gelişmelerle birlikte öğrenme biçimlerinde çeşitliliğe yol açmıştır. Uzaktan eğitim artık çoğunluğu web tabanlı olan bu sistemler üzerinden yürütülmektedir. Bu sistemler birçok isimle, birçok öğrenme ortamı ile karşımıza çıkmaktadır. M-öğrenme, harmanlanmış öğrenme, sanal ve gerçekliği arttırılmış öğrenme ortamları bunlardan bazılarıdır. E-öğrenme uygulamaları açısından başarılı öğrenme ortamlarının sağlanması önemli bir konudur. E-öğrenmenin şekli Web' de yaşanan gelişmelerle birlikte kullanıcıları öğrenme sürecinde üçüncü şahıs olmaktan öteye geçirmiş, Web 2.0 ile etkileşime açık hale gelen öğrenme ortamları Web 3.0 ile kullanıcıları öğrenme sürecine dâhil etmiştir. Bu sebeplerle kullanıcının giderek sistemin merkezine oturduğu bu e-öğrenme sistemlerini kullanmaya devam etme niyetlerini etkileyen faktörlerin incelenmesi araştırılmaya değer bir konudur. Bu sebeple bu çalışma ile literatür incelenerek bir e-öğrenme sistemini kullanmaya devam etme niyetini etkileyebilecek yapılar gerek önceki çalışmalar ışığında gerekse yapılan analizler ve yapısal eşitlik modelleri ile incelenmiştir. Kullanılan modellerde algılanan kalite, algılanan kullanılabilirlik, algılanan kontrol, memnuniyet ve kullanmaya devam etme niyeti yapıları arasındaki ilişkiler açığa çıkarılmaya çalışılmıştır. TAM ve EDT' nin yapıları ile bir takım diğer yapılar birleştirilerek incelenmiştir. İlk olarak algılanan kalitenin sistem, servis ve bilgi kaliteleri ile açıklanabileceği öne sürülmüş ve bu ilişkiler doğrulanmıştır. Literatürde bilgi ve sistem kalitelerinin e-öğrenme ile ilgili çalışmalarda servis kalitesine görece daha fazla kullanılmış olduğu görülmüştür. Ancak servis kalitesinin algılanan kalitedeki değişimi açıklamada %85 ile önemli bir etkisinin olduğu belirlenmiştir. Algılanan kullanılabilirlik yapısı, algılanan fayda, algılanan kullanım kolaylığı ve bilişsel kapılma faktörleri ile açıklanmak istenmiş ve bu ilişkiler de anlamlı bulunmuştur. Burada bahsedilmesi gereken önemli bir nokta, bilişsel kapılmanın literatürde benzer kavramlar olarak nitelendirilen algılanan eğlenebilirlik ve algılanan zevk bileşenleri olarak farklı isimlerle de olsa bilgi sistemlerini ilgilendiren birçok çalışmada yer almasıdır. Diğer bir hipotezde algılanan kalitenin algılanan kullanılabilirlik üzerindeki etkisi incelenmiş ve anlamlı bir etkisi olduğu gösterilmiştir. Daha sonra algılanan kontrol yapısı; internet öz-yeterliliği, bilgisayar öz yeterliliği ve internet deneyimi boyutları ile incelenmiştir. Son yıllarda yapılan çalışmalarda e-öğrenme öz-yeterliliği, e-öğrenme deneyimi gibi kavramların kullanıldığı görülmüştür Bu sebeple Ülkemizde de e-öğrenme yaygınlaşmaya devam ettikçe e-öğrenme deneyiminin farklı bir boyut olarak ayrıca irdelenmesinin faydalı olacağı düşünülmektedir. Nitekim araştırmanın ilk kısmında yer alan demografik bilgiler kısmında kullanıcıların daha önceden online bir sertifika programına katılıp katılmadıkları sorulmuş ve öğrencilerin yaklaşık % 80'inin katılmadığı bilgisine ulaşılmıştır. Kullanmaya devam etme niyetinde memnuniyetin pozitif bir etkisi olduğu belirlenmiştir. Bu çalışmada yapılar arasındaki ilişkiler ayrı ayrı birbirleri açısından değerlendirilmiştir ve sonuç olarak memnuniyetin kullanmaya devam etme

niyetinde direk etkisi olduğu diğer yapıların ise dolaylı etkisi olduğu belirlenmiştir. Sayıca çoğalan online eğitim veren kuruluşlar göz önünde bulundurulduğunda özellikle algılanan kalite yapısının gelecekteki çalışmalarca incelenmesi faydalı olacaktır. Van Yüzüncü Yıl Üniversitesinde uzaktan eğitimle pedagojik formasyon eğitimi gören öğrencilerin bir kısmına anket uygulanması ile oluşturulmuştur. Bunlar araştırmanın kısıtlarını oluşturmaktadır. Benzer çalışmalar farklı uzaktan eğitim merkezleri ve uzaktan eğitim veren kuruluşlarca farklı öğrenci/kullanıcı gruplarına uygulanabilir. Özellikle şirketlerce de kullanımı yaygınlaşan e-öğrenme sistemleri bu çevrelere yapılacak araştırmalarla genişletilebilir. Web tabanlı eğitim sistemleri yapısı farklı faktörler kullanılarak çözümlenebilir. Yapılacak karşılaştırmalı çalışmalar ve benzer çalışmalar ile bu alanda faaliyet gösteren kuruluşlara yol gösterme anlamında katkı sunabilir.

Anahtar Sözcükler: Uzaktan Eğitim, E-Öğrenme, Teknoloji Kabul Modeli, Web.

Investigation of Group Invariance in Test Equating Under Different Simulation Conditions*

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ARTICLE INFO	ABSTRACT
	Purpose: This study aimed to examine the impact of differential item functioning in anchor items on the group invariance in test equating for different sample sizes. Within this scope, the factors chosen to investigate the group invariance in test equating were sample size, frequency of sample size of subgroups, differential form of differential item functioning (DIF), frequency of items in the anchor test with differential item functioning, directionality of differential item functioning and mean differences in subpopulation ability levels.

Research Methods: The current study was conducted by using item response theory true score equating under equivalent groups anchor test design. REMSD index was used for investigating group invariance in test equating. This study was designed as a comparison of equating results on 96 simulation conditions. The R language and SPSS software was utilized for analysis and 100 replications were performed for each condition. The effect of the conditions held in the study on group invariance in test equating was evaluated by taking average of REMSD. Also, ANOVA was performed to determine significant effect of each factor on group invariance in test equating. **Findings:** The findings of the study showed that differential form DIF was the factor that had the most prominent impact on group invariance in test equating. **Implications for Research and Practice:** Within the scope of the results of the study, group invariance affected by factors of DIF were only in instances in which DIF in anchor items was differential across test forms.

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Introduction

The scores obtained from tests are among significant sources of information for important decisions made in many subjects. In fact, utilization of tests for the purposes of selection and placement of students, as well as for the determination of occupational life of individuals raises the importance of the decisions to be made according to the results of tests. Different forms of large-scale and centralized tests, which are administered at certain intervals with the aim of placing individuals in a school or work, are developed and implemented for some reasons such as safety. Although the administered forms are aimed at the same purpose, it is necessary to equate the test forms to obtain comparable scores. In psychometry, equating is referred to as the process of converting points so that scores obtained from different forms of a test can be comparable and interchangeable (Dorans and Holland, 2000; Holland, 2007; Kolen and Brennan, 2004). According to Kolen and Brennan (2004), prior to 1980, the issue of equating was ignored by most researchers carrying out assessment and evaluation studies, except for psychometrics responsible for equating. However, the importance of equating began to be understood in the early 1980s. The increase attached to the importance of equating led to a rise in the number and diversity of programs employing different forms of a test, and test specialists in charge of these programs employed in equating scores in different forms (Kolen and Brennan, 2004). Thus, issues of accountability in education and fairness in examination have also begun to be taken into consideration. These developments have led to a further increase in the importance of equating among assessment experts and test takers.

The accuracy of test equating process is of critical significance for testing practices to be performed in a fairer manner, and for making the right decisions about the future of the individuals. Angoff (1984) reported that following a successful equating process, it is possible to monitor individual development of test takers on different applications of a test, identify changes in a group performance at a given time interval, and compare students taking a test at different times of the year. A successful equating means that individuals who take the easier form of a test do not gain an unfair advantage over individuals taking the more difficult form of the test, and that the difference in the scores of individuals who take different forms of a test results from the difference in the achievement level of individuals. For the equating process to be carried out successfully, put another way, for the scores obtained from different forms to be used interchangeably by means of the equating process, several conditions, including the condition of group invariance, must be met. (Dorans and Holland, 2000; Kolen and Brennan, 2004). The group invariance of equating is achieved by the fact that the function used to equate the scores on different scales is not dependent on subgroups (Angoff, 1971; Dorans and Holland, 2000; Flanagan, 1951). Thus, it can be said that the equating function, each form of which is placed on a common scale, must be the same in different groups or subgroups so that the scores obtained from different forms can be used interchangeably (Kolen, 2004). Violation of group invariance in the equating causes the individuals belonging to the different groups who must have the same score to receive different equated scores. In other words, the violation of group invariance

in test equating compromises the principle that a test should be comparable and fair for different groups (Dorans, 2004, 2008; Huggins and Penfield, 2012).

Based on the decisions to be made from the tests, the test scores should provide the most accurate information possible (Kolen and Brennan, 2004). Therefore, no matter what the test scores are used for, the accuracy of the decisions made based on a test score should be demonstrated (Kane, 2013; Messick, 1995; Zumbo, 1999). For this purpose, all items in a test must measure the construct aimed to be measured by a test in a similar way. To this end, Differential Item Functioning (DIF) analyses are performed (Kane, 2013). DIF is used to examine how the performance pertaining to an item in a test shows variation across different subgroups. Therefore, it is necessary to carry out DIF analysis prior to parameter estimation or the test equating to identify or delete items showing DIF, if necessary. On the other hand, it is generally assumed in equating studies that all items are cleared from DIF effects. However, in some circumstances, a well-structured test may contain many items showing DIF, but the deletion of the items showing DIF from the test will result in a decline in the construct validity of the test, and an increase in error in the ability parameter estimations. In addition, there may be circumstances in which the test is invalid in case items showing DIF are deleted. Therefore, it is important to examine conditions that may minimize the effect on equating in the presence of items showing DIF during equating.

Angoff and Cook (1988) stated that DIF and test equating could not be considered as two separate subjects. Hence, studies investigating the effect of items showing DIF on equating have been carried out in the literature (Atalay Kabasakal, 2014; Chu, 2002; Chu and Kamata, 2005; Demirus, 2015; Han, 2008; Huggins, 2012). Items showing DIF not only increase test equating error but may also cause bias against some test takers. Therefore, under ideal conditions, the presence of items showing DIF should be investigated before test equating is performed and if any, the equating process should be initiated upon deleting items showing DIF. However, in studies in which DIF and test equating are carried out concurrently, it is also aimed to examine to what extent and in which conditions DIF influences test equating. When the relevant literature is reviewed, it is seen that the effect of the variables such as the form containing items showing DIF, the ratio of the items showing DIF, DIF effect size, the sample size, the ratio of the sub-group sizes, and the test length on test equating was examined. In this study, it was also investigated how the presence of DIF in the test items posed a problem in terms of group invariance along with equating. Different indices were utilized for examining equating in terms of group invariance. In this study, the group invariance of the equating carried out under the simulation conditions specified was determined by REMSD (Root Expected Mean Square Difference) index. It was also investigated how the group invariance indices changed under conditions in a way that the subgroup sizes were equal, and the ratio of subgroup sizes was 1: 2 in the presence of items showing DIF. Besides, the effect of the sample size on equating results was investigated by various studies in the literature (Hanson and Beguin, 2002; Hu et al., 2008; Kolen and Brennan, 2004; Lee and Ban, 2010), and it was found that the small sample size in those studies could cause erroneous equating results. However, in case

that items showing DIF were present in different sample sizes, it was thought that equating results needed to be investigated in terms of group invariance.

DIF analysis is carried out to examine whether a subgroup in an item gains an advantage over the other, but it is also conducted because it is a prerequisite for some measurement techniques (Shepard et al., 1984). For example, the presence of items showing DIF in equating can adversely affect the equating results (Kim and Cohen, 1992; Shepard et al., 1984). Test equating also encompasses the process of placing parameter estimations on the same scale if there are individuals taking tests containing different items. Items showing DIF may increase the number of errors in test equating or parameter estimation and may also cause bias against some individuals. For this reason, it is necessary to carry out the DIF analysis to identify and, if necessary, delete the items showing DIF prior to the parameter estimation or test equating. However, in some circumstances, a well-structured test may contain a large number of items showing DIF, but the deletion of items showing DIF in the test will result in a decline in the validity of the test and increase the error in the ability parameter estimations. In addition, deletion of items showing DIF will increase the cost of test development studies. For this reason, it is important to identify the items showing DIF during equating and develop and utilize the methods that will minimize the effect of these items on equating (Hidalgo-Montesinos and Lopez-Pina, 2002).

The aim of this study was to determine group invariance indices in various conditions generated from DIF and sample size, and to compare the results obtained in equating carried out based on common items in case that common items showed DIF. In line with the purpose of the study, it was aimed to determine the optimum condition in terms of equating under DIF and sample size factors in equating by means of common items. It was thought that the results of this study would be useful for the researchers and the assessment and evaluation centers implementing large-scale testing applications for designing the appropriate equating process to equate different test forms. It could also be said that this study would contribute to the theoretical research aimed at determining the necessary conditions in order to obtain the most accurate equating results.

Method

Research Design

In this study, it was aimed to compare different equating designs by using simulation data generated according to the specified conditions. Thus, it is fair to say that this study, in which the optimum conditions for equating design were investigated under the specified conditions, was a simulation study.

Equating Design

In this study, "the common item equivalent groups" design was used to equate the two test forms. In this study, two test forms called F0 and F1 were placed in the forms of common items and the data were simulated. Common items were used to establish the equating relationship between F0 and F1. Hambleton et al. (1991) state that the number of items required for common items should correspond to approximately 20-

25% of the number of items in the test. Therefore, each form to be equated consists of binary scored 40 items, 25% or 10 of which are common items.

Simulation Conditions

The aim of this simulation study was to evaluate the effectiveness of equating designs under the conditions specified in the study. Simulation factors used in the study included the sample size, sample size ratio, the form containing the items showing DIF, the ratio of the items showing DIF, the direction of DIF and the mean ability difference between the groups. Table 1 illustrates the simulation conditions specified.

Table 1

Simulated Conditions of the Study

Factors	Number of Conditions	Level	
Sample Size	2	Level I:	1500
		Level II:	3000
Ratio of Sample Sizes	2	Level I:	1:1
		Level II:	1:2
Differential Form	2	Level I:	2 Form
		Level II:	1 Form
Ratio of Items in the Anchor Test with DIF	3	Level I:	%20
		Level II:	%40
		Level III:	%60
Directionality of DIF	2	Level I:	Unidirectional
		Level II:	Bidirectional
Group Mean Ability Difference	2	Level I:	0
		Level II:	1 SD

Sample Size and Ratio of Sample Sizes: It has been revealed by several studies that sample size has a significant impact on the implementation and interpretation of equating designs (Cui and Kolen, 2008; Hanson and Beguin, 2002; Hu et al., 2008; Kolen and Brennan, 2004; Lee and Ban, 2010, Sahin and Anil, 2017; Zhao, 2008;). In this study, equating was conducted in the total group, the focus group, and the reference group. Therefore, the focus group sample size was taken as at least 500, the smallest sample was taken as 750 in the reference group, and the smallest sample size was taken as 1500 in the total group in order to ensure that equating was conducted in accordance with the literature. A large sample size was taken as 1500 in the focus group, as 2000 in the reference group, and as 3000 in the total group.

On the other hand, it is evident that the sample size of the focus group is smaller in real test applications. For this reason, two sample size ratios were determined as 1: 1 and 1: 2 among focus and reference groups. Thus, four conditions were created for the sample as 500: 1000 and 750: 750 for the small sample (N = 1500) and as 1000: 2000 and 1500: 1500 for the large sample (N = 3000).

DIF: There are past studies which investigated the effect of DIF on test equating (Chu and Kamata, 2005; Tong and Um, 2007). In this study, the ratio items showing DIF, the direction of DIF, and the effect of mean ability difference between focus and

reference group on group invariance were investigated. All of the items showing DIF that were discussed in this study were included in the common items. Furthermore, all of the DIFs were simulated in line with the study uniform, resulting from the differentiation of the b parameter. In the past studies carried out by means of simulated data, it is seen that different values of DIF amount are used (Atar, 2007; Kristjansson, 2001; Wang and Su, 2004;). In this study, 0.90 value, which is a high level of DIF, was selected (Dorans and Holland, 1993).

When two test forms to be equated are applied to different groups at different times, one common item shows DIF in one of the forms, whereas DIF may not be seen in the same common item in the other form. Accordingly, in this study, group invariance in test equating was examined in case when DIF was seen in the common items in both forms, or only in common items in one form.

Due to the presence of more than one item showing DIF in the real test conditions, two, four and six of the 10 common items in the study were simulated in a way to include DIF. Therefore, ratio of the items showing DIF were established as 20%, 40%, and 60%.

DIF is carried out in two ways in a test. Firstly, if all items showing DIF in a test operate in a way to create an advantage for one subgroup only, this points to a unidirectional DIF. More specifically, DIF is unidirectional if one of the groups gains an advantage over the other in all items. DIF is bidirectional if some of the items showing DIF in a test create an advantage for a subgroup, while the other items create an advantage for the other sub-group (Bolt and Stout, 1996).

In this study, it was aimed to investigate how the group invariance of equating changed under the unidirectional and bi-directional conditions of DIF. Unidirectional DIF will always be generated in a way that the reference group is advantageous.

Group Mean Ability Difference: In the literature, while .5 standard deviation between the mean ability distributions of the groups is not found to be significant, the difference of .75 standard deviation is considered moderate, and the difference of 1 standard deviation is considered as an indicator of a significant differentiation. Differences of .5, .75 and 1 standard deviations between the mean ability levels of the compared groups are reported as values commonly found in real test results (Tian, 1999).

In this study, lack of mean ability difference in groups was taken as a condition and 1 SD difference in groups was taken as a secondary condition. Under the first condition, the ability distributions of the reference (R) and focus (F) groups were generated in a way to show the unit normal distribution [R ~ N (0,1) and F ~ N (0,1)]. For the other condition, the ability distribution of the reference group had the unit normal distribution [R ~ N (0,1)], while the ability distribution of the focus group was generated as F ~ N (-1,1).

Data Generation

R program was used to generate data. In this study, each data set was derived 100 times so that the results could be consistent and generalizable. Within the scope of the study, it was necessary to define DIF in some common test items. Therefore, the groups in which F0 and F1 forms were applied were divided into focus groups and reference groups. In addition, in order to calculate the group invariance, it was necessary to carry out equating in the focus, reference and total groups. Therefore, in the data generation phase, data generation was carried out in the focus group, the reference group and the total group for F0 form and the F1 form. The data generation process consisted of three stages which included the generation of item parameters, the generation of ability parameters, and the generation of data sets that contained item responses for both forms to be equated.

Data Analysis

The R program and SPSS program were used to analyze the data. In the first stage of data analysis, the equating process was carried out. Then, in order to evaluate the accuracy of the equating based on the results obtained from the equating process, group invariance indices were obtained. Finally, variance analysis of the group invariance indices obtained was performed according to the factors discussed in the study.

Equating Process

In line with the aim of the study, the equating process of F0 and F1 forms was conducted separately on the total groups, focus groups and reference groups. The equating process was carried out in three stages for each group. Firstly, item calibration was performed with BILOG codes which were batched in R. Then, the parameters pertaining to the forms to be equated were scaled on the same metric with the average sigma method. Following the scaling, Item Response Theory (IRT) true score equating was performed and the equated true scores of F1 form were obtained. The equating process was carried out 100 times for 96 conditions. After each equating process was completed; the equating table containing the equated score of each score obtained as a result of total group equating, the equated score obtained by the equating of the reference groups, and the equated score obtained by the equating of the focus groups were created.

Item parameters can be simultaneously or separately calibrated depending on whether the computer program used for the item parameters IRT analysis is performed once or twice (Hanson and Beguin, 2002; Kim and Cohen, 1992; Petersen et al., 1983; Wingersky et al., 1987). In this study, item responses were calibrated separately for each group and for both test forms. Then, A and B equating coefficients should be calculated based on the item parameters of common items in order to place the parameters of both forms on the same scale. Different methods are available for placing the items and ability parameters in different calibrations on a common scale. These are mean-sigma method (Marco, 1977), the mean-mean method (Loyd and Hoover, 1980), and the characteristic curve method (Haebara, 1980; Stocking and Lord,

1983). In this study, the mean- sigma method was used. In the mean-sigma method, the A and B equating coefficients that must be calculated to place the parameters on the same scale are obtained via mean and standard deviation of the b parameter. With this method, the item and ability parameters of both forms were scaled in each group.

After item difficulty parameters were placed on the same scale, IRT true score equating was used to develop a relationship between correct number scores, in other words true scores in the old and new forms. In the IRT true score equating method, the true score associated with the ability level of a test form is equivalent to the true score associated with the ability level of the other form:

$$\tau_X(\theta_i) = \tau_Y(\theta_i)$$

IRT true score equating is completed in a three-stage process. Firstly, a true score τ_X is selected from the X form. Then, the θ_i value corresponding to the selected true score τ_X is determined. Finally, the τ_Y true score corresponding to the θ_i value in the Y form is found. This process is repeated for all the true score values included in the X form (Kolen and Brennan, 2004).

In this study, the accuracy of equating was evaluated in terms of group invariance. Group invariance in equating is the case when the function used to equate the scores on different scales is not dependent on subgroups (Angoff, 1971; Dorans and Holland, 2000; Flanagan, 1951). Failure to achieve equating group invariance results from the fact that respondents in different subgroups with the same raw score have different expected scores on the equated scale. In this case, even if the exams in which the forms have been applied for the same purpose, problems arise while comparing the scores of the students taking the exam. Various methods are employed to determine group invariance in equating. In this study, the REMSD indice introduced by Dorans and Holland to determine the group invariance in test equating was used (2000). REMSD group invariance indice is shown in the following equation in an unstandardized way:

$$REMSD = \sqrt{\sum_{x=1} P_x \left\{ \sum_k w_k [d_k(x)]^2 \right\}}$$

where x: score level of the test form; k: Subgroup level; d_k (x): The difference between the equated score calculated based on the equating function of the subgroup k at an x score level with the equated score calculated based on the total equating function; wk: The weight that is determined with the help of the ratio of the test-takers with the subgroups for each subgroup (von Davier, Holland and Thayer, 2004; von Davier and Wilson, 2008).

The value found with REMSD stands for the distance between the sub-group equating functions and the total equating function at each x-point level. In a group invariance study, one REMSD is obtained.

In this study, since the number of replications was 100, group invariance indices in each condition were reported by taking the means of the calculations obtained from replications.

In assessing group invariance in equating, DTM (Difference That Matters) criterion taken as half of the raw point unit proposed by Dorans et al. (2003) and Dorans (2004) was used. Although it is not a rule of thumb to evaluate group invariance with the DTM criterion, it may be ignored that the difference between a score equated in the total group and the equated score(s) in the subgroup(s) is less than 0.50, by considering the DTM = 0.50 criterion, and interpretations are made accepting that if it is more than 0.50, it is considered to be significant (Kolen and Brennan, 2014). Thus, in this study, group invariance indices that were below 0.50 were considered as an indicator that group invariance was achieved, and there was not a problem in terms of the group invariance in the equating conducted. Similarly, the fact that group invariance indices were above 0.50 indicated that group invariance was not achieved, and there was a problem in terms of group invariance in the equating conducted.

Results

The aim of this study was to determine group invariance indices in various conditions generated from DIF and sample size, and to compare the results obtained in equating carried out based on common items in case that common items showed DIF. In line with the aim of the study, Table 2 present the means of REMSD group invariance indices obtained as a result of 100 replications pertaining to the conditions in order to determine accuracy, and to evaluate performance of the equating carried out.

When the REMSD group invariance values in Table 2 were analyzed, it was seen that the difference between the equated scores varied between 0.2 and 2.3. In addition, when the common items showing DIF in the table were present in both forms, the REMSD values generally took values smaller than DTM = 0.5, whereas in case that common items showing DIF were present in a single form, it was observed that most of the REMSD indices took values higher than DTM = 0.5. Thus, in general, it can be interpreted that the presence of the common items showing DIF in a single form would pose a problem in terms of group invariance in equating. The condition when the difference between the equated scores was highest in 1500 sample size was the condition when the sample size ratio of the focus and reference groups was 1:1, the unidirectional DIF defined in 60% common items in a single form was seen, and the mean ability difference between the focus and the reference group was 1. When Table 2 was examined, it was observed that difference between the equated scores increased with a rise in the ratio of the items showing DIF. Furthermore, it can be said that in unidirectional DIF cases, group invariance values were increased compared to the bi-directional conditions, and that bidirectional DIF did not constitute a problem for group invariance. It was seen that the group invariance values in conditions when the ability difference between the groups was 1, it was greater than the values in conditions when it was 0. Thus, it can be interpreted that, as the average ability difference between the groups increased, the difference between the group invariance value, in other words difference between the equated scores would increase. According to Table 2, it can be said that the change in the sample size ratio did not make a big difference on group invariance.

Table 2

REMSD Group Invariance Indices According to Study Conditions

				Differential Form			
				2 Form		1 Form	
				Sample Size		Sample Size	
RSS	RID	DD	GMD	1500	3000	1500	3000
1:1	%20	1	0	0,464	0,255	0,948	1,096
			1SD	0,722	0,347	0,885	0,976
		2	0	0,401	0,274	0,474	0,591
			1SD	0,601	0,383	1,498	0,485
	%40	1	0	0,385	0,340	1,616	1,315
			1SD	0,530	0,510	1,761	1,725
		2	0	0,463	0,343	0,398	0,506
			1SD	0,526	0,320	0,848	0,848
	%60	1	0	0,539	0,357	2,132	2,153
			1SD	0,584	0,597	2,207	1,714
		2	0	0,429	0,331	0,626	0,940
			1SD	0,662	0,678	1,386	1,660
1:2	%20	1	0	0,386	0,283	0,683	0,653
			1SD	0,483	0,430	0,870	0,890
		2	0	0,373	0,300	0,382	0,302
			1SD	0,529	0,491	0,602	1,348
	%40	1	0	0,391	0,238	1,246	1,545
			1SD	0,628	0,504	1,530	1,392
		2	0	0,388	0,255	1,447	0,521
			1SD	0,535	0,473	0,665	1,096
	%60	1	0	0,446	0,338	2,044	1,851
			1SD	0,611	0,609	2,204	1,916
		2	0	0,412	0,328	0,622	0,795
			1SD	0,585	0,429	0,824	0,874

RSS: Ratio of Sample sizes, RID: Ratio of Items in the Anchor Test with DIF, DD: Directionality of DIF, GMD: Group Mean Ability Difference

In Table 2, if the common items in both forms to be equated showed DIF, the ratio of the variables formed under DIF, put another way, ratio of the items showing DIF, and the direction of DIF did not cause a large difference in the values of group invariance in the test equating, but if the common items in only one of the two forms

to be equated showed DIF, it was observed that the ratio of items showing DIF and the direction of DIF led to the group invariance indices in which there were greater differences between the conditions in the test equating. Moreover, when the common items in both forms to be equated showed DIF, the biggest difference developed in group invariance when the mean ability difference between the focus and the reference group changed. If only one of the two forms to be equated had common items showing DIF, a remarkable difference was obtained in group invariance with a change in DIF direction compared to other factors.

Table 3 demonstrates variance analysis results of REMSD group invariance values according to all factors discussed in the study.

Table 3

ANOVA Results for REMSD Group Invariance Indices

Factors		Mean	F	η^2
Sample Size	1500	0,833	186,907*	0,019
	3000	0,763		
Ratio of Items in the Anchor Test with DIF	20%	0,606	693,237*	0,127
	40%	0,790		
	60%	0,996		
Directionality of DIF	1	0,965	1411,710*	0,129
	2	0,630		
Differential Form DIF	1 Form	1,148	9955,451*	0,510
	2 Form	0,448		
Ratio of Sample Sizes	1:1	0,830	66,754*	0,007
	1:2	0,766		
Group Mean Ability Difference	0	0,700	1352,987*	0,124
	1 SD	0,895		

(*p<.05)

When Table 3 is examined, it is seen that REMSD differed significantly according to all variables discussed in the study. As the size of the study group increased, REMSD was significantly reduced. In addition, as the ratio of the common items showing DIF got higher, REMSD increased significantly as well. According to the Post-Hoc test conducted to determine in which subgroups REMSD showed significant increases according to the ratio of common items showing DIF, it was found that there was a significant difference in all dual subgroup comparisons in the variable of ratio of common items showing DIF. It was revealed that REMSD got significantly higher values in conditions when unidirectional DIF was present compared to conditions in which bidirectional DIF was present. In addition, smaller REMSD values were calculated when the difference between the groups was 0, compared to when the difference between the groups was 1.

When the effect sizes in Table 3 were examined, according to the classification developed by Cohen (1992) for the effect size, it is fair to say that the effect of the ratio of sub-group sizes on the REMSD was non-significant; the effect of the study group size was small; the effect of ratio of the common items showing DIF, DIF direction and

the mean ability difference between the groups was moderate and finally, the effect of the form containing common items showing DIF was large.

Discussion, Conclusion and Recommendations

In the context of this study, it was investigated how items showing DIF affected the group invariance in test equating in different sample sizes in case common items showed DIF. In line with this scope, the variables used in order to examine the group invariance of the equating were sample size, ratio of the sample size, the form containing items showing DIF, the ratio of the items showing DIF, the direction of DIF, and the mean ability difference between the groups. Based on the variables discussed, the data were generated, and it was examined which methods affected the equating in the negative sense. To this end, the accuracy of equating was examined in terms of group invariance, and the non-standardized REMSD index was used.

Huggins (2012, 2014) conclude that the most important variable affecting the group invariance was that items showing DIF are defined in a single form or in both forms. Similarly, it was also found in the present study that the most important factor affecting the group invariance in the test equating was the form variable which contained common items showing DIF in case that DIF was seen in common items. The case that common items showing DIF were in a single form caused DIF to negatively affect the group invariance in equating compared to the case of presence of items showing DIF in two forms. It was concluded that in the presence of DIF in the common items, if the common items in both forms to be equated showed DIF, the variables formed under DIF, in other words the ratio of the items showing DIF and DIF direction, did not affect the group invariance in the test equating; however, if the common items showed DIF in only of one of two forms to be equated, the variables formed under DIF, in other words, the ratio of the items showing DIF and the DIF direction affected the group invariance in the test equating. This result is consistent with the findings by Huggins (2012). In the case that DIF is seen in the common items, while the most important factor affecting the group invariance is the ability difference in focus and reference groups, if the common items in both forms to be equated show DIF, the most important factor affecting the group invariance is the DIF direction if the common items show DIF in only one of the two forms to be equated. The increase in the mean ability difference between the groups leads to a significant increase in the difference between the equated scores, that is the values that the group invariance obtains. In an equating study conducted by Huang (2010) on different ability groups with real data, it was concluded that the group invariance did not change in different ability groups. We can say that the difference obtained in this study may be caused by the conditions examined in the study.

In case that common items showing DIF were seen in only one form, a higher difference was obtained between the equated scores in the unidirectional DIF condition compared to two-directional DIF conditions. In other words, in case that common items showing DIF were seen in one form, significantly higher group invariance values of the unidirectional DIF were calculated compared to the conditions

in which directional DIF was present. In the study conducted by Huggins (2012), it is seen that the most influential variable affecting the group invariance is DIF direction in case when the common items showing DIF are seen in a single form. The reason why the direction of DIF is the variable that affects the group invariance most might be associated with that bidirectional DIF may cause less DIF at the form level when compared with the unidirectional DIF, as DIF is defined in favour of the focus group in one part of the items, and in favour of the reference group in another part (Drasgow, 1987; Nandakamur, 1993; Penfield and Camilli, 2007).

In case that common items showing DIF were seen in a single form, the higher the group invariance values were obtained as the ratio of the common items showing DIF increased. In other words, the difference between the equated scores increased with a rise in the ratio of the common items showing DIF. This result is consistent with the findings of the studies carried out by Han (2008) and Huggins (2012, 2014).

Study group size is one of the most commonly used variables in test equating studies. In the literature, it has been established with various studies that less erroneous equating results could be achieved with a larger working group size (Cui and Kolen, 2008; Hanson and Beguin, 2002; Zhao, 2008). Similar to these studies that examined the performance of test equating with an equating error, this study presented consistent findings when the equating performance was evaluated in terms of group invariance. As the working group size grew, significantly lower group invariance values were obtained.

In this study, the data were generated and equated according to 3-parameter logistic model. Different studies can be conducted by generating data according to different models. In addition, it is possible to investigate how the group invariance changes in the test equating in case that items showing DIF are present among the common items or in the test to be equated according to different equating patterns. On the other hand, for different sample sizes, different equating methods in different test lengths can be used to investigate the group invariance of test equating. In this study, the effect of common items showing DIF on the group invariance of test equating was investigated by using simulation data. Likewise, it may be advisable to conduct a study on how test equating affects group invariance by means of a real data set or a simulation study along with a real data set in case that DIF is seen in the common items.

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Test Eşitlemede Grup Değişmezliğinin Farklı Simülasyon Koşulları Altında İncelenmesi

Atıf:

Özet

Problem Durumu: Psikometride, bir testin farklı formlarından elde edilen puanların karşılaştırılabilmesini ve birbiri yerine kullanılabilmesini sağlayan puanları dönüştürme süreci eşitleme olarak adlandırılmaktadır. Eşitleme işlemin hatasız olması, gerçekleştirilen test uygulamalarının daha adil olması ve bireylerin geleceği ile ilgili doğru kararlar alınmasında kritik önem arz etmektedir. Başarılı bir eşitleme, bir testin daha kolay formuna alan bireylerin testin daha zor formuna giren bireylere göre

haksız bir avantajı olmadığı ve bir testin farklı formlarını alan bireylerin puanlarındaki farklılığın, bireylerin başarı düzeyindeki farklılıktan kaynaklandığı anlamına gelmektedir. Eşitleme sürecinin başarılı bir şekilde yürütülmesi için, başka bir değişle eşitleme süreci yardımı ile farklı formlardan alınan puanların birbiri yerine kullanılabilmesi için eşitlemenin, grup değişmezliği şartının da yer aldığı birtakım şartları karşılanması gerekmektedir. Eşitlemenin grup değişmezliği, farklı ölçekler üzerindeki puanları eşitlemek için kullanılan fonksiyonun alt gruplara bağlı olmamasıyla sağlanır.

Diğer yandan, bir testte yer alan bir maddeye ait performansın farklı alt gruplarda nasıl değiştiğini incelemek için Değişen Madde Fonksiyonu (DMF) kullanılmaktadır. Bundan dolayı parametre kestirimi ya da test eşitleme çalışmasına başlanmadan önce DMF gösteren maddeleri belirlemek ve gerekirse silmek için DMF analizi yürütmek gerekmektedir. Ancak bazı koşullarda iyi yapılandırılmış bir test çok sayıda DMF gösteren madde içerse de testten DMF gösteren maddelerin silinmesi testin yapı geçerliliğinin düşmesine ve yetenek parametre kestirimlerindeki hatanın artmasına neden olur. Ayrıca DMF gösteren maddelerin silinmesi durumunda testin geçersiz olacağı durumlar oluşabilir. Bu nedenle, eşitleme sırasında DMF gösteren maddelerin varlığında da eşitlemeye olan etkisini en aza indirebilecek koşulların incelenmesi önemlidir.

Araştırmanın Amacı: Bu çalışmanın amacı ortak maddelere dayalı olarak yapılan eşitlemelerde, ortak maddelerin DMF göstermesi durumunda; DMF ve örneklem büyüklüğünden oluşturulan çeşitli koşullara göre grup değişmezliği indislerini belirlemek ve elde edilen sonuçları karşılaştırmaktır. Araştırmanın amacı doğrultusunda; ortak maddeler yardımıyla eşitlenmede, DMF ve örneklem büyüklüğü faktörleri altında simülasyon yardımıyla eşitleme açısından en optimum durum belirlenmeye çalışılmıştır. Çalışmada kullanılan simülasyon faktörleri; örneklem büyüklüğü, örneklem büyüklüğü oranı, DMF gösteren maddelerin bulunduğu form, DMF gösteren madde oranı, DMF yönü ve gruplar arası ortalama yetenek farkıdır.

Araştırmanın Yöntemi: Bu araştırmada, belirlenen koşullara göre üretilen simülasyon veriyi kullanarak farklı eşitleme tasarımlarının karşılaştırılması amaçlanmaktadır. Böylece belirlenen koşullar altında eşitleme tasarımı için optimum koşullar incelendiği bu araştırmanın bir simülasyon çalışması niteliği taşımakta olduğu söylenebilir.

Bu araştırmada iki test formunu eşitleyebilmek için "denk gruplarda ortak madde/test deseni" kullanılmıştır. Ortak maddeler, F0 ve F1 arasındaki eşitleme ilişkisini kurmak için kullanılmıştır. Eşitlenecek her bir form %25'si yani 10 tanesi ortak madde olmak üzere ikili puanlanmış 40 maddeden oluşmaktadır.

Verilerin üretilmesinde R programından yararlanılmıştır. Bu çalışmada sonuçların tutarlı ve genellenebilir olabilmesi için her veri seti 100 defa türetilmiştir. Çalışma kapsamında bazı ortak test maddelerinde DMF tanımlamak gerekmektedir. Bu nedenle eşitlenecek olan F0 ve F1 formlarının uygulandığı gruplar, odak grup ve referans grup olarak ikiye ayrılmıştır.

Verilerin analizinde R programı ve SPSS programından yararlanılmıştır. Veri analizinin ilk aşamasında eşitleme süreci yürütülmüştür. Daha sonra eşitleme sürecinden elde edilen sonuçlara dayalı olarak eşitlemenin doğruluğunu değerlendirmek amacıyla eşitlemede grup değişmezliği indisleri elde edilmiştir. Son olarak da elde edilen grup değişmezliği indislerinin çalışmada ele alınan faktörlere göre varyans analizi yapılmıştır.

Çalışmanın amacı doğrultusunda F0 ve F1 formlarını eşitleme süreci toplam gruplar, odak gruplar ve referans gruplar üzerinde ayrı ayrı yürütülmüştür. Eşitleme süreci her bir grup için üç aşamada gerçekleştirilmiştir. İlk olarak R da batch edilen BILOG kodlarıyla madde kalibrasyonu işlemi yapılmıştır. Daha sonra eşitlenecek formlara ait parametreler ortalama sigma yöntemiyle aynı metrik üzerine ölçeklenmiştir. Ölçeklemenin akabinde, MTK gerçek puan eşitlemesi yapılarak F1 formuna ait eşitlenmiş gerçek puanlar elde edilmiştir. Eşitleme süreci çalışma kapsamındaki 96 koşul için 100'er kere gerçekleştirilmiştir. Her bir eşitleme süreci tamamlandıktan sonra; her bir puanın toplam grupların eşitlenmesi sonucunda elde edilen eşitlenmiş puanının, referans grupların eşitlenmesi sonucunda elde edilen eşitlenmiş puanının ve odak grupların eşitlenmesi sonucunda elde edilen eşitlenmiş puanının yer aldığı eşitleme tabloları oluşturulmuştur.

Bu çalışmada eşitlemenin doğruluğunu grup değişmezliği açısından değerlendirilmiştir. Eşitlemede grup değişmezliğin belirlenmesinde çeşitli yöntemler kullanılmaktadır. Bu çalışmada Dorans ve Holland (2000) tarafından test eşitlemede grup değişmezliğini belirlemek amacıyla geliştirilen REMSD indisinden yararlanılmıştır. Tekrar sayısı 100 olduğu için her bir koşulda grup değişmezliği indisleri tekrarlardan elden edilen hesaplamaların ortalamaları alınarak raporlanmıştır.

Eşitlemede grup değişmezliğinin değerlendirilmesinde, Dorans ve diğerlerinin (2003) ve Dorans' ın (2004) önerdiği ham puan biriminin yarısı olarak alınan DTM (Difference That Matters) kriterinden yararlanılmaktadır. DTM= 0.50 kriteri alınarak bir puanın toplam gruptaki bir eşitlenmiş puan ile alt grup(lar)daki eşitlenmiş puan(lar) arasındaki farklılığın 0.50'den daha az olmasının yok sayılabilir; 0.50'den daha fazla olmasının ise manidar olduğu kabul edilerek yorumlar yapılmaktadır.

Araştırmanın Bulguları: REMSD grup değişmezliğinin çalışmada ele alınan tüm değişkenlere göre manidar farklılık gösterdiği görülmektedir. Çalışma grubu büyüklüğü arttıkça REMSD grup değişmezliği indisinin manidar olarak azaldığı görülmektedir. Ayrıca, DMF gösteren ortak madde oranı arttıkça ise manidar şekilde REMSD grup değişmezliği indisi de artmaktadır. REMSD grup değişmezliği indisinin DMF gösteren ortak madde oranına göre gösterdiği manidar farklılığın hangi alt gruplar arasında olduğunu belirlemek için yapılan Post Hoc testine göre ise DMF gösteren ortak madde oranı değişkeninin tüm ikili alt grup karşılaştırmalarında manidar fark olduğu belirlenmiştir. REMSD grup değişmezliği, tek yönlü DMF'nin söz konusu olduğu koşullarda iki yönlü DMF'nin söz konusu olduğu koşullara göre manidar olarak daha büyük değer aldığı görülmektedir. Ayrıca gruplar arası yetenek

farkının 0 olduğu koşullar, gruplar arası yetenek farkının 1 olduğu koşullara göre daha küçük REMSD değerleri hesaplanmıştır.

Araştırmanın Sonuç ve Önerileri: Bu çalışmada veriler 3 parametreli lojistik modele göre üretilerek eşitleme yapılmıştır. Farklı modellere göre veri üretip farklı çalışmalar oluşturulabilir. Ayrıca, farklı eşitleme desenlerinde ortak maddelerde ya da eşitlenecek testte DMF gösteren maddelerin yer alması durumunda da test eşitlemede grup değişmezliğinin nasıl değiştiği incelenebilir. Diğer yandan, farklı örneklem büyüklükleri için farklı test uzunluklarında farklı eşitleme yöntemleri kullanılarak test eşitlemenin grup değişmezliği araştırılabilir. Bu çalışmada DMF gösteren ortak maddelerin test eşitlemenin grup değişmezliğine etkisi simülasyon verisi kullanılarak gerçekleştirilmiştir. Benzer şekilde gerçek bir veri setinde ya da simülasyon çalışması ile birlikte gerçek veri seti kullanılarak ortak maddelerde DMF görülmesi durumunda test eşitlemenin grup değişmezliğini nasıl etkilediği hususunda bir çalışma yapılması önerilebilir.

Anahtar Kelimeler: Test eşitleme, grup değişmezliği, simülasyon çalışması, değişen madde fonksiyonu.

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School Climate as a Predictor of Secondary School Students' School Attachment*

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ARTICLE INFO	ABSTRACT

Purpose: The present research is conducted to identify whether or not school climate is predictive of secondary school students' attachment to school. **Research Methods:** In the research, a quantitative research model, namely relational survey model, was preferred. The research population consists of secondary school students attending public secondary schools under the National Education Directorate of Pendik District in 2018 year. The research sample was identified by stratified sampling method. In the sampling, the schools were divided into upper, secondary and lower groups. One school was selected for each by random sampling method. From the secondary schools identified, 773 secondary school students including 370 female and 403 male students participated in the research. Research data was collected using an Information Form, the School Attachment Scale and School Climate Scale. Data was analyzed by anova, t-test, correlation and regression tests. **Findings:** According to the analysis results, the perception of secondary school students of school climate and their school attachment level varied significantly based on their sex and grade level. A positive and medium level relationship was identified between the school climate and secondary school students' attachment to school, teachers and friends. **Implications for Research and Practice:** The results of the study provided that the school climate was significantly predictive of secondary school students' level of attachment to school, friends and teachers. Based on these results, the characteristics of a positive school climate as perceived by students may be researched and a positive school climate can be created with the cooperation of individuals comprising the school society to improve the students' level of attachment to school.

Introduction

Education plays an important role not only in the development or change of a society and individual, but also in the continuation of its development and in the realization of its change in the desired direction. Although schools are the lowest unit of education systems, they are the organizations where education services are offered to society and individuals. The quality of the service offered by the schools is directly related to the cognitive, affective and behavioural acquisitions of the students. Students' interaction and experiences at school have a permanent impact on their academic success and future life (Haynes, Emmons & Ben-Avie, 1997, pp.321-322). When looked from such perspective, schools contribute greatly to raising happy and successful individuals. Education practitioners and researchers realized the importance of the context in which learning occurred, particularly the impact and importance of school climate on students' academic, social and emotional results, (Berkowitz et al., 2017) and conducted several studies on the subject. The research shows that there is a relationship between the school climate and *student disciplinary problems and violent behaviors* (Bosworth, Ford, & Hernandaz, 2011; Brault, Janosz, & Archambault, 2014; Calik et al., 2009; Eliot et al., 2010; Gregory et al., 2010; Konold & Cornell, 2015; Kuperminc, Leadbeater, & Blatt, 2001; Loukas, Suzuki & Horton, 2006; Ozdemir, 2015; Simons-Morton et al., 1999; Thapa et al., 2013; Wang et al., 2010; Welsh, 2000), *school effectiveness* (Senel & Buluc, 2016), *academic success* (Akey, 2006; Berkowitz et al., 2017; Cohen et al., 2009; Cornell, Shukla, & Konold, 2016; Hopson & Lee, 2011; Hoy, Smith, & Sweetland, 2002; Kozina et al., 2008; Kozina et al., 2010; MacNeil, Prater, & Busch, 2009; Martin et al., 2004; Mullis, Martin, & Foy, 2008; Parish, 2002; Schotland, 2011; Thomasson, 2006; Wang & Holcombe, 2010), *safety* (Bosworth, Ford, & Hernandaz, 2011; Canli, 2016; Freiberg, 1998; Hoy et al., 2002; Kuperminc, Leadbeater, & Blatt, 2001; Welsh, 2000), *school attendance* (Cornell, Shukla, & Konold, 2016; Lee et al., 2011), *student motivation* (Eccles et al., 1993), *adaptation to school* (Kuperminc et al., 1997; Simons-Morton et al., 1999; Welsh, 2000), *self-esteem* (Kosciw et al., 2013; Schotland, 2011), *quality of school life* (Donmez, 2016), *school size* (Cotton, 1996), *alcohol and drug abuse* (Bosworth, Ford, & Hernandaz, 2011), *depression* (Loukas, Suzuki & Horton, 2006; Schotland, 2011), *mental health and psychological well-being* (Aldridge & McChesney, 2018), *family poverty* (Hopson & Lee, 2011), and *school identification and school outcomes* (Lee et al., 2017).

School climate can be described as beliefs, attitudes and values that characterize a multi-dimensional (Freiberg, 1999, p. 3) school life and quality (Adelman & Taylor, 2011a; Deer, 1980), determine school structure and differentiate one school from another, occur as a result of the interactions between groups comprising the school society and guide the behaviors of these groups (Brown, Anfara, & Roney, 2004; Cohen et al., 2009; Hoy, Tarter & Kottkamp, 1991; Loukas, Suzuki & Horton, 2006; McEvoy & Welker, 2000; Thapa et al., 2013). Another description is that school climate is a psycho-social content teachers seek to teach students (Johnson, Stevens & Zwoch, 2007). School climate refers to the spheres of school life and shared vision, and healthy or unhealthy, conscious or unrecognized spheres (Cohen et al., 2009, p. 182). According to Freiberg and Stein (1999) school climate is viewed as a factor that motivates students and as

reason for teachers to be there every day (Johnson, Stevens, & Zwoch, 2007). School climate is the quality (Cohen et al., 2009, p. 182), spirit and hearth (Freiberg & Stein, 1999), atmosphere (Secrist, Paden, & McNee, 1983) and character of school life, since school life is based on people's experiences (Brown et al, 2004; Cohen et al., 2009; Halpin & Croft, 1963; Hoy et al., 1991; Hoy & Miskel, 2010; Welsh, 2000).

Research aiming at identifying the climate at schools or other organizations is like seven blind men describing an elephant. Each one of them focuses in a different dimension of the climate and contends findings according to this dimension. The climate also varies significantly based on environmental factors (ecologic, environment, social system or culture) (Anderson, 1982, p.376). For instance, a sustainable, positive school environment *(i)* encourages individuals' development and learning, *(ii)* supports their feeling safe, and *(iii)* connects people with each other. *(iv)* Students, families and educators support working together to develop and maintain a shared school vision and contribute. *(v)* Educators model and feed the attitudes emphasizing the benefits and satisfaction they get from the learning-teaching process *(vi)* School society contributes to school activities and the protection of the physical environment (Piscatelli & Lee, 2011, pp. 1-2).

The National School Climate Council report (2007) suggested that the school climate had encouraged or weakened children's development, learning and success in the last twenty years. Students stated that they had positive social relationships, were respected, participated in school activities and felt competent in a safe and supportive school environment. Ever-increasing number of reports, studies and legislation stressed the importance of a positive school climate for mitigating success inequities, improving healthy development and supporting the skills, knowledge and tendencies and life success forming the basis for the 21st century school (Piscatelli & Lee, 2011, and improving teachers' job satisfaction, creating an effective learning environment for students (Hoy et al., 1991). Further, teachers describe a positive and cooperative school climate as the most important factor affecting their decision of staying at a school (Hirsch, Eric, Emerick, & Scott, 2007).

Halpin & Croft (1963) investigated the behaviors of principals and teachers and identified the *(i)* open, *(ii)* autonomous, *(iii)* controlled, *(iv)* familiar, *(v)* paternal, *(vi)* closed climate structures. These climate structures were rated from positive open climate to negative closed climate. While the open climate is an energetic, lively organization which is moving toward its goals, and which provides satisfaction for the group members' social needs (Halpin & Croft, 1963), as well as being supportive and sincere and where ideas are respected, there is attachment to school and productive working environment (Hoy & Sabo, 1998), a closed climate is characterized by a stagnant organization where disingenuity, pretense and apathy are very common among the group members (Halpin & Croft, 1963). Hoy et al. (1991), on the other hand, identified the dimensions of school climate as supportive, directive and restrictive principal behaviors and friendly, cooperative and indifferent teacher behaviors.

Elements comprising a school climate are broad and complex (Marshall, 2004). Although there is no list of factors that shape the character and quality of school life,

many researchers agree that there are four main dimensions that clearly shape the school climate. These are; *safety* (rules and norms, physical safety, social and emotional safety), *learning-teaching process* (social, affective and ethical learning, quality of teaching, professional development, leadership), *interpersonal relationships* (respect for diversity, school community and cooperation, social support from adults and peers) and environmental structure (human and physical environment; cleanliness, sufficient space and materials, aesthetic quality, school size; curriculum and extracurricular offerings) (Cohen et al., 2009; Center for Social and Emotional Education, 2010). Thapa et al. (2013) added *school improvement* process as the fifth dimension. The National School Climate Council (2007) added *personnel relationships* (leadership and professional relationships) to the initial four dimensions (Piscatelli & Lee, 2011). Likewise, the U.S. Department of Education identified three inter-related domains in the Safe and Supportive Schools' school climate These are *student attachment* (relationships, respect to diversity and school participation), *safety* (social-emotional and physical safety, substance abuse) and *school environment* (physical environment, academic environment, and health and disciplinary environment) (Bradshaw & O'Brennan, 2014). However, there is no agreement as to which dimensions of school climate must be measured validly. In this respect, the research on school climate contributes to improving and developing ideas about which aspects to evaluate (Center for School and Emotional Education, 2010).

One of the subdimensions that must be regarded in the "*relationships*" dimension that comprises school climate is school attachment. With the adaptation of the relationships dimension to social groups and organizations, the concept of school attachment emerges. In a general sense, attachment refers to the emotional bond between the youth and other people (Clevenger & Birkbeck, 1996). School attachment, on the other hand, is a common term that encompasses school and student relationships as a structure that includes positive student actions such as student attendance, participation in school and class activities and the emotional bond of student with school (Libbey, 2004, p. 275; Önen, 2014, p. 221).

There are different theories about attachment in the literature. For example, according to Bowlby (1969, 1973, 1980, 1982), the relationship an infant develops with his/her primary caretaker constitutes the basis for his/her subsequent attachment models. These models strongly affect how a child establishes relationships with others, approaches his/her environment as well as the subsequent stages of his/her development (as cited by Erickson, Sroufe, & Egeland, 1985, p. 147). Another theory that attempts to describe school attachment is social attachment. Social attachment refers to the extent an individual is sensitive to others' views (Costella, 2010, p. 4). Individuals have bonds with social values, social environment and social institutions. This social bond controls the behaviors of individuals who are inclined to commit criminal or abnormal acts, and prevent them from committing a crime (Hirschi, 1969). Hirschi also believes that the level of attachment to teachers and school is a determinant of their school success (Pratt, Gau, & Franklin, 2010). In other words, individuals feel concerned about others' views as much as they have an emotional bond with others such as parents, friends and teachers. An individual who fears losing

others' respect and love is less likely to commit a crime (Costella, 2010, p. 4). In short, it may be suggested that these bonds as asserted by Bowlby and Hirschi affect students' behaviors toward their school, peers and teachers and help control their undesired behaviors.

Since school attachment has an impact on educational outcomes such as academic success and abandonment of school (Fredricks, Blumenfeld, & Paris, 2004), it has attracted the attention of researchers and has been researched as part of school life. It is possible to see studies focusing on the relationship between school attachment and *ego* (Alparslan, 2016; Finn & Rock, 1997; Wang & Eccles, 2013), *trust in school* (Arabikoglu, 2016), *academic success* (Bellici, 2015; Cornell, Shukla, & Konold, 2016; Fall & Robert, 2012; Finn & Rock, 1997; Griffin, 2014; Johnson, Crosnoe, & Elder, 2001; Klem & Connell, 2004; LeCroy & Krysik, 2008; Lee, 2008; Moè et al., 2009; Perry, Liu, & Pabian, 2010; Wang & Holcombe, 2010; Wang & Eccles, 2013; Wang, Willett, & Eccles, 2011; Wang et al., 2015), *school attendance and abandonment of school* (Fall & Robert, 2012; Finn & Rock, 1997; Klem & Connell, 2004; Wang, Willett, & Eccles, 2011), *undesired behaviors and bad habits* (Black et al., 2010; Cornell, Shukla, & Konold, 2016; Gottfredson et al., 2005; Hill, & Werner, 2006; Karaşar & Kapçı, 2016; Konold & Cornell, 2015; Saglam & Ekiz, 2017; Simons-Morton et al., 1999; Yang, 2015), *adjustment to school* (Simons-Morton et al., 1999), *educational goals* (Cornell, Shukla, & Konold, 2016; Griffin, 2014), *school life quality* (Donmez, 2016), *career planning* (Perry et al., 2010), *school size, socio-economic and ethnic structure* (Finn & Voelkl, 1993; Fullarton, 2002), *motivation* (Fullarton, 2002; Hill, & Werner, 2006), *depression and school fatigue* (Özdemir, 2015; Wang et al. 2015), *subjective duty values* (Wang & Eccles, 2013), *attitude toward classes* (Filiz, 2018), *perceived school support* (Christensen, 2014), *control focus, preparation for school and classes* (Finn & Rock, 1997), *safe learning environment and school types* (Gauley, 2017), *fairness and discrimination* (Griffin, 2014), *Internet and game addiction* (Tas, 2017), *self-efficacy and social support* (Mengi, 2011), *academic expectation* (Konold & Cornell, 2015), *life satisfaction* (Ozdemir & Koruklu, 2013) and *school socialization style* (Lee, 2008).

Students' success (Fredricks, Blumenfeld, & Paris, 2004) and the effectiveness of schools are to a large extent associated with students' school attachment (Ozdemir & Kalayci, 2013). In other words, it is unquestionably a prerequisite for individuals to be committed to school since they need to become successful and acquire the skills they need in today's conditions (Fredricks, Blumenfeld, & Paris, 2004). This attachment consists of three dimensions including cognitive, affective and behavioral (Onen, 2014). Qualitative differences in each dimension vary based on the intensity of the attachment. A dimension's intensity can make the attachment a desirable outcome. Once attachment is established, it is possible to say that the attachment builds on itself and thus contributes to the more improvement of other variables (Fredricks, Blumenfeld, & Paris, 2004). A positive attitude, perception and response developed by students toward school, teachers and peers are in the affective dimension. Students' actions such as participation in extracurricular activities and learning process (school attendance), completing their assignments, grade point average and scores in achievement tests, performance and adherence to school rules and grade advancement are in the behavioral dimension. Students' perception and beliefs about themselves,

school, teachers and other students, and ability to perceive challenging and complex situations and create solutions are in the cognitive dimension (Fredricks, Blumenfeld, & Paris, 2004; Jimerson, Campos, & Greif, 2003). In short, it can be suggested that the cognitive, affective and behavioral dimensions of school attachment focus on students' attachment to teachers, peers and school (Jimerson, Campos, & Greif, 2003). It is particularly regarded important to understand which factors affect the improvement of school attachment and what it means to maintain the attachment at the same level (Wołowska, 2014). In fact, these factors are dynamically interrelated and their outcomes must be investigated (Fredricks, Blumenfeld, & Paris, 2004).

School climate plays an important role in ensuring a healthy and positive school environment (Marshall, 2004) and thus can be considered a way or a mediating variable to mitigate abandonment of school and improve learning and school attachment (Fredricks, Blumenfeld, & Paris, 2004). It has also been identified that the school attachment of students who feel that they are in a safe environment improves (Freiberg, 1998) and that absenteeism and delinquency rates of students whose school attachment has improved decrease (Calik, Kurt & Calik, 2011). The fact that the school climate has a physical, social and academic impact on students and that the school attachment has a behavioral, cognitive and affective impact have made it necessary and important to address these variables together. A positive school climate that can be created can make individuals feel committed to school. A student that feels committed to school can be a successful and happy person that has a goal and become integrated with the society instead of demonstrating negative behaviors such as turning into crime and gaining bad habits. From this perspective, it is considered important to identify whether or not the school climate perceived by secondary school students is predictive of their school attachment. However, a very limited number of studies were seen to focus on dealing with the school climate factor as an important predictor of school attachment in our country. In this respect, the present study, which is conducted to identify whether or not school climate is predictive of students of level of attachment to school, is believed to offer some ideas to teachers, administrators, parents, guidance and psychological counselors in understanding students' behaviors of school attachment, responding to, preventing and protecting from abandonment of school, absenteeism, discipline and undesired behaviors, low academic success and contribute to other studies focusing on school climate and school attachment and the evaluation of school life quality. Responses to the following questions were sought in line with the overall objective of the research:

    i)   Do secondary school students' perception of school climate and school attachment level vary significantly based on their sex and grade level?

    ii)   Is there a significant relationship between secondary school students' perception of school climate and school attachment level?

    iii)   Is secondary school students' perception of school climate predictive of their school attachment level?

Method

Research Design

In the present research, a qualitative research method, relational survey model, was preferred to identify whether or not the independent variable (school climate) is predictive of the dependent variable (school attachment). Relational survey is a model that identifies the relationship between two or more variables on participants in the same study group and predicts the effect of independent variable on a dependent variable (Gliner, Morgan, & Leech, 2015).

Research Sample

The research sample consists of public schools from Pendik District of Istanbul Province in 2018 year. Required permissions were obtained from official authorities to conduct the research. Stratified sampling method was preferred to determine the research sample. Stratified sampling is a probability sampling method where groups with similar characters in a population are divided into subgroups and sample is obtained from each subgroup by random sampling (Neuman, 2006, p. 335). According to the Pendik District National Education Directorate data (2018), there are 33,503 students in 38 public secondary schools. However, the religious vocational school students were not included. Schools were divided into lower, secondary and upper groups based on socio-economic status and one school was selected from each group. There are 3,752 students in the three selected schools. Students were assured in line with the principle of confidentiality that the research results would only be used for research and were not applied any pressure and time limitations in order to enable them to respond to the scale items accurately and candidly. From the selected schools, 773 students from every grade level (grades 5, 6, 7 and 8) volunteered to participate. 370 of these students are female and 403 thereof are male students. 330 of the students are at fifth grade, 233 at sixth grade, 133 at seventh grade and 77 at eighth grade. Based on +/- 5% acceptable error rate and 99% reliability level, the sample size was calculated as 651. 733 students participating in the study were decided to have the sample size enough to represent the population.

Research Instruments and Procedures

In the research, the School Climate Scale developed by Calik and Kurt (2010) was used as the data collection instrument to identify the students' level of perception of school climate. The scale is a 5-point Likert type scale (Never, Rarely, Sometimes, Frequently, Always) consisting of four subdimensions (Supportive Teacher Behaviors, Success Focus, Safe Learning Environment and Peer Interaction) and 22 items. Seven items in the scale (12, 14, 16, 18, 19, 21, 22) were scored reversely. With the adding of the scores from all items, a total score is acquired. A high score from the scale reflects a positive school climate while a low score reflects a negative school climate. In the research, confirmatory factor analysis (χ=165.132; *df*=62; χ^2/df=2.663; GFI=.967; AGFI=.952; NFI=.957; CFI=.973; SRMR=.034; RMSEA=.046) was performed to test the construct validity of the scale and Cronbach Alpha reliability coefficient was calculated as 0.814.

To identify the students' attachment to school in the research, the School Attachment Scale for Children and Adolescents developed by Hill and Werner (2006) and adapted into Turkish by Savi (2011) was used. The scale is a 5-point Likert type scale (Absolutely Yes, Yes, Maybe, No, Absolutely No) consisting of 13 items and three subdimensions (School Attachment, Friend Attachment, Teacher Attachment). A high score from the scale shows a high school attachment while a low score shows a low school attachment. In the research, confirmatory factor analysis (χ=732.959; df=202; χ^2/df=3.629; GFI=.920; AGFI=.900; NFI=.827; CFI=.868; RMR=.029; SRMR=.076; RMSEA=.058) was performed to test the construct validity of the scale and Cronbach Alpha reliability coefficient was calculated as 0.859.

Data Analysis

Data was analyzed using SPSS statistical program. Unrelated-independent groups t-test was performed to determine whether or not school climate perception and school attachment level of secondary school students vary significantly based on sex, the one-way analysis of variance (ANOVA) was performed to determine whether the same vary based on their grade levels, correlation analysis was performed to determine the relationship between school climate and school attachment, and regression analysis was performed to calculate whether or not the school climate is predictive of students' school attachment level.

Results

Independent groups t-test results performed to determine whether secondary school students' school climate perception and school attachment levels vary based on their sex are provided in Table 1.

Table 1

T-test Results of School Climate and School Attachment Scale Scores by Sex

Variables	Groups	N	X	ss	t-test		
					t	sd	p
School climate	Female	370	3.67	.58	2.81	771	.005
	Male	403	3.57	.59			
School attachment	Female	370	4.37	.53	3.31	771	.001
	Male	403	4.24	.27			

When Table 1 is examined, secondary school students' school climate perception varies significantly based on their sex *(t[771]=2.81; p<.01)*. Female students' school climate perception (X=3.69) is more positive than that of male students (X=3.57). Secondary school students' school attachment perception varies significantly based on their sex *(t[771]=3.31; p<.01)*. Female students' school attachment level (X=4.37) is higher than that of male students (X=4.24).

Results of the one-way analysis of variance (ANOVA) performed to determine whether secondary school students' school climate perception varies based on grade level is provided in Table 2.

Table 2

ANOVA Results of School Climate Scale Scores by Grade Level

Grade	N	X	ss	Variance Source	KT	sd	KO	F	p	Significance
5. Grade	330	3.83	.56	**Between G.**	36.79	3	12.26			
6. Grade	233	3.62	.56	**Within G.**	234.92	769	.30			5-6, 5-7, 5-8;
7. Grade	133	3.48	.49	**Total**	271.71	772		40.14	.000	6-7, 6-8.
8. Grade	77	3.11	.55							7-8
Total	773	3.63	.59							

When Table 2 is examined, significant differences are seen among students' school climate perceptions based on their grade levels *(F=40.14; p<.001)*. According to the results of the LSD test performed to identify the grades by which student perception of school climate varies, 5th-grade students' perception of school climate (X=3.83) is more positive than that of 6th-grade students (X=3.62), 7th-grade students (X=3.48) and 8th-grade students (X=3.11); 6th-grade students' perception of school climate (X=3.62) is more positive than that of 7th-grade students (X=3.48) and 8th-grade students (X=3.11); and 7th-grade students' perception of school climate (X=3.48) is more positive than that of 8th-grade students (X=3.11). In other words, students' positive perception of school climate decreases as their grade level increases.

Results of the one-way analysis of variance (ANOVA) performed to determine whether secondary school students' school attachment varies based on grade level is provided in Table 3.

Table 3

ANOVA Results of School Attachment Scale Scores by Grade Level

Grade	N	X	Ss	Variance Source	KT	sd	KO	F	p	Significance
5. Grade	330	4.43	.48	**Within G.**	34.70	3	11.56			
6. Grade	233	4.37	.51	**Within G.**	205.38	769	.26			5-7, 5-8.
7. Grade	133	4.19	.53	**Total**	240.08	772		43.31	.000	6-7, 6-8.
8. Grade	77	3.72	.61							7-8
Total	773	4.30	.55							

When Table 3 is examined, a significant difference is seen among students' school attachment levels based on their grade levels *(F=43.31; p<.001)*. According to the results of the LSD test performed to identify between which grades student school attachment level varies, 5th-grade students' school attachment level (X=4.43) is higher than that of 7th-grade students (X=4.19) and of 8th-grade students (X=3.72); 6th-grade students' school attachment level (X=4.37) is higher than that of 7th-grade students (X=4.19) and 8th-grade students (X=3.72); and 7th-grade students' school attachment

level (X=4.19) is higher than that of 8th-grade students (X=3.72). In other words, students' school attachment level decreases as their grade level increases.

The results of the correlation analysis performed to determine the relationship between the school climate perception and school attachment level of the secondary school students are provided in Table 4.

Table 4

Results of Correlation Analysis between School Climate Perception and School Attachment Level of the Secondary School Students

		School Attachment	Friend Attachment	Teacher Attachment	School Attachment Total
Supportive Teacher Behaviors	r	.487**	.373**	.549**	.581**
Success Focus	r	.380**	.314**	.410**	.457**
Safe Learning Environment and Peer Interaction	r	.375**	.344**	.265**	.417**
School Climate Total	r	.550**	.461**	.519**	.638**

According to the correlation analysis provided in Table 4, there is a significant medium-level and positive relationship between student school climate perceptions and school attachment levels (r=.63; p<.01); a significant medium level and positive relationship between school climate and the sub-dimensions of school attachment, school attachment (r=.55; p<.01), friend attachment (r=.46; p<.01) and teacher attachment (r=.52; p<.01). A significant medium level and positive relationship is seen between the total score of students' school attachment and the sub-dimensions of school climate, supportive teacher behaviors (r=.58; p<.01), success focus (r=.45; p<.01) and safe learning environment and peer interaction (r=.41; p<.01).

The results of the regression analysis performed to determine whether the school climate perceived by the students is predictive of the students' school attachment level are provided in Table 5.

Table 5

Results of Regression Analysis to Determine Whether the School Climate Perceived by the Students is Predictive of the Students' School Attachment Level

Independent Variable	Dependent Variable	B	Std. Error	(β)	t	p	R	R²	F	p
School Climate	**School Attachment**	1.60	.147	.550	10.91	.000	.550	.303	334.38	.000
School Climate	**Friend Attachment**	2.38	.133	.461	17.96	.000	.461	.213	208.41	.000
School Climate	**Teacher Attachment**	2.32	.125	.519	18.64	.000	.519	.269	284.35	.000
School Climate Total	**School Attachment Total**	2.12	.096	.638	22.14	.000	.638	.407	529.77	.000

When Table 5 is examined, school climate is significantly predictive of students' school attachment level (r^2=.30; p<.001), friend attachment level (r^2=.21; p<.001), teacher attachment level (r^2=.27; p<.001) and total school attachment level (r^2=.40; p<.001). In other words, 30% of the total variance of students' school attachment level, 21% of the total variance of their friend attachment level, 26% of their teacher attachment level and 40% of the total variance of their school attachment level is explained by school climate (**β=**.643; r=.638; r^2=.408; *F*=264,97; p<.001).

Discussion, Conclusion and Recommendations

School climate is created by the school society. A positive school climate is perceived by students, parents and employees as welcoming and characterized by respectful interactions between the individuals. Students feel motivated to succeed and the personnel exhibits the importance of the school and learning. The school is clean, well-maintained and welcoming. A combination of these characteristics results in the perception of the school as a good place to be (Lee, 2005). The present research investigates whether or not school climate is predictive of secondary school students' school attachment, and whether or not student perception of school climate and school attachment level vary based on their sex and grade level. According to the findings of the research, secondary school students' perception of school climate varies significantly based on their sex. Female students' school climate perception is more positive than that of male students. In the literature are studies suggesting that female students' school climate perception is more positive than that of male students (Donmez, 2016; Filiz, 2018; Simons-Morton et al., 1999) and female teachers' school climate perception is more positive than that of male teachers (Aka, 2014; Canli, 2016). As the main reason for this variance can be suggested as that female and male students ascribe a different meaning to the school. For instance, female students perceive school as a place that protects and improves them while male students perceive school as a place that oppresses them (Ozdemir & Kalayci, 2013). The more negative or poorer school climate perception of male students that see the school as a place that oppresses them than that of female students can be regarded as one of the reasons for the variance.

Another result obtained from the research is that school attachment level of secondary school students varies based on their sex. Female students' school attachment level is higher than that of male students. In the research conducted by Arastamam (2006), Bellici (2015), Can (2008), Fullarton (2002), Donmez (2016), Mengi (2011), Ozdemir & Kalayci (2013), Schotland (2011), Simons-Morton et al (1999), Wang et al. (2011) at secondary school and high school levels, female students' school attachment level is higher than that of male students. However, there are also studies that suggest that male students' school attachment level is higher than that of female students (Onuk, 217). In addition, organizational attachment of female and male academic members at higher education varies significantly. Organizational commitment of female academic members is higher than that of male academic members (Moore & Moore, 2014). The main reason for this variance can be suggested

to be social gender role. For, an individual's sex determines his/her behaviors in the society (Kiran, 2017). In this respect, social gender roles ascribed to students in the Turkish culture may affect how differently school is perceived and their school attachment levels. If social gender roles for education are defined differently in a society, individuals act in accordance with these roles or be forced to act appropriately. Otherwise, it can be accepted and rejected as unwanted behaviour by society. The positive perspective of the society towards education, its contribution to schooling rate, its support for school attendance, and the fact that it considers education as an investment for the future life of the individual can positively affect the school attachment of the individual.

It has been concluded in the research that secondary school students' perception of school climate and school attachment level vary significantly based on grade. In the literature, secondary school and high school students' perception of school climate (Donmez, 2016; Ozdemir & Kalayci, 2013; Simons-Morton et al., 1999; Wang et al., 2010) and school attachment levels decrease as their grade level increases (Bellici, 2015; Filiz, 2018; Mengi, 2011; Schotland, 2011; Simons-Morton et al., 1999; Wang & Holcombe, 2010). The result attained in the present research and the results of other research in the literature are consistent. One of the reasons for this variance can be suggested as that students become used to the school climate as their grade level increases, and thus that the effect of school climate on students, their awareness of and interest in it increase.

According to another result of the research, there is a medium-level and positive relationship between secondary school students' perception of school climate and their school attachment. There are several researches in the literature that identify a significant positive relationship between secondary school and high school students' perception of school climate and their attachment level (Dempsey, 2008; Donmez, 2016; Ozdemir & Kalayci, 2013; Ozdemir et al., 2010; Simons-Morton et al., 1999). Also, Turan (1998) and Cornell, Shukla & Konold (2016) found a significant relationship between teachers' perception of school climate and school attachment. When this research's and other research's results are evaluated together, it can be suggested that there is a positive relationship between both students' and teachers' perception of school climate and school attachment level and that their school attachment level will increase as their perception of school climate increases, or the other way around.

One of the significant results obtained in the research is that secondary school students' perception of school climate is significantly predictive of their school attachment level. Likewise, in the literature, students' (Fullarton, 2002; Gauley, 2017; İhtiyaroglu, 2014; Ozdemir & Kalayci, 2013; Wang & Eccles, 2013; Wang & Holcombe, 2010) and teachers' (Antony & Mahendran, 2016) perception of school climate is an important predictor of their school attachment levels. The relationship between the climate and commitment or attachment is seen not only at schools providing educational services but also at organizations producing goods and services (Noordin et al., 2010; Smith, 2009; Turan, 1998; Bahrami, 2016; Ozyer, 2010; Schwepker, 2001; Akbas, 2010; Kaplan, 2010; Ma'amor, et al., 2012; Cetin Gurkan, 2006; Dinc & Plakalovic, 2016; Kaplan, 2010; Korkmaz, 2011; Riad, Labib, & Nawar, 2016). The

relationship between these two concepts as well as the organizational climate have also been found to be predictive of organizational commitment (Basar, 2009; Bilgen, 2014; Bozgul, 2018; Crawford, 2008; Caglar, 2008; Cetin Gurkan, 2006; Dinc & Plakalovic, 2016; Kaplan, 2010; Korkmaz, 2011; Riad, Labib, & Nawar, 2016). According to the above results, the positive relationship between secondary school students' perception of school climate and school attachment level and school climate's being predictive of students' school attachment level show how important school climate is for students. Further, results obtained in the present research support the theory and research that assert that school climate is an important factor that is predictive of students' school attachment levels.

In conclusion, the present research suggests that secondary school students' perception of school climate and school attachment level vary based on their sex and grade level and that school climate is an important predictor of students' school attachment. Based on these results, it can be said that school attachment level of students that perceive their school positively and believe that the rules of conduct are openly and fairly managed in their school will increase. Academic success of students whose school attachment increases will also increase (Akey, 2006; Klem & Connell, 2004; Konold & Cornell, 2015; Moè et al., 2009; Thomasson, 2006). There are attempts to characterize school attachment with school attendance, class participation, course preparation and attendance, completion of assignments, participation in extracurricular activities (Willms, 2003). Students who participate less in extracurricular activities at school or has poor school attachment have been found to exhibit problematic behaviors (Simons-Morton et al., 1999), and be more likely to commit crime or be involved in crime (McNeal, 1995). In addition, students who do not feel they belong to the school or do not share school values are said to feel estranged from school and feel rejected (Willms, 2003). In this respect, school climate is an important element for students to feel committed to school and for their school success (Doll, 2010, p. 12). In order to maintain the school attachment and re-attract the attention of disinterested students, conditions that adversely affect the internal motivation must be minimized and conditions that have a positive motivational effect must be maximized (Adelman & Taylor, 2011b, p. 2) and school climate must be positively improved. In summary, practitioners who wish to bring students up to the aimed level in cognitive, affective and behavioral fields must first take into consideration expanding their knowledge about school climate to improve or develop school life and environment.

Improving or developing the school climate is an invaluable step and strategy to improve students' school attachment (Klem & Connell, 2004). In addition to school climate's positive effect on academic performance, protective and preventive measures can be taken against the problems of school abandonment and absenteeism such as creating an effective learning environment and organizing extracurricular and intramural activities that will attract student attention. "Commissions for the Improvement of School Climate" can be established at schools. Counseling service support can be used to determine, develop and improve students' perception of school climate. Negative factors that affect school climate and school attachment level can be

identified by taking students' opinion at certain intervals and students can be enabled to feel they belong to the school by protective efforts. Students' school attachment can be improved by procuring parent participation in school and parent support.

Maybe the foremost important point that requires attention about school climate is to determine the effect of school climate on student outcomes i.e. student achievements. The second most important stage following the determination of this effect is to look for the ways to create a positive school climate. While school attachment of students who perceive a positive and supportive school climate increases, they can be more successful, have less intramural and extramural undesired behaviors, can be protected against bad habits, improve their school attendance and have less school abandonment. A negative school climate, on the other hand, decrease students' attachment to their school, teachers and peers, cause them to distance themselves from class and school activities, lead to negative or undesired behaviors, increase school abandonment and absenteeism and lead to a negative attitude toward school. Eliminating and fighting against such negative consequences may be one of the biggest problems educators have. In this respect, it may be an incomplete perspective to correlate the results of studies focusing on the relationship between school climate and school attachment with academic success. It must be placed at the heart of all school improvement efforts besides academic success such as school safety and health. The present research is limited to the generalizability of the results obtained since it was conducted in Pendik district. Therefore, results can be obtained and generalized by conducting similar research in different provinces or districts.

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Ortaokul Öğrencilerinin Okula Bağlılıklarının Bir Yordayıcısı Olarak Okul İklimi

Atıf:

Özet

Problem Durumu: Eğitim bireyin yaşamında önemli bir yere sahip olmakla birlikte, eğitimin bireye verildiği okul ortamının özellikle okul ikliminin öğrenci bilişsel, duyuşsal ve davranışsal kazanımlarını etkilemektedir. Okul iklimini oluşturan bileşenlerden biri de öğrencinin okula bağlılık düzeyidir. Okula bağlanma, öğrencinin okula, arkadaşlarına ve öğretmenlerine yönelik geliştirdiği davranış, duygu ve düşüncelerdir. Okul ikliminin öğrenci üzerinde fiziksel, sosyal ve akademik etkisinin bulunması; okula bağlılığın davranışsal, bilişsel ve duyuşsal etkisinin olması, bu değişkenlerin birlikte ele alınmasını gerekli hale getirmiş ve önemini artırmıştır. Oluşturabilecek olumlu ve pozitif bir okul iklimi, bireyin okula bağlılık hissetmesini sağlayabilir. Kendisini okula bağlı hisseden bir öğrenci, disiplin, devamsızlık, suça yönelme ve kötü alışkanlıklar edinme gibi olumsuz davranışları sergilemek yerine; hedefi olan, toplumla bütünlük sağlayabilen, başarılı ve mutlu bir birey olabilir. Bu açıdan değerlendirildiğinde ortaokul öğrencileri tarafından algılanan okul ikliminin öğrencilerin okula bağlılıklarını yordayıp yordamadığının belirlenmesi önemli görülmektedir. Ancak ülkemizde okula bağlılığın önemli bir yordayıcısı olarak okul iklimi faktörünü birlikte ele alan çalışmaların sınırlı sayıda olduğu görülmüştür. Bu bağlamda okul ikliminin ortaokul öğrencilerinin okula bağlanma düzeylerinin bir yordayıcısı olup olmadığını belirlemek amacıyla yapılan bu çalışmanın; öğrencilerin okula bağlanma davranışlarını anlama, okul terki, devamsızlık, disiplin ve istenmeyen davranışlar, düşük akademik başarı ile mücadele etme ve bu olumsuzlukları önleme ve onlardan korunma konusunda öğretmenlere, yöneticilere, ebeveynlere, rehberlik ve psikolojik danışmanlara bir fikir sunacağı, okul iklimi ve okula bağlanmayı ele alan diğer çalışmalara ve okul yaşam kalitesini değerlendirmek için katkı sağlayacağı düşünülmektedir

Araştırmanın Amacı: Bu araştırma, okul ikliminin ortaokul öğrencilerinin okula bağlılıklarını yordayıp yordamadığını belirlemek amacıyla yapılmıştır. Çalışmanın genel amacı doğrultusunda aşağıdaki sorulara yanıt aranmıştır.

i) Ortaokul öğrencilerinin okul iklimi algıları ve okula bağlılık düzeyleri cinsiyetlerine ve sınıf seviyelerine göre anlamlı farklılık göstermekte midir?

ii) Ortaokul öğrencilerinin okul iklimi algıları ile okula bağlılık düzeyleri arasında anlamlı bir ilişki bulunmakta mıdır?

iii) Ortaokul öğrencilerinin okul iklimi algıları, okula bağlılık düzeylerini yordamakta mıdır?

Araştırmanın Yöntemi: Araştırmada nicel araştırma modellerinden ilişkisel tarama modeli tercih edilmiştir. Araştırmanın evrenini, 2017-2018 eğitim-öğretim yılında, Pendik İlçe Milli Eğitim Müdürlüğüne bağlı devlet ortaokullarında öğrenim görmekte olan ortaokul öğrencileri oluşturmuştur. Araştırmanın örneklemi, tabakalı örneklem yöntemi ile belirlenmiştir. Örneklemde okullar sosyo-ekonomik olarak üst, orta ve alt gruba ayrılmıştır. Bu okullardan birer okul tesadüfi örneklem yöntemi ile seçilmiştir. Araştırmaya belirlenen ortaokullardan 370 kız ve 403 erkek toplam 773 ortaokul öğrencisi katılmıştır. Araştırmada veriler Bilgi Formu, Okula Bağlanma Ölçeği ve Okul İklimi Ölçeği ile toplanmıştır. Veriler anova, t-testi, korelasyon ve regresyon testleri yapılarak analiz edilmiştir.

Bulgular: Analiz sonuçlarına göre ortaokul öğrencilerinin okul iklimi algıları ve okula bağlılık düzeyleri cinsiyetlerine ve sınıf seviyelerine göre anlamlı farklılık göstermiştir. Okul iklimi ile ortaokul öğrencilerinin okula, öğretmene ve arkadaşa bağlılık düzeyleri arasında pozitif ve orta düzeyde ilişki tespit edilmiştir. Araştırmada okul ikliminin, ortaokul öğrencilerinin okula, arkadaşa ve öğretmene bağlılık düzeylerini anlamlı bir şekilde yordadığı sonucuna ulaşılmıştır.

Sonuç ve Öneriler: Kız öğrencilerin okul iklimine yönelik algıları, erkek öğrencilerin okul iklimine yönelik algılarından daha olumludur. Kız öğrencilerin okula bağlanma düzeyleri, erkek öğrencilerin okula bağlanma düzeylerinden daha yüksektir. Öğrencilerin sınıf seviyesi yükseldikçe öğrencilerin olumlu okul iklimi algıları ve okula bağlılık düzeyleri azalmaktadır. Öğrencilerin okul iklimi algıları ile okula bağlılık düzeyleri arasında orta düzeyde ve pozitif; okul iklimi ile okula bağlanma alt boyutlarından okula bağlılık, arkadaşa bağlılık ve öğretmene bağlılık arasında orta düzeyde ve pozitif yönde anlamlı ilişki vardır. Okul ikliminin, öğrencilerin okula bağlanma düzeylerini, arkadaşa bağlanma düzeylerini ve öğretmene bağlanma düzeylerini anlamlı düzeyde yordadığı görülmektedir.

Okul iklimi konusunda belki de üzerinde durulması gereken en önemli noktaların başında okul ikliminin eğitim çıktıları yani öğrenci kazanımlarına etkisini belirlemektir. Bu etkinin belirlenmesi ile ikinci önemli aşama pozitif bir okul iklimi oluşturmanın yollarını aramaktır. Pozitif ve destekleyici bir okul iklimini algılayan öğrencilerin okula bağlılığı artarken öğrenciler daha başarılı olabilir, okul içi ve dışı istenmeyen davranışlar daha az yaşanabilir, öğrenciler zararlı alışkanlıklardan korunabilir, okula devam artırılabilir ve okul terkleri azaltılabilir.

Anahtar Kelimeler: Okula bağlanma, arkadaşa bağlanma, öğretmene bağlanma, okul iklimi.

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The Effect of Teaching Integers through the Problem Posing Approach on Students' Academic Achievement and Mathematics Attitudes*

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A R T I C L E I N F O	A B S T R A C T

Problem Statement: Throughout history, many changes have occurred in the field of mathematics education. These changes have also occurred concerning special topics that mathematics educators have constantly been searching. The significance of problem posing in mathematics teaching has increased recently with respect to its contributions to the teacher and the student. Thus, the problem posing approach is examined with respect to special topics. **Study Purpose:** The effect of teaching integers through the problem posing approach on sixth grade students' academic achievement and mathematics attitudes.

Method: Mixed method, in which quantitative and qualitative research methods are used together, was conducted in the study. While the pre-test post-test control group model constituted the quantitative dimension of the study, the observation method and content analysis of students' work sheets were used for the qualitative dimension. The study groups consisted of a total of 69 participants, 34 of them were in the experimental and 35 of them were in the control group. **Findings and Results:** According to the findings of the study, there was a difference in favor of the experimental group with respect to the academic achievement levels; and there were no significant differences between two groups with respect to the attitudes towards mathematics. The observations indicated that the problem posing approach created a peaceful competition environment, and increased participation in the classroom. In addition, the student work sheets showed that participants' problem posing skills progressed, and they became aware of their mistakes. In conclusion, the problem posing approach had a positive effect on the academic achievement in teaching integers, but it did not have a significant effect on student attitudes towards mathematics.

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Introduction

The constructivist learning approach has been adopted in Turkey since 2006. The mathematics program, which was updated in 2013, is being implemented on the secondary school level. This reform movement positively affected mathematics education which was in a constant progress (Baki, 2015). Along with this, other progresses were made, but none of these progresses have been considered sufficient.

Turkey also participates in international exams. According to Program of International Student Assessment (PISA) results, which were carried out in Turkey in 2006, males' score for mathematics performance was 427 while females' score was 421 (OECD, 2006). While males' score was 451 in the exam in 2009, females' score was 441 (OECD, 2009). In the exam carried out in 2012, males' score for mathematics performance was 452 while females' score was 444 (Organisation for Economic Co-operation and Development [OECD], 2012). According to the records, these scores remain below the average of OECD.

One of the biggest role in achieving to attain program objectives is undoubtedly assigned to teachers. It can be stated that mathematics educators have a big role in shaping the future. Ersoy (2005) stated that mathematics has been the primary determinant of the progress and developments in science and technology throughout the previous century. Thus, it is crucial for teachers to adapt to life which is constantly undergoing a change. With respect to educational program objectives, teachers should question, be open to self-development, understand the value of mathematics and recognize it, master the relationships between concepts, and should aim at raising students who learn how to learn.

Preparing students to real life through improving their problem solving skills is one of the objectives of our educational system. In the program, problem solving was found important in every stage of secondary school mathematics education, and it was stated that this skill should be improved (Ministry of National Education [MoNE], 2013). Teaching through problems helps students to internalize the concepts and improve their skills (Akay, Soybas & Argun, 2006). A problem is a state that includes open questions, attracts one's attention to questions which the individual does not have the experience and knowledge to answer (Blum & Niss, 1991). The student should be interested in the problem, be motivated to solve it, and the problem should intrigue the student.

The student's problem solving skill is expected to improve through the efforts made for the problems. According to Polya (1957), solving a problem refers to examining the solution for obtaining what is openly thought. Solving a problem is the process and method of using knowledge together with a new and unordinary (routine) solution. Polya's four step method is categorized as understanding the problem, devising a plan, carrying out the plan, and looking back (Polya, 1957). Polya's problem solving method is commonly adopted to the mathematical problem solving process.

The tendency towards problem posing has increased recently along with problem solving. Problem posing is an action which is defined as creating a new problem or reformulating a problem (Silver, 1994). Problem posing is considered as the fifth stage of the four step process introduced by Polya (Gonzales, 1998). National Council of Teachers of Mathematics (2000) refers to problem posing as an alternative approach in contemporary educational approach. Problem posing is crucial due to its contributions to problem solving skills and the attitudes towards mathematics (Silver, 1994; Turhan & Guven, 2014). Negative attitudes towards mathematics arise when the problem is not understood, when a plan is not found about it, and when the solution is not attained (Cankoy & Darbaz, 2010). The problem posing approach can be used to overcome this situation. As Akay and Boz (2009) state, problem posing provides endearing mathematics, improves problem solving skills, ensures conceptual understanding, and supports democratic learning environment. Akay (2006) states that a lesson taught through the problem posing approach positively affects the academic achievement levels and problem solving skills of students. Lowrie (1999) asserts that giving students the opportunity to create their own problems enables them to observe their beliefs and attitudes towards mathematics. Studies show that problem posing can decrease common fears and concerns towards mathematics (English, 1997; Silver, 1994). With this respect, problem posing can be considered as crucial.

Considering problem posing separate from problem solving is equal to ignoring most of the features of problem posing. According to Baki (2015), any condition that disturbs an individual or which the individual cannot predict the solution for is defined as a problem. An issue is referred to as a problem when it disturbs us, and when we don't know its solution beforehand. Thus, Kontorovicha, Koichua, Leikin and Bermana (2012) state that a problem that needs to be posed is also a problem that is waiting to be solved, and they emphasize that problem posing is a special way of problem solving. A good problem solver is never done after having reached the solution. When the solution of a problem is found, another way should be sought, and other ways of solving it should be tried (MoNE, 2013). The existence of other solutions should be studied and discussed. Lavy and Shiriki (2010) state that problem posing helps students change their strict opinion that a problem only has a unique solution; and thus, it is related to problem solving. One kind of problem posing referred to as problem re-formulation occurs within the process of problem solving (Silver, 1994). This method referred to as "Working Backward" involves the type of problem posing by reformulating an existing problem (Polya, 1957). Because when the individual does not know how to solve a problem with this strategy, then he or she tries to create another simpler problem similar to the previous one. The relationship between problem posing and problem solving was emphasized by many researchers in the literature (Akay & Boz, 2009; Cankoy & Darbaz, 2010; Ellerton, 1986; English, 1997; Kar, Ozdemir, Ipek & Albayrak, 2010; Kontorovicha, Koichua, Leikin & Bermana, 2012; Lavy & Shiriki, 2010; Lowrie, 2002; Unlu & Sarpkaya Aktas, 2017). Problem posing is also crucial due to its relationship with problem solving.

Integers can be considered as one of the subjects that includes relationship between problem posing and problem solving. It constitutes a large proportion in the teaching program. Students in primary school are introduced with natural numbers and the positive line of rational numbers. Introduction to integers in secondary school period constitutes a problem for many students. When we consider the literature, it is obvious that the integers is one of the subjects that has been widely studied (Aydin Unal & Ipek, 2009; Bingolbali & Ozmantar, 2014; Ercan, 2010; Isguden, 2008; Koroglu & Yesildere, 2004; Korukcu, 2008; Varol & Kubanc, 2012). However, it is still one of the subjects that is found mostly difficult in mathematics education (Yenilmez & Bagdat, 2014). In addition, difficulties, conceptual errors and mistakes on this subject can lead to several problems in teaching of the future subjects. Because the integers is a prominent subject for many following topics. Thus, integers is considered as a crucial subject in the secondary school mathematics curriculum. It is evident that previous studies on problem posing have focused mostly on conceptual mistakes and student difficulties (Akay & Boz, 2009; Cankoy & Darbaz, 2010; Kar, Ozdemir, Ipek & Albayrak, 2010; Turhan & Guven, 2014). The variety and depth of studies should be expanded to subjects that students find difficult. Thus, this study is expected to contribute to researchers and teachers in teaching of the integers.

Study Purpose

It was observed that studies on problem posing focused on the characteristics of the posed problems, and attitudes and problem posing skills of teachers and preservice teachers. There are limited studies focusing on the use of problem posing activities in teaching special subjects. Particularly, studies with classroom activities in which problem posing is used in secondary school are limited. Therefore, sixthgrade students were chosen for the study. The effects of the problem posing approach on teaching the integers was the concern of this study. The purpose of the study is to examine whether any significant difference occurs in sixth grade students' academic achievement levels regarding integers and their attitudes toward mathematics after teaching the integers through the problem posing approach. With this respect, this study is thought to contribute to the related literature. Based on this aim, the following research questions were asked:

1. Is there a significant difference in sixth garde students' academic achievement levels between the experimental and control groups after teaching the integers through the problem posing approach?

2. Is there a significant difference in sixth garde students' attitude towards mathematics between the experimental and control groups after teaching the integers through the problem posing approach?

3. What kind of problems were posed by sixth grade students while learning with problem posing activities?

Method

Study Design

Explanatory design, which is a type of mixed method, was used in the current study because it is used when a researcher also needs qualitative data in addition to quantitative data in order to explain significant results (Morse, 1991). The "pre-test/post-test control group" research design, which is a type of quasi-experimental designs, was conducted for the quantitative dimension of the study. In this research model, the data are observed under the control of the researcher, and it helps to determine the cause-effect relationship (Karasar, 2014, p. 87).

Observation and document analysis were conducted for the qualitative dimension of the study. Content analysis is a scientific approach which enables examining verbal, written and other materials in an objective and systematical way (Tavsancil & Aslan, 2001). The unstructured field notes were used in the study. In this type of observation, the researcher enters the natural setting and tries to carry out a "participant observation" by becoming a member of the setting, and the researcher may not need any standard observation or interview instruments (Yildirim & Simsek, 2013).

Population and Sample

The study population consisted of sixth grade students, who were from low socio-economic regions, studying in Istanbul. The study group of the study consisted of 6/B and 6/C students studying at a secondary school. A total of 69 students participated in the study. The students who participated in the study were selected through the random assignment method. Random assignment method is a technique for assigning participants to different groups in a study by using randomization (Karasar, 2006). The random assignment method was used in the current study because it is proper for the quasi-experimental design with pre-test post-test control group (Buyukozturk, 2014).

Data Collection Tools

The "Mathematics Attitude Scale", developed by Erktin and Nazlicicek (2002), was used in the study to determine the attitudes of the experimental and control groups towards mathematics. The scale involves 20 items, and a maximum of 100 points can be taken. The Cronbach's Alpha reliability coefficient of the scale was 0.735. In addition, the Integers Subject Achievement Test was also used in the study. It consists of 21 items, and it was applied before and after the implementation to determine the students' achievement levels. The period between the first and the second implementation was five weeks. The achievement test was developed by a lecturer, the researcher of the study and three expert teachers, who were a linguist, a mathematics teacher and an assistant professor. They reviewed the scale according to the acquisition process of the integers, and then a pilot test was carried out. The achievement test consists of 21 multiple choice questions. A maximum of 21 points can be taken from the test. The KR 21 reliability coefficient of the Integers Subject Achievement Test after the implementation was calculated as 0.717. Lastly, the

Problem Posing Evaluation Rubric, developed by Katranci (2014), was used to categorize the problems posed by the students. The rubric consists of 4 dimensions. These dimensions are language and expression (1), mathematical adaptation of the problem (2), structure/type of the problem (3), and solvability of the problem (4).

The implementation was carried out with the lesson plans prepared according to the problem posing approach, and it was ensured that every component of problems were produced by students throughout the study students. After asking the students to create problems similar to the examples and problems in their daily lesson plan, they were told to pose a problem based on a story or a piece of information, and they were told to solve the problem as their homework. For example, students were asked to propose a problem about weather condition by using real data. If the problem posed by the student had not been valid mathematically, or it had logical errors or it had been too simple for the level of the class, then the problem would have been changed by the students. The problems and examples posed were solved in the classroom setting.

While the integers was taught the control group by following the approach mentioned in the curriculum, problem posing approach was used in the experimental group. The same teacher taught both groups. The study lasted for five weeks. Instruction included objectives given in the program such as sorting out integers, four modes of operations, and number line. The sources of the examples and problems in the lessons of the control group were subsidiary sources or the teacher.

Data Analysis

The data obtained during 2015-2016 educational term were analyzed through the SPSS 17 software. The Kolmogorov Smirnov test was carried out for the normality test. The independent samples t-test, paired samples t-test, Wilcoxon and Mann Whitney U Test were conducted in terms of statistical analyses. The observation notes were gathered during the implementation. The data gathered through student work sheets were analyzed through the document analysis method. The rubric was used to analyse problems posed by the students.

The Kolmogorov-Smirnov Test was conducted on the Integers Subject Achievement Test, and the results showed that the data had normal distribution.

Similarly, the Kolmogorov-Smirnov Test was also conducted on the Mathematics Attitude Scale, and the results showed that while the pre-test results of the experimental and control groups had normal distribution, the post-test results did not have a normal distribution.

Results

Results Concerning the Achievement Test

Results of the independent sample t-test concerning the experimental and control groups' achievement test scores were given in Table 1.

Table 1

Results of the Independent Sample t-Test Concerning the Experimental and Control Groups' Achievement Test Scores

Group/Test	N	$\overline{X}$	sd	t	p
Experimental Group Pre-test	34	9.12	2.868	0.653	0.516
Control Group Pre-test	35	8.66	2.990		
Experimental Group Post-test	34	12.85	4.024	2.175	0.033
Control Group Post-test	35	10.80	3.818		

According to Table 1, there were no significant differences between the experimental and control groups before the implementation at the 0.05 significance level about the topic of integers. It can be said that both experimental and control groups were equal at the beginning of the study. When the post-test results of the achievement test were considered, there was a difference at the 0.05 level in favor of the experimental group. It was evident that the experimental group's average was 12.85, and the control group's average was 10.80. Results of the paired sample t-test concerning the experimental and control groups' achievement test scores were given in Table 2.

Table 2

Results of the Paired Sample t-Test Concerning the Experimental and Control Groups' Achievement Test Scores

Group/Test		N	$\overline{X}$	sd	t	p	r	Cohen's d
Experimental Pre-test	Group	34	9.12	2.868	-8.168	0.000	0.750	
Experimental Post-test	Group	34	12.85	4.024				
Control Pre-test	Group	35	8.66	2.990	-4.415	0.000	0.669	0,530
Control Post-test	Group	35	10.80	3.818				

According to Table 2, there was a significant difference between pre-test and post-test scores of the experimental group students with respect to the achievement test. When the arithmetical averages of the groups were considered, it was evident that the post-test scores (12.85) were higher than the pre-test scores (9.12). When the pre-test and post-test scores related to the integers numbers subject achievement test of the control group students were considered, it was evident that there was a significant difference between their pre-test and post-test scores. When the arithmetical averages of the groups were considered, it was evident that the post-test scores (10.80) were

higher than the pre-test scores (8.66). Also when Cohen's d was considered (0,530), it can be said that the effect size of problem posing activities was at medium level (Cohen, 1994).

Results on the Mathematics Attitudes Scale

The Mathematics attitude scale independent samples t-test results of the experimental and control groups before the implementation were given in Table 3.

Table 3

The Mathematics Attitude Scale Independent Samples t-test Results of the Experimental and Control Groups before the Implementation

Group/Test	N	$\overline{X}$	sd	t	p
Experimental Group	34	79.50	11.296	1.373	0.174
Control Group	35	76.06	9.487		

According to Table 3, there were no significant differences between the experimental and control groups' mathematic attitudes at the 0.05 significance level before the implementation. The Mathematics Attitude Scale Mann Whitney U test results of the experimental and control groups after the implementation were given in Table 4.

Table 4

The Mathematics Attitude Scale Mann Whitney U Test Results of the Experimental and Control Groups after the Implementation

Group/Test	N	$\overline{X}$	sd	z	p
Experimental Group	34	81.50	11.035	-1.562	0.118
Control Group	35	78.37	10.502		

According to Table 4, there were no significant differences in the mathematics attitudes of the experimental and control group students after the implementation. The Mathematics Attitude Scale Wilcoxon Signed-Ranks test results of the experimental group were given in Table 5.

Table 5

The Mathematics Attitude Scale Wilcoxon Signed-Ranks Test Results of the Experimental Group

Group/Test	N	$\overline{X}$	sd	z	p	r
Experimental Group Pre-test	34	79.50	11.296	-2.054	0.040	0.750
Experimental Group Post-test	34	81.50	11.035			

When Table 5 was taken into consideration, it was evident that there was a significant difference between the Mathematics Attitude Scale pre-test and post-test

score averages after the implementation in favor of the post-test scores. It was evident that the post-test scores (81.50) were higher than the pre-test scores (79.50).

Table 6

The Mathematics Attitude Scale Wilcoxon Signed-Ranks Test Results of the Control Group

Group/Test	N	$\overline{X}$	sd	z	p	r
Control Group Pre-test	35	76.06	9.487	-1.866	0.062	0.399
Control Group Post-test	35	78.37	10.502			

According to the results on Table 6, there were no significant differences between the Mathematics Attitudes Scale pre-test and post-test scores of the control group. Because the subjects were taught to the control group students as stated in the curriculum, and no additions were made in the way of teaching the subjects, it can be interpreted that no significant differences occurred in the control group students' mathematics attitudes.

Results Concerning the Observation and Work Sheets

Results Concerning the Work Sheets were given in Table 7.

Table 7

Results Concerning the Work Sheets

Student	Posed Problem
S25	
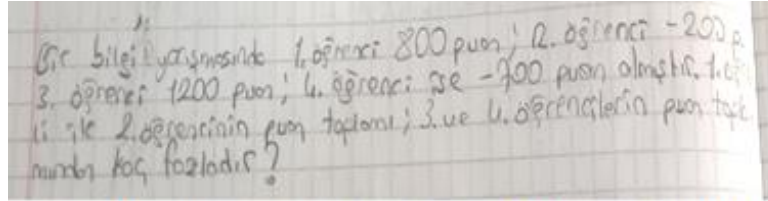
In a quiz show, the score of the first student is 800; the second student is -200; the third student is 1200; the fourth student is -700. How much more is the sum of scores of first and second students than the sum of the scores of the third and fourth students?

Table 7 Continue

S4
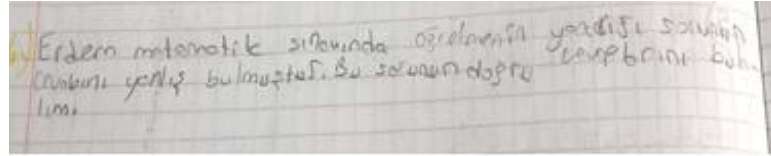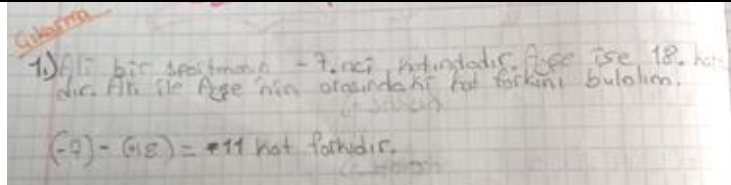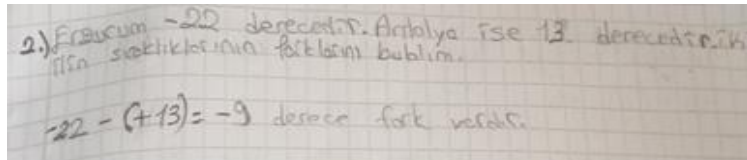
Erdem found the answer of the question that the teacher asked in the mathematics exam wrong. Let's find the correct answer of this question.

S7
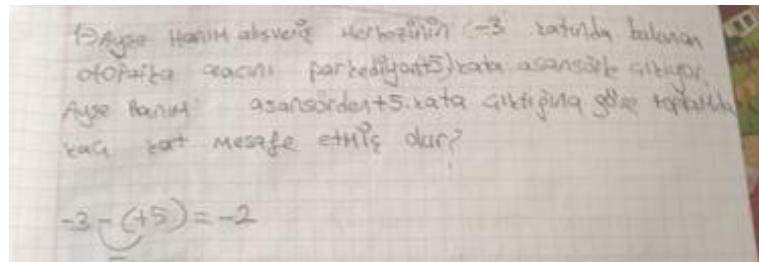
Mrs. Ayşe parked her car in the carpark area in the (-3) floor of a shopping center. She goes to (+5) floor with the elevator. If Mrs. Ayşe went to the +5th floor of the shopping center, how many floors did she go up?

Student	Posed Problem

S21
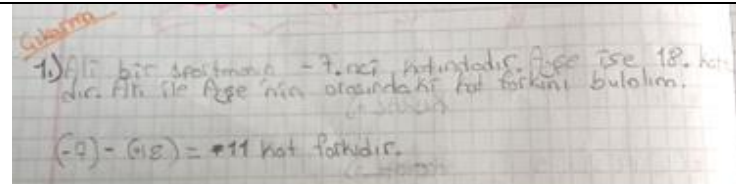
Subtraction 1.) Ali is at the -7th floor of an apartment. Aye is at the 18th floor. Let's find the floor gap between Ali and Ayşe.

(-7) – (+18) = * 11 floors

S17
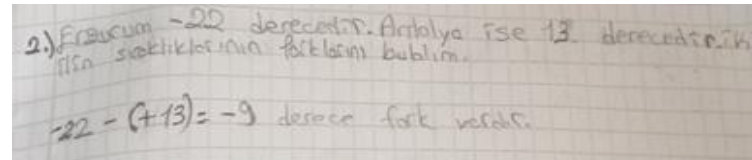
It is -22 ° C at Erzurum. It is 13 ° C at Antalya. Let's find the temperature gap between the two cities.

-22 - (+13) = -9 celsius degress gap

Table 7 Continue

S24
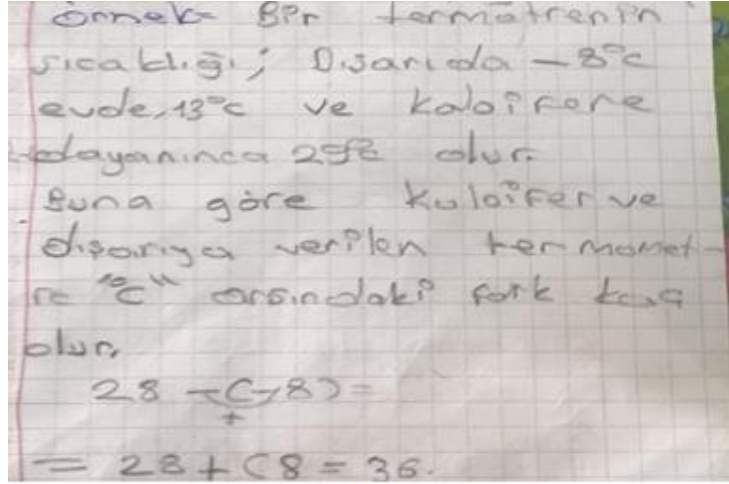
Example= The temperature of a thermometer is; -8°C outside, 13°C at home and 29°C when you lean on the radiator. What is the "°C" difference between the radiator and the temperature on the thermometer put outside?

Student	Posed Problem
S22	
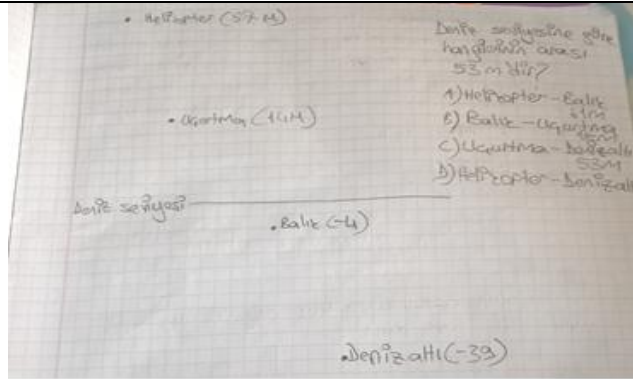
• Helicopter (57 m)

• Kite (14 m)

Sea Level

• Fish (-4)

• Submarine (-39)

According to the sea level, between which two is 53 m.?

A) Helicopter – Fish   61m

B) Fish – Kite   18m

C) Kite – Submarine   53m

D) Helicopter – Submarine

It was evident that the language of the problem posed by S25 was open and clear. The problem was solved by the class easily. During the solution of the problem in the classroom, the student was asked by his classmates how a negative score was obtained. The student stated that incorrectly answered questions could result in negative scores; and thus, he gave a word to a classmate and made him or her solve the problem. It was evident that the problem was a verbal type of problem.

It was evident that the problem posed by student number 4 had a problem, but it lacked the other components; and thus, it was not resolvable because there was no question in the problem produced by the student. Classmates asked to the students where 'the problem' is. Then the teacher interfered and asked the students to re-create the questions that were asked incorrectly.

The questions posed by S7, S21 and S17 were observed to have similar mistakes. The gap between a positive number and negative number was mixed up with the gap between two positive numbers; and this was revealed when the posed problems were being resolved. It was evident that despite small deficiencies, the problems were comprehensible, mathematically resolvable, and were compatible with real life conditions with respect to the rubric. These mistakes were discussed in the classroom and corrected.

Despite small deficiencies, the problem posed by S24 could be characterized as comprehensible, resolvable, and related to real life conditions. It was also evident that the student solved the posed problem correctly. The student was able to comprehend the difference between positive and negative numbers.

The problem posed by S22 could be interpreted as open, clear and comprehensible. The problem was mathematically valid. Since the result of the problem was asked, all the related choices were considered in the classroom, and a different student was given the floor to speak for each choice, the learning of integers was supported.

It was observed that there was a friendly competition in the classroom among the students about asking the problem they posed to their classmates. The teacher stated that participation slightly increased in the classroom. When the given examples were considered, it was obvious that student mistakes were revealed.

Nineteen students (54,28%) in the experimental group posed problems through problem posing activities. Total number of problems posed by 19 students was 76. These problems were classified with respect to the rubric. Whereas 51 of the problems (67.10%) were found as understandable, clear and fluent, 25 of them (32,89%) were found as mathematically expressed. Furthermore, 19 of 76 problems (25%) were found as solvable, but other 57 questions were not resolvable due to logical errors, unclear expressions and inconsistent knowledge.

Table 8

Assessment of problems posed by students with respect to the rubric

	f	%
Languange and expression	51	67,10
Mathematical adaptation	25	32,89
Solvability	19	25

Discussion, Conclusion and Recommendations

The purpose of this study was to examine the effect of the problem posing approach on the sixth grade the students' academic achievement and attitudes toward mathematics.

It was evident that the experimental and control groups were equal to each other before the implementation. It was revealed that there was a significant difference between the control groups' pre-test and post-test achievement scores in favor of the post-test scores. The educational activities could be said to have a positive effect on the academic achievement levels of the students. Because of the fact that both of the groups were exposed to teaching, they all increased their achievement scores. Tekin (1996) also explains this situation that no matter which approaches are adopted in the educational practices, the eventual aim is to attain desired behaviors. According to the experimental group's pre-test and post-test data, there was a significant difference in favor of the post-test scores. In addition, there was a significant difference in favor of the experimental group with respect to the integers achievement levels after the implementation. It was revealed that experimental group's post-test scores were higher than control group's post-test scores (see Table 1). Thus, it could be interpreted that the problem posing approach had a positive effect on the experimental groups' success in learning the integers. With respect to these findings, it could be stated that the problem posing approach affected academic achievement on learning the integers. There are many studies in literature (Akay, 2006; Akay and Boz, 2009; Arikan and Unal, 2013; Fidan, 2008, Unlu and Sarpkaya Aktas, 2017) which state that problem posing activities increase academic achievement of students. Turhan and Guven (2014) and Abu-Elwan (1999) underline that the problem posing approach improves the problem solving skills of students. Lowrie (1999) observed that problem posing activities within the classroom enable a deeper understanding of the problem solving processes for the students. Ghasempuor, Bakar and Jahanshahloo (2013) suggest recreating problem posing in science classes because it facilitates learning. Katranci (2014) states that problem posing increases students' understanding in mathematics. Findings of the study support these studies.

Mathematics attitude scale scores of the experimental and control groups before the implementation could be considered equal. It was observed that there were no

significant differences in the mathematics attitude scale post-test scores of the experimental and control groups after the implementation. When the findings were considered, it could be stated that the teaching of integers through the problem posing approach did not have a significant effect on the mathematics attitudes of the students. These results contradict with the results of the studies conducted by Bakar and Jahanshahloo (2013), Ghasempour, Karasel, Ayda and Tezer (2009), Lowrie (1999), Silver (1994), Silver and Cai (1996) and Turhan and Guven (2014). These studies propose that problem posing has a positive effect in student attitudes towards mathematics. An attitude is a positive or negative manner, or an evaluation of expression about objects, people, events or a state (Karakas Turker & Turanli, 2008; Ustuner, 2006). In addition, the researchers also emphasize that the attitudes do not change in a short period of time (Koballa, 1988; Narrated by: Turgut & Gurbuz, 2011; Sahin, Ongoren & Cokadar, 2010). Because the integers was taught through the problem posing approach in a short period of 3 weeks, it was considered that there were no changes in the attitudes of the students. The duration of teaching in the stated studies was minimum 8 weeks long. The reason for this can be because a long period of time is necessary to change attitudes.

According to the observations, it was evident that the students were willing to participate in the lesson during the problem posing activities, and that there was a friendly competition among the students about asking the problem they posed to their classmates. The mistakes of the students were revealed through the problems they posed (see S17's on Table 7). Thus, the students got the opportunity to think once again about the mathematical concepts they had acquired. In addition, because the posed problems were re-evaluated by classmates, this gave the opportunity to correct the mistakes. These results are in line with the studies conducted by English (1997) and Lowrie (1999), Lavy and Shiriki (2010), Toluk Ucar (2009). These studies also assert that problem posing activities can be used as evaluation instruments for revealing the conceptual mistakes and errors of the students. In addition, 19 of 35 students in the experimental group posed 76 problems. One quarter of these problems were appropriate in terms of language and expression, they were solveable and mathematically valid. More than half of the experimental group participated in the activities actively. The findings of the current study are in line with the other ones such as Arikan and Unal (2013), Cankoy and Darbaz (2010), and Lowrie (1999; 2002).

According to the results of the study, problem posing can be suggested to mathematics teachers for classroom and out-of-classroom activities that have an appropriate structure. When the benefits of problem posing activities are considered, they should be included more widely in the curriculum. Teachers should use the problem posing approach as an alternative teaching and evaluation instrument. Thus, they will get the opportunity to understand the deficient learning experiences of students, their conceptual mistakes and their full knowledge of the subject. This approach can be used more frequently through additional lessons. Furthermore, this approach can be used not only in mathematics but also in other courses such as physics and chemistry. The study is limited only to sixth grade students and to the topic of integers. A more comprehensible study can be carried out on the effects of problem

posing in other levels and courses. In order to acknowledge teachers and pre-service teachers, trainings should be provided to create awareness on the importance and implementation of problem posing.

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Problem Kurma Yaklaşımı ile İşlenen Tam Sayılar Konusunun Öğrencilerin Akademik Başarısı ve Matematik Tutumlarına Etkisi

Atıf:

Özet

Problem Durumu: Ülkemizde 2006 yılından itibaren yapılandırmacı eğitim yaklaşımı benimsenmiştir. 2013 yılında yenilenen matematik programı ortaokul seviyesinde uygulanmaya başlanmıştır. Bu durum sürekli gelişme içinde olan matematik eğitimini de olumlu etkilemiştir. Bunun yanı sıra başka gelişmeler de yaşanmış ve hiçbir zaman kaydedilen ilerlemeler yeterli görülmemiştir.

Uluslararası düzeyde yapılan sınavlara ülkemiz de katılmaktadır. 2006'da, ülkemizde yapılan PISA sonuçlarına göre, matematik performansında erkekler 427 puan alırken, kızlar 421 puan almıştır (OECD, 2006). 2009'daki sınavda erkekler 451 puan alırken kızlar 441 puan almışlardır (OECD, 2009). 2012 yılındaki sınavda ise matematik performansında erkekler 452 puan alırken, kızlar 444 puan almıştır (OECD, 2012). Kaydedilen sonuçlara göre bütün yıllarda alınan bu puanlar Ekonomik İşbirliği ve Kalkınma Örgütü OECD ortalamasının altında kalmaktadır. Yıllara göre kısmen ilerleme kaydedilse de bu ilerlemelerin yeterli olmadığı açıktır.

Programdaki hedeflere ulaşmada başarı elde etmek için hiç kuşkusuz en büyük görev öğretmenlere düşmektedir. Matematik eğitimcilerine geleceği şekillendirmede büyük görevlerin düştüğünü söyleyebiliriz. Çünkü Ersoy (2005) geçen yüzyılda bilim ve teknolojideki ilerlemelerin ve gelişmelerin temel belirleyicisinin matematik olduğunu belirtmiştir. Bu yüzden öğretmenlerin her an değişim halinde olan yaşama ayak uydurmaları elzemdir. Öğretmenlerin öğretim programının hedefleri doğrultusunda sorgulayan, kendini geliştirmeye açık olan, matematiğin değerini anlayan ve takdir eden, kavramlar arası ilişkilere hâkim olan, öğrenmeyi öğrenen öğrenci yetiştirmeyi amaç edinmeleri gerekir.

Öğrenciyi, problem çözme becerilerini geliştirmek suretiyle gerçek hayata hazırlamak eğitim sistemimizin amaçları arasındadır. Programda problem çözme ortaokul matematik eğitiminin her aşamasında önemli görülmüş, bu becerinin geliştirilmesi gerektiği belirtilmiştir (MoNE, 2013). Çünkü problemler yoluyla öğretim öğrencilerin kavramları içselleştirmesine ve becerilerini geliştirmesine yardımcı olmaktadır (Akay, Soybaş ve Argün, 2006). Uyguladığımız programda hayli önemli olan problem nedir? Problem, açık sorular içeren, kişinin ilgisini çeken ve kişinin bu soruları cevaplamak için yeterli tecrübe ve bilgi birikimine sahip olmadığı durumdur (Blum ve Niss, 1991). Probleme öğrencinin ilgi duyması, problemin merakını kamçılaması ve onun çözümü için güdülenmiş olması gerekir.

Son yıllarda problem çözmenin yanı sıra problem kurma konusuna eğilim artmıştır. Problem kurma, yeni bir problem üretme veya bir problemin yeniden formüle edilmesi olarak adlandırılan eylemdir (Silver, 1994). Problem kurma Polya'nın ortaya koyduğu 4 adımlı sürecin 5. aşaması olarak düşünülmüştür (Gonzales, 1998). Ayrıca NCTM (2000) çağdaş eğitim yaklaşımında problem kurmayı alternatif bir yaklaşım olarak görmüştür. Problem kurma, problem çözme becerisine ve matematiğe karşı tutumlara katkısı bakımından önem arz etmektedir (Silver, 1994; Turhan ve Güven, 2014). Problem anlaşılmaz, ona karşı uygun bir plan düşünülmez ve çözüme ulaşılamazsa matematiğe karşı olumsuz tutum ortaya çıkmaktadır (Cankoy ve Darbaz, 2010). Problem kurma yaklaşımı bu kısır döngüyü bertaraf etmek için kullanılabilir. Çünkü Akay ve Boz (2009) problem kurmanın matematiği sevdirdiğini, problem çözmeyi geliştirdiğini, kavramsal anlamayı kuvvetlendirdiğini, zihinde kalıcılığı artırdığını, demokratik öğrenme ortamı oluşturduğunu ve tek yönlü öğrenmenin dışına çıkarak matematiksel kavramlar arasındaki ilişkileri keşfetmeyi sağladığını belirtmişlerdir. Akay (2006) problem kurma yaklaşımıyla işlenen dersin öğrencilerin akademik başarılarını ve problem

çözme becerilerini olumlu yönde etkilediğini bulmuştur. Ayrıca Lowrie (1999) öğrencilere kendi problemlerini oluşturmak için fırsat vermenin onların matematiğe karşı inançlarını ve tutumlarını gözlemlemeye olanak sağladığını belirtmiştir. Yapılan çalışmalar, problem kurmanın matematiğe karşı olan yaygın korkuları ve endişeleri azaltabileceğini göstermektedir (Silver, 1994; English, 1997). Bu bilgiler ışığında problem kurmanın önemli olduğu söylenebilir.

Tam sayılar öğretim programında geniş bir yer tutmaktadır. İlkokulda öğrenciler doğal sayılar ve rasyonel sayıların pozitif kısmıyla karşılaşmaktadır. Ortaokul döneminde tam sayılara geçiş süreci birçok öğrenci için sorun teşkil etmektedir. Literatüre baktığımızda tam sayılar konusunun fazla araştırma yapılan konulardan biri olduğunu görüyoruz (Körükçü, 2008; İşgüden, 2008; Ercan, 2010, Varol ve Kubanç, 2012; Bingölbali ve Özmantar, 2014; Aydın Ünal ve İpek, 2009; Köroğlu ve Yeşildere, 2004). Buna rağmen matematik eğitiminde en fazla zorluk çekilen konulardan biridir (Yenilmez ve Bağdat, 2014). Ayrıca bu konuda yaşanabilecek aksaklıkların, kavram yanılgılarının ve yanlışlıkların gelecek konularda bazı sıkıntılara yol açması muhtemeldir. Çünkü tam sayılar kendisinden sonra gelen birçok konuya temel teşkil etmektedir. Bu bakımdan tam sayılar ortaokul matematik programında kritik bir konu olarak ele alınmaktadır. Yapılan çalışmaların genellikle kavram yanılgılarının ve öğrenci güçlüklerinin üzerinde yoğunlaştığı görülmektedir. Öğrencilerin zorluk çektiği bir konuda araştırmaların çeşitliliği ve derinliği artırılmalıdır. Bu açıdan çalışmanın araştırmacılara, öğretmenlere ve tam sayılar öğretimine katkı sağlayacağı düşünülmektedir.

Araştırmanın Amacı: Problem kurmayla ilgili yapılan çalışmaların kurulan problemlerin niteliği, problem kurmanın başarıya ve tutuma olan etkisi, öğretmenlerin ve öğretmen adaylarının problem kurma becerilerini belirlemeye yönelik olduğu görülmüştür. Problem kurma etkinliklerinin özel konuların öğretiminde kullanılmasına yönelik bir çalışmaya rastlanmamıştır. Bu çalışma için problem kurma yaklaşımının tam sayılar öğretimi üzerindeki etkisi merak konusu olmuştur. Bu araştırmacının amacı 6. sınıf tam sayılar konusunun problem kurma yaklaşımıyla işlenmesi sonucunda öğrencilerin yine tam sayılar akademik başarılarında ve matematik tutumlarında kayda değer bir gelişme olup olmadığını araştırmaktır. Bu yönüyle de çalışmanın araştırmacılara ve alana katkı sağlayacağı düşünülmektedir.

Araştırmanın Yöntemi: Araştırmada nicel ve nitel araştırma yöntemlerinin bir arada kullanıldığı karma yöntem benimsenmiştir. Çalışmanın nicel boyutunu ön-test son-test kontrol gruplu deneme modeli oluştururken, nitel boyutunda ise gözlem metodundan ve öğrenci çalışma kağıtlarının içerik analizinden yararlanılmıştır. Gönüllülük esasına göre seçilen 34 deney ve 35 kontrol grubu olmak üzere toplamda 69 katılımcı araştırmanın çalışma grubunu oluşmaktadır.

Araştırmanın Bulguları: Çalışmadan elde edilen bulgulara göre deney ve kontrol gruplarının akademik başarıları ve matematik tutumları arasında anlamlı bir fark bulunmadığı; uygulama sonrasında ise deney ve kontrol gruplarının akademik başarıları arasında deney grubu lehine anlamlı fark olduğu, matematik

tutumlarında ise aralarında anlamlı bir fark olmadığı bulgularına ulaşılmıştır. Yapılan gözlemler neticesinde problem kurma yaklaşımının sınıf içinde tatlı bir rekabet oluşturduğu ve katılımı nispeten artırdığı görülmüştür. Ayrıca öğrenci çalışma kağıtlarından katılımcıların problem kurma becerilerinin geliştiği, hatalarını fark ettikleri ortaya çıkmıştır.

Sonuç ve Öneriler: Araştırmanın sonuçları doğrultusunda problem kurma yaklaşımının tam sayılar konusundaki akademik başarıyı olumlu yönde etkilediği, öğrencilerin matematik tutumları üzerinde kayda değer bir etkisinin olmadığı anlaşılmıştır. Çalışmadan ulaşılan sonuçlara göre problem kurma, yapısına uygun konularda ders içi ve ders dışı etkinlikler için matematik eğitimcilerine önerilebilir.

Anahtar Kelimeler: Matematik eğitimi, problem kurma, problem çözme, tam sayılar öğretimi.

A Study on Communication Breakdowns: Sources of Misunderstanding in a Cross-Cultural Setting*

Perihan KORKUT[1], Mustafa DOLMACI[2], Burcu KARACA[3]

A R T I C L E I N F O	A B S T R A C T
	The Erasmus exchange program has a positive influence on students' intercultural awareness since they find the chance to meet other cultures. Despite high levels of proficiency, there may still be misunderstandings between students of different cultures. As a consequence, the Erasmus program might not achieve its pluriculturalism aim. **Purpose of the Study:** This study aimed to find out what kind of communicational problems -if any- stemmed from cultural differences in the interactions of Erasmus students with the Turkish students in an undergraduate education context. **Method**: The data was collected from 69 participants: 39 Turkish students attending three different universities in Turkey and 30 Erasmus students coming from seven different countries.

Findings: The answers were clustered in three main themes; the quality of communication; common areas of misunderstanding; and perceptions of each other. Turkish students perceived a better quality of communication with the visiting students. The eye contact patterns of the visiting students and Turkish students caused misunderstanding. As for pragmatics, inviting and offering procedures w ere the main sources of misunderstanding. Visiting students perceived Turkish people as helpful and benevolent, sometimes to the point of being pushy or too protectionist. Turkish people, on the other hand, tended to describe visiting students as individualistic and "free-spirited" people. **Implications for Research and Practice:** University courses can help students engage in awareness raising activities, and provide more orientation at the onset of exchange terms. Further studies are needed to investigate other potential areas of miscommunication, and with a more representative sample of cultures.

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Introduction

The increasing intercultural communication over the last few decades has been one of the main reasons for integration of the cultural aspect to language teaching process (Novinger, 2001). It is a truism in the sense that English Language teaching should involve aspects of the target culture and also aspects of the global community in a way due to the "lingua-franca" status of English (Byram, 1997). This idea places a priority on L2 learners' need to comprehend L2 communication as a cultural development by recognizing their culturally determined behavior and that of others from different cultures (Baker, 2012). In Turkish educational context, international student exchange programmes are available to offer students the opportunity to experience real communication in many linguistically and culturally diverse environments. The Erasmus exchange programme is one of these programmes. In this study, communication difficulties which stem from cultural differences were explored between the Turkish students and the exchange students from different nationalities. If such communication difficulties exist, the Erasmus programme might not reach its plurilingualism aim (Council of Europe, 2001).

The Erasmus Programme

One of the most well-known international exchange programmes is Erasmus exchange programme set by the European Commission. It is a student exchange programme of the European Union, established in 1987. The process of Turkey's membership to the European Union education and youth programmes started back in 1999 with the candidacy in Helsinki Summit. On 1st April, 2004, after succeeding in the preparatory phase, Turkey became a participating country to the Socrates, Leonardo da Vinci, and Youth Programmes -as they were named back then. "During the full participation period of six consecutive academic years (2004-2010), Turkey has managed to send approximately 30,000 students abroad and received 9,000. Moreover they sent 6,500 teaching staff abroad, and received 4,300" (The Centre for UE Education and Youth Programmes, 2010, p.5).

The onset of Erasmus exchange programme seems to have a positive influence on students' intercultural awareness since they find the chance to communicate in English with students from other countries. How effectively they can communicate is unanswered, though. In the process of communication build-up, apart from communicational obstacles stemming from students' lack of linguistic competence in English, there might be problems stemming from the fact that they come from different cultural backgrounds (Gulbinskiene & Lasauskiene, 2014). This study aims to find out what kind of communication problems -if any- stem from cultural differences in the interactions of Erasmus students with the Turkish students. This knowledge might be used in developing new understandings and developing pro-active measures; for example in inserting some extra materials about cultural differences in the language courses of undergraduate curriculum.

What is a Communication Breakdown?

A "communication breakdown", from linguistic point of view, is a study of pragmatics, i.e. the study of language use in relation to language structure and context of use (Verma, 2013, p. 5). Crystal defined pragmatic competence as "…from the point of view of (language) users, especially of the choices they make, the constraints they encounter in using language in social interaction and the effects their use of language has on other participants in the act of communication" (as cited in Ifantidou, 2013, p.94). As can be understood from the definition of Crystal, pragmatics is an essential part of a healthy communication. It includes areas such as complimenting, apologizing, requesting, inviting, offering; so, a lack of pragmatic competence may cause various problems including sociocultural and contextual issues. Therefore, communication between the interlocutors needs to meet both the linguistic and pragmatic criteria. According to Bayat (2013), language learners should not only learn the grammatical rules but should also be proficient in using the language in various contexts (p.219). Therefore, the field of pragmatics studies the linguistic signs and their usages in communicational contexts. If there occurs a problem in the line of communication, whether syntactic, semantic or pragmatic, it is called a "communication breakdown". The reasons for communication breakdowns are extensive; however, in a cross-cultural setting, most of the breakdowns stem from misunderstandings between the speakers.

What is Misunderstanding?

Successful communication was defined as the correct and complete transfer of information from the speaker to the hearer. In this view, meaning is something 'encoded' by the speaker (Olsina, 2002). In the constructionist definition, however, meaning does not only exist in the encoder's mind, but it is something negotiated, dynamically produced and jointly constructed by both the speaker and the hearer. Thus, successful communication is understood as a mutually acceptable outcome rather than the total match of participants' speaker meanings and listener interpretations (Olsina, 2002). When this acceptable outcome is not reached, we can talk about the existence of a communication difficulty. Olsina (2002) also mentions two types of communication difficulties; non-understandings and misunderstandings. Non-understandings are communication difficulties which are overtly identified and signaled by the parties in a conversation. Misunderstandings which are troubles of comprehension are not manifested interactionally. "That is the case, for example, when speaker and addressee interpret a given utterance differently but they remain unaware of it" (Olsina, 2002, p.40). The misunderstanding is identified only after it is realized at another point of the later stages of the relationship.

Misunderstandings can be classified according to their sources. Garand (2009) puts it under three categories. First, there are pragmatic misunderstandings in which interlocutors begin from preconceptions that determine their attitudes toward and expectations of one another. Second, there are semantic misunderstandings. These occur because of acoustic problems, and they are strictly linguistic in nature. Third, there are discursive misunderstandings and cognitive breaks. This type of

misunderstandings is more related with, for example, how an argument is carried out in discourse.

The intercultural encounters involve misunderstanding often. Fox (1997) presents a flowchart to show the levels of attempted intercultural action (p.94). When misunderstandings stemming from cultural differences remain unresolved, communication becomes systematically distorted. Where intentions and assumptions are less clear, or if there is a power imbalance between one participant and another, the whole question of systematic distortion arises; which is the third level of his model of intercultural communication. Systematic distortion can reduce the success of exchange programmes due to feelings of frustration and rejection on the part of the international students. It might be beneficial for us to investigate if there are any misunderstandings at this third level between the exchange students and the students of the host universities.

Causes for Intercultural Misunderstanding

Many frameworks were proposed for the causes of intercultural miscommunication. Chick (1989) identified five barriers to effective intercultural communication. First, language differences are a barrier for communication. For example, when one of the interlocutors is speaking in English and the other in Turkish, this makes up the first type of a barrier. This type of miscommunication is usually the least serious one among others since they are easy to recognize and hardly "mistaken for a deliberate attempt to mislead, confuse or convey negative attitude" (Chick, 1989, p.143). Second barrier involves different frames of reference. In the sentence "water went down the pipe", we refer to not a "smoking pipe" but a "water pipe" because we associate water and pipe in that way. But these associations may be different in each culture. Third, differences in listening behavior constitute a barrier to a healthy communication because the listening behavior is culturally marked. Fourth barrier is the difference in ways of regulating turn-taking. Finally, differences in politeness behavior are considered as the fifth barrier to communication. People can perceive someone of another culture as impolite, arrogant, or cold because of their politeness strategies.

Another framework is Qin's (2014) five-point framework to understand intercultural misunderstanding. Accordingly, misunderstanding can be due to different perceptions of roles in a situation. For example, the roles expected from a teacher might be different in different cultures. The second point that might cause misunderstanding is the patterns of time use. "According to Hall's (1973) observation, some cultures do not have the concept of past, some do not have clock time, some never make schedules, and some do not understand the concept of Sunday" (as cited in Qin, 2014, p. 6). Third, places that the situation takes place in are arguable for misunderstanding. Another point in the framework relates to the roles that the audience can get in a situation. In some cultures, some things cannot be negotiated in the presence of an audience. The last point is the scripts (utterances, gestures, facial expressions, etc). The same script can be understood in different ways in different cultures.

In another framework, we can talk about verbal and non-verbal differences that potentially impede communication. Novinger (2001) discusses the verbal aspects under the headings of Competency and Literacy/Orality. Competency includes accent, cadence, connotation, context, idiom, polite usage, silence, and style. Her list of non-verbal differences includes the subheadings of context, chronemics, kinesics, proxemics, immediacy, physical characteristics, and vocalics. In the present study, the focus is mostly on non-verbal differences since we expect fewer verbal differences because the participants were ELT students with high level of English proficiency.

Previous Research

Miscommunication has been subject to many studies. One example is the study of Hao and Zhang (2009) in which a survey was conducted to measure the present situation of Chinese students' intercultural literacy. Their survey consisted of three categories. The first category, intercultural awareness, had the subheadings of intercultural psychology, value system, ethnocentric attitude, collectivism/ individualism, behavior, and problem recognition. The second category, intercultural communicative competence, had subcategories of gifts acceptance and giving, dating and appointment, nonverbal communication, verbal communication, women priority, and paying a visit/receiving a guest/ table manners. And the third category, intercultural knowledge, consisted of subcategories of system of government, geography, literature, history, and race. They found that Chinese college students made mistakes which stemmed from lack of intercultural awareness despite the fact that they had been studying English for at least 12 years. They concluded that it is not easy to "cultivate intercultural awareness in a short time" and "educational institutes should make efforts to reform the structure of education" (Hao & Zhang, 2009, p.3). For example, they can assume a more discourse-based approach rather than a skill-based one, and they can make use of ICT (Information and Communication Technology) to expose students to multicultural encounters. Still another example is the work of Spinthourakis, Karatzia-Stavlioti and Roussakis (2009) with pre-service teachers. In this study an Intercultural Sensitivity Scale consisting of five factors of interaction engagement, respect for cultural differences, interaction confidence, interaction enjoyment, and interaction attentiveness was used. Results indicated that Greek students' intercultural awareness was already high, but the students felt that the education they had got did not prepare them well enough for their future teaching which would require a high intercultural communicative competence. Another study belongs to Uckun and Buchanan (2009) in which they used interview technique to investigate cross-cultural communication between native English speaking lecturers and their students in Turkish tertiary education. They found cultural differences of varying degrees according to university, department and the individual teacher's classroom management style. Still, another example belongs to Yu and Chang (2009) who used a questionnaire to investigate the current situation of English majors' intercultural communicative competence. Their questionnaire consisted of items related to 'cultural knowledge', 'communication awareness and attitudes', and 'communication practice and strategies'. This format is somewhat similar to the structure of discussions in the interviews of this study.

Kaur (2011) did fine-grained conversation analyses on the interactions between students in a lingua franca situation. He found that misunderstandings occurred due to performance-related or language-related problems, ambiguous utterances, and gaps in world knowledge rather than cultural differences.

This review of literature revealed that most of the studies were carried out only on one side of the communication situation. This study is different in that the participants included both Turkish and visiting students. By this way, the comparison of answers was possible.

Method

Research Design

Phenomenological research design which belongs to qualitative methods was used in this research. "Qualitative research is concerned with subjective opinions, experiences and feelings of individuals; and thus, the explicit goal of research is to explore the participants' views of the situation being studied" (Dörnyei, 2007, p.38). "A researcher is concerned with the lived experiences of the people involved, or who were involved, with the issue that is being researched" (Groenwald, 2004, p.44). The Erasmus experience is a temporal and local experience, unique to each individual that cannot be generalized to every situation. In that respect, phenomenological research design was seen as more suitable to investigate this issue.

Research Sample

The data for this study was collected from 69 participants from three different universities in Turkey. 39 of them were Turkish students from the ELT departments of the universities, whereas 30 of the participants were Erasmus students coming from seven different countries: Hungary (n=5), Czech Republic (n=9), Poland (n=3), Austria (n=6), Germany (n=2), Romania (n=3), and Lithuania (n=2). The Erasmus students, coming from different departments, had attended some classes with Turkish students for one term. This study was conducted towards the end of the term when Turkish students and Erasmus students had known each other for at least three months.

Research Instruments and Procedures

The data for this study was collected through interviews. Dörnyei (2007) warns that qualitative data can become bulky easily. So the researcher must try to "focus the exploration" in order to avoid losing time unnecessarily (p.125). In an effort to focus the interview better on the issues of misunderstanding, the researchers reviewed the literature first, and then formulated five questions which could serve as a framework for the participants to provide accounts of misunderstanding during their Erasmus experience.

The five open-ended interview questions were delivered to visiting Erasmus students on a form (See Appendix A). The form was administered in a similar way to "group administered survey" (Bordens & Abbott, 2008, p.271). This convention is used

when the participants are available in groups at a particular place and time. The researcher and the participants met at a classroom. After explaining the study and its purpose, the researchers asked for volunteers. With the remaining volunteers, the first question was explained and discussed whereby the participants were allowed to ask questions or explain it to their peers in their mother tongue. This was done in order to eliminate the risk of misunderstanding. Then, the students were allotted a few minutes to write down their answers on the survey form. The same procedure was repeated for the second, third, fourth and fifth questions on the form. The same procedure was applied with the Turkish students.

Data Analysis

The researchers took an "interpretative" stance in the analysis of the data (Miles & Huberman, 1994, p.8). Although content analysis is often associated with quantification of the qualitatively collected data (Berg, 2001 p.241), we chose to take the interpretative stance considering the nature of the data in this research. We had asked the participants to tell about instances of misunderstandings with their fellows – if any. Therefore, not all participants had answers for all of the questions in the interview. Thus, presenting how many times a code appeared in the data could be misleading for the reader. As Berg (2001) put it "a researcher with a phenomenological bent will resist condensing data or framing data by various sorting or coding operations. A phenomenologically oriented researcher might, instead, attempt to uncover or capture the *telos* (essence) of an account" (p. 239). For the analysis of the data, firstly, each researcher read each question, and summarized the answers using critical extracts from the answers. In order to decide the best way to put down the results, the three researchers of this study met to discuss, and sorted the answers into clusters on the basis of five questions on the interview forms. After that, each researcher read the interview forms again to confirm the clusters. The Turkish students' answers were also analyzed in the same way. Then, the results from the two groups were compared to see if the reported misunderstandings matched.

Results

As a result of the data analysis, the answers fell in one of the three main thematic clusters; the quality of communication; common areas of misunderstanding such as cultural behavior, pragmatics, education, and other areas; and perceptions of each other.

How Well Visiting Erasmus Students and Turkish Students Communicate with Each Other

The visiting Erasmus students were asked how well they could communicate with Turkish people. They were given a continuum of 0% on one end signifying the most serious communication problems, and of 100% on the other end signifying the best quality communication. Students marked their situation on the appropriate place of the continuum. Figure 1 below shows an example from students' answers.
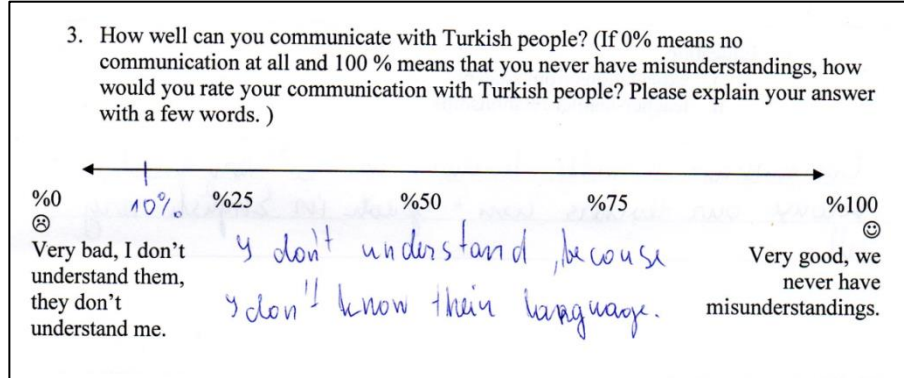
Figure 1. An Example Answer by A Lithuanian Female Student

Table 1 below depicts the opinions of visiting Erasmus students on how well they think they could communicate with Turkish students.

Table 1

How Well Visiting Erasmus Students Think They Could Communicate with Turkish Students

Rating	Example Quote	n	
		female	male
0%	-	-	-
0%-24%	*10% - I communicate mostly with my body language.*	2	1
25%-49%	*30% - The problem is that I don't speak the Turkish language that good, and the Turkish people do not speak English properly.*	7	2
50%	*Not very bad, but not very good, either.*	5	3
51%-75%	*75% - I think I have a good communication with Turkish people. Sometimes misunderstanding occurs, but often it is because of the language, not because of the Turks.*	1	1
76%-99%	*80% - Misunderstanding occurs only rarely. And we fix it immediately.*	6	2
100 %	-	-	-

Since the percentages were based on their subjective perceptions, the degrees attributed for a certain level of communication varied between participants. However, the positiveness or negativeness of the situation might still be meaningful; nobody marked 0%. They tended to see their communication positively. More than half of the students marked themselves above 50%. The problem seemed to be stemming from the language, and not other issues.

Turkish students also had positive perceptions. Most of them marked 75% and above. In addition, four students reported problem-free communication. They tended

to attribute their success less to body language but more to prejudices. The results are shown in Table 2 below.

Table 2

How Well Turkish Students Think They Could Communicate with Visiting Erasmus Students

Rating	Example Quote	n	
		female	male
0%	*0% - I don't even bother to talk to them.*	2	-
0%-24%	*25% - We did not speak personally, but I had no difficulty in understanding their English in lessons.*	5	1
25%-49%	-	-	-
50%	*50% -Generally, I got on well with them but some cultural differences caused communication breakdowns.*	6	2
51%-75%	-	-	-
76%-99%	*90% - Despite occasional misunderstandings, we were able to communicate most of the time.*	11	8
100 %	*100% - We could communicate all the time. We never had misunderstandings.*	1	3

Common Areas of Misunderstanding Between Cultures

Cultural Behavior (body language, touching, emblems, eye contact, artifacts). When Erasmus students were asked about the differences of cultural behavior which caused problems, there was at least one person from all nationality groups who mentioned the touching patterns of Turkish people. They said Turkish people touched each other too much. Especially kissing and hugging between men were culturally inappropriate for them. It seemed like it was one area of problem for the Erasmus students initially, although they seemed to have overcome it. Another major theme was the eye contact habits of Turkish people. All of the male Erasmus students complained that Turkish people, especially females, rarely looked at the eyes of their interlocutors when they communicated. One area of misunderstanding was mentioned by females from Czech Republic, Austria and Germany; "When you keep eye contact for a long time, Turkish people think you want something from them". In addition to these, both of the Austrian females mentioned that it was hard to communicate unwillingness to Turkish people with body language. One female from Germany was irritated from people taking her arm when she wanted to leave. While explaining the topic of emblems to the Erasmus student group in one university, an example was given about head movements that show "no" in Turkish. The shaking of the heads sideways may mean "what did you say?" in Turkish. One German female said "That explains why they repeat their offer when you shake your head to say 'no'". In addition, the Turkish head gesture and accompanying fricative sound was considered rude. One student mentioned this saying "I didn't know that Turkish people use the sound with their

mouths instead of saying no, and in Austria this sound is really rude." In terms of artifacts, female students noticed that their way of dressing might cause communication problems.

Similar topics emerged from the interviews of Turkish students. Considering touching patterns, a male student mentioned that when he put his hand on the shoulder of a male friend, his visiting fellows laughed, and told him that this gesture was considered "gay". One male and 10 female students had noticed that visiting students rarely touched each other, while two females commented on the contrary mentioning that they were more comfortable with touching than Turks. In terms of body language, three female and six male students commented that the visiting students used their hands as they spoke more than Turks. In addition, there were two female Turkish students who had observed that the visiting students rarely used gestures of the head as they spoke. As for eye contact, five female and three male students thought that visiting students had better eye contact or used it more than Turkish people, whereas three female students reported on the contrary that they established less eye contact. There were eight students from Turkish group who mentioned that the visiting students cleaned their noses noisily, which was irritating for them. 17 female and six male students commented about the visiting students' clothing styles. Four females and a male said that the Erasmus students dressed light. Five females and a male said that the way visiting students dressed was too revealing. Finally, three females reported that they found the visiting students' clothing styles sloppy. In addition, three females and five males only said that visiting students' clothing styles were 'different' without making any further comments. Other comments came from two females, one of who said the visiting students always used backpacks, and the other stated that they used exaggerated accessories.

Pragmatics (complimenting, apologizing, requesting, inviting, offering). The differences in the pragmatics of the cultures may also cause problems. Pragmatic competence includes areas such as complimenting, apologizing, requesting, inviting, and offering (Brown, 2007). For the present study, the main theme in the discussions with all nationality groups in the Erasmus group was invitations and offers. Turkish people invited them out for a drink or a night out, and offered help in many situations. Nevertheless, the main area of miscommunication was refusals. They all complained about the difficulty of refusing offers and invitations coming from Turks. This pattern caused problems of losing face. For example, German females were invited to the house of Turkish girls. They didn't want to stay overnight, and things went sour. A female from Czech Republic commented "We always have to drink tea, it is almost impossible to refuse them." Two Czech females said "Turkish people think we cannot do anything alone." A German female agreed saying "They act as if we cannot take care of ourselves." Some females also mentioned that Turkish people complimented unusually often, and they were quick in disclosing feelings. One Austrian female said "Being outspoken is a problem. Turkish people think we are unfriendly." Another Australian female commented "Turkish men tell a girl what they think of her clearly. Sometimes I felt a little bit offended." In terms of inviting, refusing and complimenting, one male student from the Czech Republic commented that Turkish

girls acted like 12-13 year olds when it came to dating. Two participants contributed that Turkish people did not apologize much even when they were guilty. There was also one participant who pointed out that Turkish people sometimes asked too many personal questions.

Turkish participants were asked if there were any problematic areas stemming from complimenting, apologizing, requesting, inviting and offering patterns of visiting students. About the complimenting patterns of visiting students, five Turkish students made various comments. The comments did not represent the majority, and some of them were contradictory in nature. Some example quotations are given below.

They expect to be thanked in response to a compliment.	female
They like receiving compliments.	female
They do not ever compliment others.	female
They compliment to even those whom they do not know.	female
They sometimes say 'thank you' in response to a compliment, and sometimes they do not seem to care	male

Only three students mentioned the apologizing patterns of visiting students. One male student said that they rarely apologized, whereas one female said that they apologized more than Turks did. Another male student commented that visiting students apologized if they made a mistake. Turkish students further observed that they requested kindly and in a more formal way than Turks did.

Moreover, there have been contradicting reports about the inviting behaviors of Erasmus students as seen in the following examples:

They do not ever invite.	male
They like inviting.	female
They refuse invitations.	female
They accept invitations.	male

As the final issue about pragmatics, many students commented about the offering patterns. This issue seemed problematic for the Turkish students since most of the students commented on it. Two male and four female students generalized that the Erasmus students refused offers most of the time. Three females stated that they never thanked when they accepted offers. One female put down an anecdote about a time when she had to insist that the visiting student took a biscuit for each of the biscuits in the packet. Moreover, six females commented that the visiting students were not wise enough to make an offer. Two females mentioned that they did not insist while offering something.

When Turkish people were offered something by the visiting students, miscommunication occurred. One female from the Turkish group narrated: "*Although*

I don't drink alcohol, one of my friends ordered me a drink and I raised my glass but didn't drink. My friend was offended and I learned that I should not raise my glass if I will not drink."

Education (expectations from students, teacher-learner relationships). Considering issues related to education, visiting students mentioned that they were surprised by teacher-student relationships in Turkey. Four students mentioned that Turkish teachers built a more friendly relationship. However, two students found Turkish teachers cold and uncooperative. Many students complained that Turkish teachers had a lower English proficiency level than they had expected. The strictness in terms of written exams and attendance records were other problems for the visiting students. Two students mentioned that expectations from the Turkish students were really high.

Similar problems were also noticed by the Turkish students. One student said that visiting students had a performance-based educational system, and they were reluctant to take written exams. Another student pointed out that the visiting students were more dependent on books. As Turkish students relied on internet resources, the visiting students wanted to use the library more according to their observations.

Other areas. Students were asked to add if there were other issues that did not fit under any of the categories. Although few of the visiting students responded, the statements in this section comprised of complaints or negative evaluations entirely. One male from Poland added that he was surprised to find out the water at restaurants was not free of charge. He also complained that the people in the bazaar were too insistent. One Czech female mentioned the shopkeepers' and travel agents' charging them with higher prices. One Austrian female said "*In Turkey, men make the decisions and women seem to follow."*

Ten students responded from the Turkish group. Two males observed that visiting students had exaggerated behaviors. One male and one female said that Polish students were more sincere. One female commented that males from Czech Republic could establish relationships faster. One male student pointed out that Germans were more withdrawn. Some other comments include "*They do not obey the rules, and make problems out of simple things*" by one male; "*They are here for only touristic purposes*" by one female; and "*Some behaviors which we consider inglorious are not so for them*" by one female student. Finally, one female said that the visiting students seemed to be friendly, but they were not sincere.

How Visiting Erasmus Students and Turkish Students Describe Each Other

Finally, visiting Erasmus students were asked to describe Turkish people. 20 visiting students used the adjective "*friendly*" in their answers. Other adjectives were "*helpful, kind, sincere, generous, open-minded and open-handed*". Six students implied Turkish people seized the day, and were relaxed against problems. In addition, two students said that Turkish people were stubborn.

The adjectives used by the Turkish participants to describe the visiting students were various. Most of the students used words with positive connotations such as "*adventurous, easy-going, friendly, kind, sincere, self-confident, composed, and disciplined*".

Only nine students used words with negative connotations such as "*cold, not approachable, and prejudiced*".

Discussion, Conclusion and Recommendations

We are now living in a globalized world. "One consequence of globalization has been that through the increase in international communication, the differences among cultures have become smaller" (Barnett & Jiang, 2017, p.102). Therefore, most of the intercultural interactions are successful, and they do not reflect any problems. Yet, cultural differences are still evident in "the moments of interculturality" (Hartog, 2006). This study attempted to investigate communication breakdowns within intercultural dialogue during the Erasmus exchange programme. Both the visiting students and their Turkish classmates were asked about their experiences especially in terms of communication breakdowns.

When students were asked to mark themselves on the continuum, the visiting students tended to mark themselves at lower rates than the Turkish students who marked themselves at higher rates. 19 of the Turkish students marked themselves at 50 % and above. It can be concluded that Turkish students perceive the quality of their communication with visiting students better than the visiting students do. In Ciftci and Karaman's (2018) study, Turkish students were found to have positive expectations about their upcoming Erasmus exchange experiences.

Other questions included some common causes of misunderstanding such as cultural behavior and pragmatics. In terms of cultural behavior, one common area of misunderstanding seemed to stem from the eye contact patterns of the visiting and Turkish students. Visiting students stated that Turkish people interpreted a lengthy eye contact as a request. But when Turkish students were asked about it, only a few of them stated that visiting students could establish more or better eye contact. According to Bratanic (2007) "the misunderstandings rooted in nonverbal behavior generally stem from our implicit and unconscious assumption that nonverbal behavior functions universally, as well as our lack of recognition of culture-specific patterns in this area" (p. 85). Accordingly, the meaning of the length of eye contact can mean many things in Turkish culture and in other cultures. Other outstanding differences were visiting students' cleaning their nose noisily and Turkish boys' hugging and kissing each other as a sign of greeting. Turkish students also mentioned the way visiting students dressed up.

As for pragmatics, the main resource of miscommunication seemed to be the differences in inviting and offering procedures. Students from other countries complained that Turkish people would not accept "no" as an answer. This led to feelings of frustration and abasement. On the other hand, Turkish students reported feelings of rejection, disappointment and disregard. Turkish students had also attributed the Erasmus students' not offering very often to their rudeness or ignorance of social manners. This discrepancy seemed to be stemming from the different perceptions of the roles attributed to hosts and guests in different cultures (Qin, 2014).

Finally, both the visiting students and the Turkish students were asked to describe each other to spot stereotyping if there is any. Stereotyping might result in misleading expectations in terms of behavior. It seemed that visiting students described Turkish people as helpful and benevolent, sometimes to the point of being pushy or too protectionist. Turkish students, on the other hand, had a tendency to describe visiting students as individualistic and "free-spirited" people.

The findings of this study have some implications for teaching. "As intercultural knowledge is gained through experiences, it is likely to develop in a more implicit manner, in which learners are required to draw upon their comprehension and production skills" (Crowther & DeCosta, 2017). There seemed to be some areas where both the visiting and Turkish students failed to recognize as cultural difference. These areas of misunderstanding can be brought up as a subject of discussion in the lessons to make their implicit understanding explicit. For example, linguistic functions such as "offering, inviting and rejecting" can be examined from the point of view of different cultures. Students can be asked to do studies and presentations on these topics.

Arguably, such awareness of the connection between functions, notions and how they are realized in different cultures must become a part of the teacher education programs. As Walters et al. (2009) pointed out, "appreciation of diversity and difference can carry over to the teachers' classrooms when these individuals become teachers themselves" (p.154). Such appreciation is arguably even more essential for language teachers.

Another option can be scheduling an orientation course or a session for both Turkish and visiting Erasmus students. Barkhuizen and Feryok (2006) highlight the importance of preparing the participants for the exchange program. Keeping the gender-based reactions given to the cultural differences and the different answers from male and female students for the same question in mind, it can easily be said that gender factor played an important role in their interactions. Therefore, the appropriate behaviors for boys and girls in different cultures can be clarified during these orientation sessions. During the Erasmus programme, students come across with the host culture and also other cultures when meeting other Erasmus students. The capacity of recognizing the differences between cultures, and being able to act accordingly plays an important role in the formation of their European identity (Ieracitano, 2014). It can be concluded that the installation of an orientation element with intercultural awareness content at the onset of the Erasmus programme might facilitate the process.

This paper attempted to identify potential sources of misunderstanding in a cross-cultural setting. On the premise that these sources could inform educational practices to increase intercultural communicative competence, it seeked especially the moments of misunderstanding which the students thought stemmed from cultural difference.

There are a few limitations of this research. The data collection method can only yield Level 2 type of miscommunication (Fox, 1997). A longitudinal observation and record-keeping of interactions would provide a fuller picture of the situation. The

second limitation of this study is related to the scope and the participants. This study focused mainly on the misunderstandings related to cultural behavior and pragmatics, and excluded those stemming from other areas such as differences in word choice and sentence patterns. The participants of this study were not representatives of the cultures they came from. In other words, the intercultural misunderstandings they reported cannot be generalized to all citizens of a country. Moreover, the inconsistencies in the feedback from the Turkish students made us suspect that their responses were based on single events rather than general impressions. Further studies, therefore, are needed for the development of more valid and reliable data collection tools, for investigation of other potential areas of miscommunication, and with a more representative sample of cultures.

Albeit its limitations, this study has brought light to the potential sources of misunderstanding which stem from lack of cultural knowledge. It reminds us that perhaps the cultural elements in the language courses should go beyond reading texts about the target culture's history, geography and holidays. It urges us to think of ways to teach our students how to embrace difference, and function well in a pluricultural world.

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İletişim Bozuklukları Üzerine Bir Araştırma: Kültürlerarası Bir Ortamda Yanlış Anlama Kaynakları

Özet

Problem durumu: Son yıllarda artan kültürler arası iletişim olgusu, kültürler arası iletişim kavramının dil öğretimi sürecine de katılması gerekliliğini ortaya çıkarmıştır. Bu yüzden, özellikle İngilizce öğretmenliği bölümü öğrencilerinin, öğrenmekle ve gelecekte öğretmekle yükümlü oldukları dilin, evrensel ve toplumları birbirine bağlayan bir dil olduğu da göz önünde bulundurulduğunda, kültür ve küresel toplum konularında eğitilmesi gerektiği doğru bir düşünce olacaktır. Bu düşünce, ikinci dil öğrencilerinin ikinci dilde kurdukları iletişimlerin kültürel gelişimleri açısından değerlendirmelerini ön plana taşımaktadır. Türk eğitim sisteminde öğrencilere bu olanağı sunan değişim programları yer almaktadır. En önemlisi de Avrupa Birliği Komisyonunun sunduğu Erasmus Öğrenci Değişim Programıdır. Erasmus Değişim Programı'nın öğrencilerin başka kültürlerden öğrencilerle buluşmalarını sağlaması açısından uluslararası farkındalıklarına katkıda bulunduğu söylenebilir. İngilizcesi ileri derecede olan öğrenciler için bile farklı kültürlerden biriyle karşılaştığında, birçok kaynağa bağlı olarak, yanlış anlamalar söz konusu olabilir. Bunun sonucunda da Erasmus Değişim Programı çok kültürlülük hedefine ulaşamıyor olabilir.

Araştırmanın Amacı: Bu çalışmanın amacı Erasmus Programı ile gelen ziyaretçi öğrenciler ile Türk sınıf arkadaşları arasında geçen iletişimlerde kültür farklılığından kaynaklanan iletişim problemlerini araştırmaktır. Bu problemlerin ortaya çıkarılması gerekli önlemlerin alınması ve Erasmus programına dahil olan öğrencilerin oryantasyon etkinliklerinde kullanılabilmesi açısından alan yazına katkı sunacaktır.

Araştırmanın Yöntemi: Bu araştırma, nitel araştırma yöntemlerinden fenomenolojik araştırma türündedir. Veriler toplam 69 katılımcıdan toplanmıştır. Bunların 39'u Türkiye'deki üç farklı üniversitede okumakta olan Türk üniversite öğrencileri iken 30 katılımcı da bu üniversitelerde Erasmus program ile ziyaretçi öğrenci statüsünde olan beş farklı ülkeden gelen öğrencilerdir.

Literatür taramasından elde edilen teorik bilgiler ışığında oluşturulan beş adet açık uçlu soru katılımcılara yöneltilmiştir. Veriler toplanırken soruların her biri katılımcılara açıklanmış ve tartışılmıştır. Daha sonra katılımcılara yanıtlarını kâğıda dökmeleri için zaman tanınmıştır. Bu şekilde özellikle ziyaretçi öğrencilerin birbirlerine anadillerinde sorulardan anladıklarını açıklamaları mümkün olmuş, oluşabilecek yanlış anlamaların önüne geçilmeye çalışılmıştır.

Elde edilen veriler, araştırmacılar tarafından içerik analizi ile incelenerek temalar ve alt temalar oluşturulmuştur. Öncelikle her araştırmacı kendi üniversitesinden gelen cevapları ayrı ayrı okumuş ve örnek alıntılar ile özetlemiştir. Daha sonra üç araştırmacı bir araya gelerek analizlerin örtüşen ve örtüşmeyen yönlerini tartışmışlardır. Araştırmacılar, literatürün ışığında temaları birlikte belirlemişlerdir. Daha sonra her araştırmacı verileri belirtilen temalar doğrultusunda okuyarak kontrol etmiştir.

Araştırmanın Bulguları: Katılımcıların verdikleri cevaplar üç ana tema etrafında toplanmıştır: (1) iletişimin kalitesi (2) genel olarak yanlış anlamaların kaynakları – kültürel davranışlar, edimbilimsel unsurlar, eğitim ve diğer alanlar ve (3) birbirlerini algılayış biçimleri. Buna göre Türk öğrenciler ziyaretçi öğrenciler ile iletişimlerinin kalitesini onların algıladıklarından daha iyimser olarak değerlendirmektedirler. Örneğin Türk öğrenciler içinden iletişimini %100, yani mükemmel olarak değerlendiren 4 katılımcı olmasına rağmen ziyaretçi öğrenciler arasında mükemmel iletişimi olduğunu rapor eden katılımcı çıkmamıştır. Yanlış anlamalarda önemli kaynaklar genellikle göz teması kurma alışkanlıkları, davet etme ve davete iştirak alışkanlıkları olarak tanımlanmıştır. Ziyaretçi öğrenciler uzun göz teması kurduklarında Türk öğrencilerin kendilerinden bir şey istediğini düşündüklerini belirtmişlerdir. Davet ve davete iştirak konularında da Türk öğrencilerin hayır cevabını kolay kolay kabul etmediğini düşündüklerini, daha sonra Türk kültürünü tanıdıkça buna alıştıklarını anlatmışlardır. Benzer şekilde Türk katılımcılar da ziyaretçi öğrencilerin sıklıkla davet ve ikramda bulunmadıklarını ve davetlere karşılık vermediklerini ifade etmişlerdir. Eğitim konusunda Türk öğrenciler ziyaretçi öğrencilerin ders çalışma disiplinleri ve örneğin kütüphaneyi daha fazla kullanmaları gibi noktaları belirtmişler, bu özelliklerini de yurt dışındaki eğitim sisteminin farklı olmasına bağlamışlardır. Ziyaretçi öğrenciler için ise özellikle öğretim üyeleri ile aralarındaki iletişimdeki zorlukların genellikle onların İngilizce seviyelerinin daha yüksek olmasını beklemelerinden kaynaklandığı ortaya çıkmıştır. Birbirlerini nasıl gördükleri sorusuna da ziyaretçi öğrencilerin Türkleri yardımsever, iyi niyetli ama bazen sınırları aşma noktasında fazla korumacı olarak tarif ederken Türk öğrenciler de ziyaretçi öğrencileri daha bireysel ve özgür ruhlu kişiler olarak tarif etme eğilimindedirler.

Araştırmanın Sonuçları ve Öneriler: Araştırmanın sonuçlarına göre hem Türk öğrenciler, hem de ziyaretçi öğrencilerin iletişimlerinde birbirlerini yanlış anladıkları, ya da yanlış anlaşıldıklarını düşündükleri durumlar olmuştur. Bu yanlış anlaşılmalar çoğunlukla, iletişim kaynaklarının sahip olduğu kültürel farklılıklardan kaynaklanmaktadır. Bunlar, bilgilendirme ile kolayca üstesinden gelinebilecek, göz teması, davet ve davete iştirak gibi konulardır. Kolayca anlaşılmaktadır ki, hem ev sahibi hem de misafir öğrenciler, yeni karşılaştıkları kültürdeki sosyokültürel açıklarını, kendi sahip oldukları kültürün normları ile doldurmaya çalışarak iletişimsel bozukluklara ve yanlış anlaşılmalara sebebiyet vermiştir. Çalışma göstermektedir ki, sosyokültürel deneyim eksikliğinden kaynaklanan yanlışlar, öğrencilerin dilsel iletişim becerilerine de ket vurmaktadır. Bunun önüne geçebilmek için, üniversitelerde verilen dil eğitiminde ve öğrencileri Erasmus değişim programına hazırlama programlarında bu

çalışmanın sonuçları ışığında farkındalık etkinlikleri yürütülebilir. Daha fazla oryantasyon etkinlikleri ile öğrencilerin yaşadığı zorluklar ortadan kaldırılmaya çalışılabilir. Öğrencilerin, farklı kültürlere, kültürel farklılıklara karşı tutumlarını geliştirmeye, tolerans ve saygı göstermeye yönelik çalışmalar ve bilgilendirmeler yapılabilir. Özellikle Erasmus Değişim Programı kapsamında uzun dönem yurt dışında bulunacak öğrencilerin, kültürel bir şok yaşamaması ve tolerans geliştirmelerinin kolaylaştırılması açısından, yabancı öğrencilerle kısa dönemli görüşmelere ve etkinliklere katılmaları sağlanabilir. İleriki çalışmalarda daha farklı veri toplama süreçleri tasarlanarak daha fazla kültürün temsil edildiği çalışmalar yapılmalıdır.

Anahtar Kelimeler: Kültürlerarası iletişim, iletişimsizlik, değişim öğrencileri, kültürel farklılıklar

The Problems that Secondary School Administrators' and Teachers' Face Regarding Strategic Administration

Sukru ADA[1]

A R T I C L E   I N F O

A B S T R A C T

Purpose of the Study: This study aims to determine attitudes of teachers and school administrators towards strategic planning based on their perception and whether their views on strategic planning differs in relation to factors such as gender, educational level, years of experience and position. *Method:* The sample for the study consists of 383 teachers and school administrators working in secondary schools in Palandöken, Aziziye and Yakutiye municipalities of the city of Erzurum, during the academic year of 2015-2016. Data were collected via Strategic Administration Problem Scale developed by Cetin (2012). For the data analysis of the data, in addition to descriptive statistics, T-test, Anova, and Tukey HSD multi comparison tests were used. **Findings:** Findings of the study showed that, administrators' views on strategic planning do not differ based on years of experience. Insufficient data, it was not possible to compare gender and education level variables. On the other hand, teachers' views on strategic planning showed significant differences based on years of experience variable. Similar to administrators' data, there was not sufficient data for gender and education level variable for teachers as well.

Discussion and Suggestions: School administrators' views on strategic planning are found to be positive; they are aware of their responsibilities and they acknowledge active role of administrators in strategic administration. In addition, participants were to be found in agreement regarding the institutional problems administrators and teachers face in strategic administration, which are; teachers' lack of knowledge in strategic administration, lack of communication between stakeholders, and lack of support for the practices of strategic planning.

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Introduction

Rapidly changing and dynamic face of the organizations, as well as increasing and changing expectations require organizations to act in a strategical manner. This rapid and effective change, which is clouding the future, enforces social organizations such as educational institutions to define, adopt and apply their strategic behaviors in order to become visionary. Schools encounter change intensively due to intense social and cultural interaction.

Globalization lead changes in peoples' perceptions as well. Tendency towards new ideas increase. Changing competition conditions make current administration strategies inefficient for future organizations. Public and educational administrations are in effort to adapt to new situations required by this wind of change.

Public administration has gone through changes which put tools of transparency, accountability, performance evaluation, and inspection into practice. These developments render importance to innovation of strategies and preparation of strategic plans for the future (Arabaci, 2007; Davies, 2006; Demir & Yilmaz, 2010; Guclu, 2003). Strategic planning is quite valuable for organizations in order to protect themselves from risks, to benefit from opportunities and to sustain.

Strategy means to direct, to transmit, to carry and to drive (Dincer, 2007; Eres, 2004; Kucuksuleymanoglu, 2008; Freeman, 2008). In other words, concept of strategy is about showing direction. Planning is written or unwritten documents and information which state the targets (i.e. staff, budget, materials, goods, service) of public, private or non-governmental organizations in short, medium or long-term periods.

Strategic planning can be described as a contributing, transparent, flexible planning approach which determines rational strategic purposes and targets in accordance with organizations' vision, and reports the process of reviewing, watching, and correcting sustainable success by developing measurable indicators in line with an action plan (Arslan, 2009; Wolf & Floyd, 2013). First step for a plan is determining the purpose. After the purpose is clear, it is possible to envision that there are different paths available to reach that purpose.

Schools, where educational activities took place, fulfill many functions while providing teaching and educational activities. Strategic planning is the forefront of these activities. Since schools are facing multi-dimensional environmental changes, strategic planning become more important (Zincirli, 2012; Brews & Hunt, 1999). Administrators and teachers who are trained in the field of strategic planning, who have the required knowledge, accumulation and experience have crucial effect on success of the strategic planning activities.

Quality of strategic plans and the level of their applicability may be linked to the level of schools' academic success. However, OECD's "Education at a glance 2017" annual report shows that our schools do not match with the desirable level of activity and success (Education at a Glance OECD Indicators, 2017). This situation creates questions about the level of fulfilment for strategic planning activities in the schools.

School administration and staff's view on the strategic planning process, level on training, awareness and participation level are important factors which can decrease the problems to a minimum level. This study which focuses on determining problems faced by school administrators and teachers on strategic planning will contribute to literature on strategic planning.

Strategic administration is a methodology which can be used for defining the future targets of organization and identifying the required process to fulfill these targets by the whole organization (Coban & Karakaya, 2010, p. 343; Sener, 2009; Radin, 2000). Drucker (1999) stated that the main purpose of strategic administration is to care about mission of a work from start to end by asking questions of "what is our job, what it should be?" in the direction of predetermined targets, and to get the results of decisions in the future (Drucker, 1999; Akt; Guclu, 2003). Strategic planning and strategic administration may provide positive contribution to educational organization if these organizations show flexibility towards changes and also have qualities to respond to needs.

Strategic planning status yearned in medium or long-term period. It also shows vision for medium or long-term future. Strategic planning is a discipline which leads the road and indicates what the organization is (Narinoglu, 2009; Mintzberg, 1994, p. 107; John, 2004), points out that strategic planning is not strategic thinking but a process of analyzing and synthesizing. Within this respect, strategic planning is a must which is required for organizations to survive.

According to Kaufman and Jacobs (1987, p. 25) qualities of strategic planning, which separate it from traditional planning, are being action, result and application oriented, variation in participation during planning, and adapting a competitive attitude. Moreover, strategic planning aims to review environment and determine opportunities and threats.

Administrators with a traditional view of administration are not able to see environmental opportunities and taking precautions against threats when they are focused on efficiency in their system, producing predictable products and doing activities. According to Gurer (2006) popular administration literature explains the importance of strategic planning by pointing out how it focuses on the concepts of mission, vision and direction defining for all organizations. Another factor increasing the importance of strategic planning is the increase of ambiguity surrounding the organizations (Calik, 2003). Strategic planning process is shaped by the answers of questions such as "Where are we as an organization? Where do we want to go? How can we reach the place we wish to go? How can we follow up and evaluate our success" (Bryson & Alston, 1996; DPT, 2006; Kocatepe, 2010, p.17). This sort of questionings are important steps of organizational development. Organizations' life span and ability to compete might be related to rational answers given to these questions.

Strategic planning provides opportunities to analyze the success constantly by developing indicators of performance. According to Bryson (2004) there are four main benefits of strategic planning. First, it improves strategic thinking and behaviors.

Second, it enhances decision making processes. Strategic planning helps administrators to coordinate the decisions, taken during development stage and after, according to levels and function. Third, strategic planning eases adaptation to changing conditions. Organizations showing effort for strategic planning are encouraged to reveal and handle the main organizational issues. Lastly, strategic planning promotes the organizational sensitivity. Stakeholders and critical decision makers play their roles better, fulfill their responsibilities, team work and specialty between members of the organization become stronger. Strategic planning also prevents staff working at lower division to lose track of organizations' targets by providing opportunities for coordination between lower and upper divisions of the organizations (Aydın & Aksoy, 2007; Kocatepe,2010; Balkar & Ekici 2015; Bell, 2002).

Strategic planning tells about the road between the organization's current status/place and the status being planned for the long-term period. Lingam and Raghuwaiya (2014, p. 21-20) state that in order to accept a strategic plan, it should motivate the organization to move, construct a vision based on common values, provide a process in which all members of the organization share the responsibility and contribute, accept the accountability, be sensitive to its environment, be based on value of quality, be open to question its current condition, and be part of the effective administration.

Technological and environmental changes create a force for educational system to change. Schools contribute to the change of the public and the environment they are in (Celik, 1994, p.28; Balkar & Ekici, 2015). Making strategic planning is inevitable in order to keep schools' functionality sustainable (Arslan, 2009). Educational planning is a decision-making process which helps the accomplishment of schools' educational and organizational objectives (Basaran & Cinkir, 2012; Forshaw, 1998). It is safe to state that there is a close relationship between schools' effective functioning and their effort for strategic planning.

There are certain steps or models to follow when making strategic plans. The first step of making strategic plans is to increase stakeholders' participation and interest to the highest level. During this step a workshop is required to create a base for effective participation of the stakeholders. Participation to strategic planning eases the communication and decision-making process, helps accepting different benefits and values and informs reasonable decision making by providing rational analysis; therefore, enhances the performance of the institution (Bryson, 2011, p. 219; John, 2004). Participation on decision making may increase the institutional performance.

Second step is to make a SWOT analysis that helps schools to find their own identity by inside and outside evaluation. Stakeholders engage in brainstorming on their performance, resources, and basis of their existence through SWOT analysis (Stahl & Grigsby, 1992; Clarke, 2007). Therefore, more than one brain would participate to the work in the organization.

The next step is to develop vision and mission of the organization which requires a common approach in supporting maximum participation and sense of belonging. School administration has a role in making organization's vision and mission

statements to be reachable and applicable by all stakeholders. Organization's vision and mission statements should be announced by everyone. It is essential to identify the organization's needs and making a list of priorities when developing the vision and the mission statements (Molale, 2007; Dokmeci, 2010). An action plan is necessary to turn strategic plans into an open working tool. Well prepared action plans help schools to reach their targets in the most effective way and stakeholders to guide the application process of targets (Allison, 2005; Sener, 2009; Shapiro, 2010). School administrators' following these steps of strategic planning is considered as effective school work as well.

The last step of strategic planning is defining an application strategy as a framework for follow up and evaluation. Strategic planning should be supported by a systematic program which aims to collect data in order to make decision and revise the education program (Glanz, 2006). Follow up and evaluation programs provide information to revise the strategic plan and therefore application capacity of the strategic plan is expanded by comparing targets and reached results (Middlewood & Lumby, 2007). These studies may plan important roles in determining future targets. In recent years, every school in Turkey has been making their own strategic plan and putting it in action.

There are research studies on strategic planning, their content, application and evaluation processes. In their study titled "Primary and secondary school administrators' views on strategic planning applications" Yelken, Kilic & Uredi (2010) found that school administrators have adequate knowledge on the concept and purpose of strategic planning. However, they also found that administrators face problems in practice due to educational and economical deficiencies such as in-service training and lack of financial support.

Memduhoglu and Ucar (2012) conducted a study titled "Administrators' and teachers' perception of strategic planning and evaluation of current strategic planning practices in schools" and found out that administrators and teachers have a positive understanding of strategic planning, however, they think that current practices of strategic planning are not carried out in line with the purposes of strategic planning. Moreover, it was found that there is a weak link between administrators' and teachers' perceptions (beliefs) of the concept of strategic planning and their thoughts on actual practice of strategic planning in schools.

In their study on school administrators' problems on planning and using strategic plans, Arslan and Kucuker (2016) conclude that participants have correct and adequate understanding, believe in the necessity of strategic planning however they show lack of self-efficacy on doing strategic planning themselves. Results of Yenipinar and Akgun's (2017) study titled "Application of Strategic Planning in Elementary School" indicate that according to school administrators there is a high level of use of strategic plans in schools.

The research literature show that stakeholders' perception holds an important place in effective school and school development process. However, quantity of research in this area is also limited in determining problems stakeholders face and

providing solutions to those problems. Therefore, current research study aims to reveal the perception of administrators and teachers of secondary schools on strategic planning is thought to be contribute to the literature and researchers working on this topic and also to follow up the developments. Following questions were asked to reach this aim; what is the perception of secondary school administrators on strategic planning? Is there a difference between secondary school administrators' perception of strategic planning based on years of experience? Is there a difference between secondary school teachers' perception of strategic planning based on years of experience? Is there a difference between secondary school administrators' and teachers' perception of strategic planning?

Method

Research Design

This study is designed as a descriptive study with survey design. The aim is to discover administrators' and teachers' perceptions on strategic planning and problems they face in educational institutions. According to Karasar (2006), descriptive studies are the ones which describes "what are" events, objects, entities, institutions, groups and various areas. In descriptive or survey studies, generally the main purpose is to identify "the current status". Therefore, these studies are conducted in natural settings. Survey research aims to collect data to determine characteristics of a group (Buyukozturk et al., 2013).

Universe and Sample/Research Group

The universe of the study consists of secondary school administrators and teachers work in all secondary schools in Erzurum city center during 2015-2016 academic year. There are 83 secondary schools in Erzurum city (in municipalities of Palandöken, Aziziye and Yakutiye). There are 2001 teachers and 171 administrators working in these schools. The sample for the research was selected within this universe with simple noncompliance sampling method. There is an equal chance of being selected for all individuals in simple noncompliance sampling method. Selection of one individual does not affect the selection of others [Erdfelder, 1996, (ed. Aypay et.al., 2015); Yazicioglu, & Erdogan, 2004]. Field study for the survey was conducted in 20 secondary schools in Erzurum city center. In total, there are 2172 secondary school administrators and teachers working in these schools. Sample size was calculated as 322 teachers and 118 administrators with %95 trust level and %5 error level. Therefore, 330 teachers and 120 administrators were accepted as the sample size for the survey study to ensure the reliability [Erdfelder, 1996, (ed: Aypay et.al., 2015)]. 295 surveys from teachers and 88 surveys from administrators returned to researchers and SPSS analyses was carried on 383 survey which were valid.

Data Collection Instrument

"Strategic Administration Problem Scale" developed by Cetin (2012), was used for this study. Structural and conceptual validity of the scale was measured by Cetin (2012).

Strategic Administration Problem Scale (SAPS) has five sub dimensions; internal problems in strategic administration, external problems in strategic administration, problems derived from educational staff, problems derived from administrative staff, level of belief in strategic administration. The scale is a 5 point Likert type scale. Each item on the scale has one of the following 5 responses; "never obstructs", "obstructs very little", "somehow obstructs" "obstructs" and "obstruct very much". Cronbach's alpha was measured 0.948 by Cetin (2012) for reliability analyses.

Data Analysis

As a result of the research, the collected data and information was analyzed in accordance with the aims via SPSS 22 program. For the data analysis of the data, in addition to descriptive statistics, T-test, Anova, and Tukey HSD multi comparison tests were used.

Table 1

Extreme Value Analysis

Proportions	Skewness	Kurtosis	Kolmogorov-Smirnov P
Internal Problems in Strategic Administration	0.13	0.25	0.00
External Problems in Strategic Administration	0.13	0.25	0.01
Problems Derived From Educational Staff	0.13	0.25	0.00
Problems Derived From Administrative Staff	0.13	0.25	0.00
Level of Belief in Strategic Administration	0.13	0.25	0.00
Scale of the Problems in Strategic Management	0.13	0.25	0.01

To determine if the collected data's distribution is normal or not, the coefficient of skewness and kurtosis related to the data set was examined. It was determined that both the coefficient of skewness and the coefficient of kurtosis is changing about ±1. It is argued that if the skewness and kurtosis coefficients are between +2 and -2 the data doesn't deviate from normal distribution (Cameron, 2004). As the data were normally distributed parametric tests were used in analyses.

Research sample had 293 participants of which 156 were women (%53,5) and 137 were man. Based on education level variable; 10 participants have two-year undergraduate degrees (7 man and 3 women), 250 (%85,4) participants have an

undergraduate degree (113 (%38,3) man and 137 (%47,1) women). There were total 33 participants who hold a graduate degree (17(%5,8) man and 16 (%5,4) women).

Based on years of experience variable, number of teachers with 15 years of experience and less is 139 (%47,5) of which 69 (%23,4) are man and 70 (%24,1) are women. There are a total number of 60 (%20,7) teachers with 16 to 20 years of experience of which 24(%8,1), are man and 36 (%12,5) is women. Lastly, there are 94 (%31,9) teachers who have 21 years of experience or more. Among these teachers 44 (%14,9) are man and 50 (%16,9) are women. For administrators, there are only 2 women (%2,3) and 83 men (%97, 7) among the total number of 85. In terms of education level, 1 (1.2%) male participant holds an associate degree, 74 male (%87,1) and 2 female (2.4%) participants hold an undergraduate degree and 8 (9.4%) participants, all male, hold graduate degrees. Years of experience was another variable. Among the participants, there were 19 male (22,7 %) and 1 female (1,1%) administrators who have 15 years of experience or less. Number of administrators who has 16 to 20 years of experience was 32 of which 31(%37,5) one of them male and 1 (%37,5) of them was female. There were 33 administrators, all male, who has 21 and more (% 37,5) years of experience. There was not any female administrators among the second group.

Results

Table 2 shows secondary school administrators' views on problems they face in strategic administration process.

Table 2

Secondary School Administrators' Views on Problems Regarding Strategic Administration

Items	N	$\overline{X}$	S
Lack of internalization by administrators	85	3,33	,94
Administrators' lack of knowledge on strategic administration	85	3,60	,88
Lack of support by the administrators for strategic administration practices	85	3,76	,84
Administrators who put themselves before others	85	3,66	1,04
Frequent change in SDAT team members	85	3,46	1,15
Ineffective work of SDAT team members	85	3,45	1,17
No extra payment for SDAT team members	85	3,42	1,19
Staff's lack of belief and determination in the application process	85	3,55	1,21
Negative attitudes of some teachers in application process of strategic plan	85	3,72	1,04
Frequent change of teachers in the school	85	2,22	1,08
Parents' lack of knowledge about strategic planning	85	1,69	,79
Institution's economic shortage	85	4,04	1,09
Teachers' lack of knowledge about strategic planning	85	4,27	,75
Heavy work load in schools	85	2,81	,95
Absence of educational psychology and guidance specialist in school	85	2,31	,99
Environmental conditions and school's lack of possibilities	85	3,91	,88
Lack of support by internal and external stakeholders	85	4,07	,61
Belief that plans will stay on paper	85	4,00	,66
Reluctance of teachers and administrators in taking responsibility	85	3,69	,93
Not putting team's work outputs into practice	85	3,68	,93

Table 2 Continue

Items	N	$\overline{X}$	S
Overage of the projects in the city which cause project exhaustion	85	2,15	1,10
Lack of supplements (computer etc.)	85	3,88	,68
Not breaking command chain and not valuing talented individuals	85	4,04	,72
Habits of institutional legislation	85	3,91	,85
Lack of agreement between strategic plans and institutional legislations	85	3,93	,74
Lack of care in answering evaluation surveys	85	3,79	,90
Incompatibility between staff and stakeholders	85	3,74	,88
Lack of qualified and experienced staff at institution	85	3,13	,96
Overage of substitute teachers (who doesn't hold a permanent position)	85	2,60	1,03
Dictating method of approach in strategic administration practices showed by upper level administrator	85	3,65	.77
Lack of appreciation towards successful staff showed by administrators	85	3,95	,67
Loading certain individuals with work of strategic planning and practicing	85	3,96	,75
Lack of healthy communication between school administrators and teachers	85	4,00	,66
Domination of traditional administration approach	85	3,99	,68

Table 2 presents secondary school administrators' views on problems they face in strategic administration process. According to Table 1, the highest points were gathered in two items respectively; "Teachers' lack of knowledge about strategic planning" ($\overline{X}$ =4,27, **S**=0,75) and "Lack of support by internal and external stakeholders" ($\overline{X}$=4,07, S=0,61). On the other hand, the lowest point was gathered in following item; "Parents' lack of knowledge about strategic planning" ($\overline{X}$=1,69, S=0.79). These findings indicate that schools are not adequately informed about strategic planning.

Table 3

Sub dimension Mean Values of Administrators' Views on Problems Regarding Strategic Administration

Sub Dimensions	N	Min	Max	$\overline{X}$	S
Internal Problems In Strategic Administration	85	25	42	32,75	4,15
External Problems In Strategic Administration	85	18	30	23,46	2,57
Problems Derived From Educational Staff	85	6	32	22,20	4,58
Problems Derived From Administrative Staff	85	10	34	25,99	3,78
Level Of Belief In Strategic Administration	85	10	20	14.93	2.45

Table 3 shows mean values of administrators' views on problems regarding strategic administration. Data on table 2 indicates that administrators think that they have internal problems in strategic administration on strategic planning ($\bar{X}$=32.75, S=4.15). Analysis of the data also shows that administrators external problems in strategic administration ($\bar{X}$=23.46, S=2.57).

Administrators' problems derived from educational staff of strategic planning application process is found to be at a medium level ($\bar{X}$= 22,20, S=4,58 In addition, administrators' problems derived from administrative staff ($\bar{X}$=25,99, S=3,78). Analysis of data level of belief in strategic administration show that the mean score is $\bar{X}$=14.93, and the standard variation is S=2.45.

Previous research on strategic administration shows that school administrators have adequate knowledge on strategic planning, they also have positive attitudes and they believe in the necessity of strategic planning (Cetin, 2012; Ayranci, 2013; Ekici, 2015; Yildirim, 2015; Kocatepe, 2010; Balci, Canakci & Tan, 2012; Yelken, Kilic & Uredi, 2010; Zincirli, 2012; Arslan & Kucuker, 2016; Memduhoglu & Ucar, 2012). Results of the current study are compatible with the literature on strategic planning.

In order to understand whether participants' years of experience in their profession have an effect on their perception, one-way ANOVA test was carried out. The result shows that there is no significant difference between years of experience and perception on strategic planning. Hence, all of the administrators participated in this study are in agreement on existence of problems about strategic planning. Gender (2 woman-86 man) and educational level (78 undergraduates, 8 graduate, 1 associate degree) variables were not able to be analyzed due to the imbalanced number of participants.

Tablo 4

ANOVA results of Secondary School Administrators' Problems in Strategic Management in terms of Seniority Variable

Sub Dimensions	Source	df	SS	MS	F	p
Internal Problems in Strategic Administration	Between groups	2	33.17	16,59	0,96	0,40
	Within groups	82	1414.64	17,25		
	Total	84	1447.81			
External Problems in Strategic Administration	Between groups	2	18.94	9,47	1,45	0,24
	Within groups	82	536.17	6,54		
	Total	84	555.11			
Problems Derived from Educational Staff	Between groups	2	61.55	30,78	1,48	0,23
	Within groups	82	1704.05	20,78		
	Total	84	1765.60			
Problems Derived from Administrative Staff	Between groups	2	0.04	0.02		0.001
	Within groups	82	1202.95	14.67		0.10
	Total	84	1202.99			
Degree of Belief in Strategic Administration	Between groups	2	1.78	0,89	0.15	0.87
	Within groups	82	503.80	6,146		
	Total	84	505.58			

Results of ANOVA regarding seniority variable were non-significant [Secondary School Administrators' Problems in Strategic Management F (2,82) =1.428, p>.05, Internal Problems in Strategic Administration F (2,82) =0.96, p>.05, External Problems in Strategic Administration F (2,82) =1.45, p>.05, Problems Derived from Educational Staff F (2,82) =1.48, p>.05., Problems Derived from Administrative Staff F (2,82) =0.001, p>.05, Degree of Belief in Strategic Administration F (2,82) =0.15, p>.05]. One of the post hoc testes is the LSD test. A LSD Post Hoc Tests further indicated that there was no significant relationship between the variables.

It was determined that there is no difference in the scale and dimension of "Problems in Strategic Management" in accordance with seniority variable. All administrators have the same idea about existence of the problems in strategic management.

Table 5

Secondary School Teachers' Views on Problems Regarding Strategic Administration

Items	N	$\overline{X}$	S
Lack of internalization by administrators	293	4,06	,78
Administrators' lack of knowledge on strategic administration	293	4,29	,61
Lack of support by the administrators for strategic administration practices	293	4,15	,80
Administrators who put themselves before others	293	4,02	,85
Frequent change in SDAT team members	293	4,01	,82
Ineffective work of SDAT team members	293	4,03	,76
No extra payment for SDAT team members	293	4,00	,86
Staff's lack of belief and determination in the application process	293	4,15	,69
Negative attitudes of some teachers in application process of strategic plan	293	4,19	,79
Frequent change of teachers in the school	293	2,47	1,36
Parents' lack of knowledge about strategic planning	293	2,14	1,28
Institution's economic shortage	293	4,21	,90
Teachers' lack of knowledge about strategic planning	293	4,40	,71
Heavy work load in schools	293	2,71	1,22
Absence of educational psychology and guidance specialist in school	293	2,60	1,28
Environmental conditions and school's lack of possibilities	293	4,09	,77
Lack of support by internal and external stakeholders	293	4,16	,75
Belief that plans will stay on paper	293	4,24	,72
Reluctance of teachers and administrators in taking responsibility	293	4,28	,81
Not putting team's work outputs into practice	293	3,78	,97
Overage of the projects in the city which cause project exhaustion	293	3,04	1,29
Lack of supplements (computer etc.)	293	4,12	,88
Not breaking command chain and not valuing talented individuals	293	4,09	,78
Habits of institutional legislation	293	4,29	,70
Lack of agreement between strategic plans and institutional legislations	293	4,18	,68
Lack of care in answering evaluation surveys	293	4,06	,83
Incompatibility between staff and stakeholders	293	4,02	,85
Lack of qualified and experienced staff at institution	293	3,25	1,16
Overage of substitute teachers (who doesn't hold a permanent position)	293	2,77	1,36
Upper level administrators' use of dictating method of approach in strategic administration practices process	293	3.97	,88
Lack of appreciation towards successful staff showed by administrators	293	4,13	,72
Loading certain individuals with work of strategic planning and practicing	293	4,18	,58
Lack of healthy communication between school administrators and teachers	293	4,23	,61
Domination of traditional administration approach	293	4.17	.72

Table 5 presents secondary school teachers' views on problems regarding strategic administration. Looking at the distribution, lowest mean and standard variation values belong to the following items; "Parents' lack of knowledge about strategic planning" ($\overline{X}$= 2,14, S=1.28) and "Frequent change of teachers in the school" ($\overline{X}$=2, 47, S=1.36). Data also show that the highest mean and standard variation values are seen for the following items; "Teachers' lack of knowledge about strategic   planning" ($\overline{X}$=4,40, S=0.71) and "Administrators' lack of knowledge on strategic administration ($\overline{X}$= 4,29, S=0.61).

Based on statistical analysis, mean value for teachers' habits of institutional legislation on strategic planning ($\overline{X}$= 4.29, S=0.7) indicates that teachers have medium level of knowledge on strategic planning. Teachers' perceptions regarding upper level administrator's use of dictating method of approach in strategic administration practices ($\overline{X}$=3.97, S=0.88) are on the medium level.

Previous studies conclude that teachers do not see themselves well informed about strategic planning (Akdogan, 2012; Arslan & Kucuker, 2016; Ayranci, 2013; Balci, Canakci & Tan 2012; Cetin, 2012; Dokmeci, 2010; Ekici, 2015; Kocatepe, 2010; Martinelli, 1999; Memduhoglu, 2012; Yelken, Kilic & Uredi 2010; Yildirim, 2015; Zincirli, 2012). Present study also reached similar results.

The results suggest that there is no statistically significant difference between the SAPS scores of male teachers and the SAPS scores of female teachers.

Tablo 6

Test Comparison Table Regarding Teachers' Perception on Strategic Planning Changes in Terms of Their Years of Experience According to the ANOVA Results

Factor	Seniority	n	M	SD	df	F	Sig	Significant Difference (LSD)
Internal Problems in Strategic Administration	*1.0-15 years*	140	35,93	3,74				
	2.16-20 years	61	34,72	3,96	2; 292	*11.618*	*0.000*	*1-3*
	3.21 years and over	94	33,56	3,47				
External Problems in Strategic Administrati	*1.0-15 years*	140	26,41	3,81				
	2.16-20 years	61	24,52	3,31	2; 292	18.216	*0.000*	*1-2 1-3*
	3.21 years and over	94	23,75	2,87				

Table 6 Continue

Factor	Seniority	n	M	SD	df	F	Sig	Significant Difference (LSD)
Problems Derived from Educational	1.0-15 years	140	26,51	3,69				
	2.16-20 years	61	24,31	3,35	2;292	17.160	0.000	1-2 1-3
	3.21 years and over	94	24,03	3,23				
Problems Derived from Administrative Staff	1.0-15 years	140	29,30	2,88				
	2.16-20 years	61	28,36	2,60	2; 292	3.895	0.021	1-2 1-3
	3.21 years and over	94	28,42	2,76				
Degree of Belief in Strategic Administration	1.0-15 years	140	16,59	1,69				
	2.16-20 years	61	16,39	2,07	2; 292	0.304	0.738	-
	3.21 years and over	94	16,46	1,73				
Issues encountered in Strategic Administration	1.0-15 years	140	134,76	12,74				
	2.16-20 years	61	128,31	11,08	2; 292	16.745	0.000	1-2 1-3
	3.21 years and over	94	126,24	10,12				

According to the results of the ANOVA test on whether teachers' perception on strategic planning changes depending on their years of experience, there is a significant difference in terms of "Internal Problems in Strategic *Administration*" dimension. Similarly, *"External Problems in Strategic Administration" dimension also shows significant difference based on years of experience variable. Results suggest that there is a significant difference between scores of teachers with more than 15 years of experience, scores of teachers with teaching experience of 16 to 20 years and scores of teachers with more than 21 years of experience in the sub dimension of "Out of Institution Problems in Strategic Administration" of SAPS. On this sub dimension, while there is a significant difference between the scores of teachers with 16 years of experience and the scores of teachers with 15 or less years of experience, there is no statistically significant difference between scores of teachers with 21 and more years of experience. While there was a significant difference between those who have 21 years and over working experience, 15 years and those who had lower experience, there was no significant difference between the teachers who had 16-20 years of experience. Results of the data analysis show that there is a significant difference between the scores of teachers with 15 or less years of experience and scores of the rest of the teachers (16 years of experience and 16 to 20 years of experience) on sub dimension of "Problems Derived from Administrative Staff".*

There was a significant difference between teachers who had 15 years and lower experience, teachers who had 16 years and over experience. There was a significant difference between the teachers who had 16-20 years of experience and the teachers who had different experiences.

On sub dimension of "Level of Belief in Strategic Administration", results indicate that there is no statistically significant difference between any of the teachers based on years of experience variable. However, results show that there is a statistically significant difference between the mean scores from SAPS based on years of experience variable.

Results of the study "Administrators' Views on Strategic Planning Practices of Ministry of National Education", conducted by Bulut (2014), also present no significant difference in terms of years of experience variable similar to the current study. Moreover, Yildirim's (2015) study, titled "Elementary and Secondary School Administrators' and Teachers' Perception of Strategic Plan", show no significant difference for the variable of years of experience. Level of education was not hold against any statistical analysis as a variable due to lack of adequate number of participants in every sub category (252 undergraduate, 33 graduate and 10 associate degree).

Discussion, Conclusion and Recommendations

For successful strategic planning practices, administrators' and teachers' attitudes, knowledge and skills related to strategic planning is an essential part that cannot be dismissed. Results of the current study which aims to reveal perceptions of secondary school administrators and teachers about strategic planning, show that stakeholders of strategic planning are not working with a shared understanding of strategic planning and they do not show full participation to the process.

Results of this study indicate that school administrators think positively about strategic planning, they are aware of their responsibility, and they also think that the most effective role in strategic planning belongs to the school administration. However, it was also determined that administrators do not have any training on strategic planning and their perception that they do not have adequate knowledge, may obstruct their belief in strategic planning and may weaken their determination during the practice. Results of the current study support previous research studies conducted by Calik (2003); Isik and Aypay (2004); Turk and Unsal (2009); Cook, (1990); Dokmeci (2010); Ayranci (2013).

Similarly, teachers who participated in this study hold positive ideas about strategic planning and they think that school administrators and school development administration team have more effective roles in application process of the strategic planning. This result indicates that school administration is not able to encourage collaboration or full participation of teachers regarding their perception about administration's directing, assigning and controlling the strategic planning process. In addition, the strong perception of teachers about the effective role of school

administration in strategic planning and application point out that participation of parents and students in strategic planning processes are inadequate.

Akbaba and Yildizbas (2016) state that parents and students show less participation in their study titled 'Views of Elementary and Secondary School Teachers on Strategic Planning Applications in Schools". On the contrary, stakeholders' participation in strategic planning processes is an effective way to encourage people in the institution to interact in order to create a strategic understanding and enhance the institutions' strategic capability (Davies, 2006).

The public outcry about the deterioration in quality of public education necessitated the mandate for schools to develop strategic plans for school improvement (Chukwumah, 2015) in the study titled "Developing quality strategic plan in secondary schools for successful school improvement". This subject was supported by some researchers (Ajobiewe, 2008; Iyamu, 2005 & Titilayo, 2002) who noted gross dissatisfaction about the lack of quality education delivery and output in Nigerian education institutions. Therefore, planning and the ability to think strategically by planners, managers and employees alike, feed into the strategic plan document. The document is expected to provide well-justified answers to the strategic questions by stakeholders and should be used as a basis for communication (Chukwumah, 2015).

Teachers participated in the study, also state that they do not have sufficient knowledge and skills about strategic planning similar to administrators. Administrators' and teachers' lack of understanding about strategic planning in Turkey, causes problems, which obstruct strategic planning practices to gain successful results (Babaoglan, 2015).

Results of the study show that there is no significant difference between administrators' view on problems related to strategic planning and their years of experience. This result indicates that administrators are in agreement about the existence of the problems and they face similar problems and obstacles in strategic planning. Results from the views of teachers in the study also show that there is a significant difference between teachers' views on internal and external problems, problems derived from staff and administrators' and teachers' years of experience. This result may be related to their level of participation on strategic planning practices, knowledge and skills.

Zincirli (2012) concluded in his study titled "Evaluation of Strategic Planning Feasibility in Elementary Schools Based on Views of Administrators and Teachers and Reports" that increase in administrators' and teachers' years of experience results in positive attitudes towards strategic planning. Ekici (2015) also reached similar results about the correlation between years of experience and positive attitudes towards strategic planning. Results of the current study contradicts with previous research results. In his study Cetin (2012) found that teachers' years of experience has a statistically significant effect on their knowledge on strategic planning. In the same study statistical analysis showed that teachers with teaching experience of 30 years and more and teachers with teaching experience of 21 to 30 years have less knowledge than teachers with less experience. Therefore, Cetin (2012) concluded that increase in

years of experience causes negative attitudes towards strategic planning among teachers.

In the current study, internal problems administrators and teachers face in strategic administration are teachers' lack of knowledge on strategic administration, habits of institutional legislation, schools' economic struggles, lack of communication between stakeholders, lack of support for strategic administration practices and lack of support for staff during strategic planning. This result points out that process of making and implementing strategic planning is not functioning at desired level. It is considered more of a legal obligation far from strategic administration. Arslan and Kucuker (2016) revealed similar results which indicates that strategic planning cannot be used effectively in strategic administration because of similar problems in their study titled "Problems School Administrators Face in Planning Activities and Strategic Planning"

Recommendations

The importance of strategic planning should be emphasized and kept in the agenda as a priority by Ministry of National Education. In this context, along with Research and Development Divisions and strategic planning teams in City Education Council, specialists, who would be responsible for the strategic planning of schools, may determine the current situation in schools. In leadership of school administrators and teachers who are trained in strategic planning, conferences, seminars, and in-service educations programs may be organized to increase the knowledge of belief in strategic planning. Strategic planning teams and administrative boards may be found to carry the strategic plan in an effective way. Benefits such as extra payment or improvements in employee rights may be provided to encourage participation in strategic planning activities. Similar studies on problem in strategic administration may be conducted in other cities.

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Ortaöğretimde Yönetici ve Öğretmenlerin Stratejik Yönetimde Karşılaştıkları Sorunlar

Atıf:

Özet

Problem Durumu: Türkiye'de ilk ve orta dereceli okullarda yasal bir zorunluluk olarak yapılan stratejik planlama ve uygulama çalışmaları okulun amaçlarını gerçekleştirmede, etkili okul gelişiminde stratejik yönetimin önemli bir aracıdır. Stratejik yönetim ve stratejik planlamaya ilişkin yönetici ve öğretmenlerin algısı, tutumları, yaşadıkları güçlükler ile ilgili yapılan araştırmalar, stratejik yönetim sürecinin daha etkili uygulanmasında büyük öneme sahiptir. Yüksek başarıyı ve eğitimde kaliteyi hedef alan stratejik planların yönetim sürecinde karşılaşılan güçlüklerin kaynağını tespit etmek ve çözüm yolları geliştirmek mevcut stratejik planların süreç içerisinde iyileştirilmesinde paydaşlara kolaylık sağlayacağı düşünülmektedir.

Araştırmanın Amacı: Ortaokullarda çalışan yönetici ve öğretmenlerin stratejik planlamaya ilişkin algılarını belirlemek amacıyla yapılan bu çalışmada şu sorulara cevap aranmaktadır.

1. Ortaokul yöneticilerinin stratejik planlama düşüncesine ilişkin algıları nasıldır?

2. Stratejik plan algısı ortaokul yöneticilerinin kıdemlerine göre farklılaşmakta mıdır?

3. Ortaokul öğretmenlerinin stratejik planlama ilişkin algıları nasıldır?

4. Stratejik plan algısı ortaokul öğretmenlerinin kıdemlerine göre farklılaşmakta mıdır?

5. Ortaokul yönetici ve öğretmenlerinin stratejik planlama algıları, yönetici ve öğretmenlere göre farklılaşmakta mıdır?

Araştırmanın Yöntemi: Nicel araştırma yöntemlerinden tarama deseninde yürütülen araştırmanın çalışma grubunu, Erzurum il merkezinde görev yapan ve seçkisiz örneklem yöntemi ile belirlenmiş 88 yönetici ve 295 öğretmen öğretmende oluşturmaktadır. Veri Analizi: Araştırma sonucunda elde edilen veri ve bilgiler, amaçlar doğrultusunda SPSS22.0 programı yardımıyla analiz edilmiştir. Araştırma verilerinin çözümlenmesinde Yüzde, Aritmetik Ortalama, Standart Sapma, Çarpıklık (Skewness) ve Basıklık (Kurtosis), T-testi, Tek Yönlü Varyans Analizi (ANOVA), Tukey HSD çoklu karşılaştırma testi kullanılmıştır.

Araştırmanın Bulguları: Araştırmaya katılan yönetici ve öğretmenlerin stratejik yönetime yönelik algılarına ilişkin dağılımlar incelendiğinde stratejik uygulama sürecinde rol paylaşımında en etkin rolün okul yönetimine ait olduğu yönünde ortak bir algının olduğu tespit edilmiştir. Yöneticilerin stratejik planlama algılarına ilişkin dağılımlarda en düşük puanlar planlama konusunda yeterli eğitim almadıkları yönünde olmasına rağmen yöneticiler, stratejik planlama hakkındaki bilgi düzeyleri boyutundaki algı ortalamaları açısından kendilerinin yeterli bilgi düzeyine sahip olduklarını belirtmektedirler. Yöneticilerin stratejik planlama hakkındaki olumsuz tutum düzeyleri ile ilgili görüşleri incelendiğinde yöneticiler stratejik planlama hakkında olumsuz düşüncelerinin olmadığı, stratejik planlama uygulama süreci rol paylaşımı hakkındaki tutum düzeylerine ilişkin görüşleri orta düzeyde olduğu tespit edilmiştir. Yöneticilerin stratejik planlamaya olan inançları hakkındaki tutum düzeyleri ile ilgili görüşleri incelendiğinde yöneticiler stratejik planlamaya olan inançlarının olumlu yönde olduklarını belirtmektedirler.

Öğretmenlerin stratejik planlama algılarına ilişkin dağılımlar incelendiğinde; en düşük puan ortalamaları stratejik planlama konusunda yeterli eğitim almadıkları ve konuya ilişkin yeterli bilgiye sahip olmadıkları yönündedir. Öğretmenlerin stratejik planlama hakkındaki olumsuz tutum düzeyleri ile ilgili görüşleri incelendiğinde, stratejik planlama hakkında olumsuz düşüncelerinin olmadığı, stratejik planlama uygulama süreci rol paylaşımı hakkındaki tutum düzeyleri ilişkin görüşlerinin orta düzeyde olduğu tespit edilmiştir. Öğretmenlerin stratejik planlamaya olan inançları hakkındaki tutum düzeyleri ile ilgili görüşleri incelendiğinde stratejik planlamaya olan inançlarının olumlu yönde olduğu belirlenmiştir. Stratejik yönetimde karşılaşılan

sorunlara ilişkin yöneticilerin algı düzeyi kıdemlerine göre farklılık göstermezken öğretmenlerin stratejik planlamaya yönelik algıları tüm kıdem yılları arasında anlamlı bir farklılık görülmüştür.

Araştırmanın Sonuçları ve Öneriler: Ortaokullarda görev yapan yönetici ve öğretmenlerin stratejik planlamaya ilişkin algılarını belirlemek amacıyla yapılan araştırmanın bulguları stratejik planlama konusunda paydaşların ortak anlayış içinde ve tam katılımlı hareket etmediklerini göstermektedir. Yapılan araştırmada okul yöneticileri ve öğretmenler stratejik planlamaya yönelik olumlu bir algıya sahip olup stratejik planlama çalışmalarında en etkin rolün okul yönetimine ait olduğunu düşünmektedirler. Araştırmaya katılan yönetici ve öğretmenler, stratejik planlama ve uygulama çalışmalarına ilişkin yeterli bilgi ve beceriye sahip olmadıkları yönünde kendilerini değerlendirmektedirler. Stratejik yönetimde karşılaşılan sorunlara ilişkin yöneticilerin algı düzeyi kıdemlerine göre farklılık göstermezken öğretmenlerin stratejik planlamaya yönelik algıları kıdemlerine göre anlamlı bir farklılık göstermektedir.

Araştırmada ortaya çıkan bu sonuçlar ışığında il milli eğitim müdürlüklerinde oluşturulmuş bulunan ARGE ya da stratejik planlama ekibinin dışında her an okulların stratejik planlama etkinlikleriyle ilgilenecek uzman personelin okullarda durum tespitinde bulunulabilir. Okul yöneticilerinden başlanarak okullardaki stratejik planlama ve okullarda bu konuda daha bilgili olanların öğretmenlere çeşitli konferans, seminer, hizmet içi eğitim yoluyla stratejik planlama bilgisi ve inancı artırılabilir. Okullarda amaçlara uygun bir şekilde stratejik planlama ekipleri ve stratejik planlama üst kurulları kurulmalı ve etkin bir şekilde çalıştırılmalı. Eğitim Örgütlerinde stratejik planlama uygulamalarına katılıp özverili bir şekilde çalışan personeller ek ödeme ya da özlük haklarında iyileştirme gibi araçlarla ödüllendirilebilir. Okullarda velilerinde stratejik planlama uygulamalarına katılmaları sağlanıp deneyim ve görüşlerinden yararlanılabilir. Katılımcı veya işbirliğine dayalı stratejik düşünmeyi teşvik eden katılımcı liderlik stratejileri bağlamında stratejik planlama yaklaşımları geliştirilebilir.

Anahtar Sözcükler: Strateji, stratejik yönetim, stratejik planlama, okul yöneticisi, öğretmen, ortaöğretim.

The Predictive Relationship between Self-Efficacy Levels of English Teachers and Language Teaching Methods*

Semih KAYGISIZ[1], Sengul S. ANAGUN[2], Engin KARAHAN[3]

A R T I C L E I N F O	A B S T R A C T
	Purpose: Considering that self-efficacies of teachers can affect their educational and instructional applications, it is probable that self-efficacies of English teachers can predict the language teaching methods they employ. In this sense, the purpose of the study was to investigate the correlation between self-efficacies of English teachers and language teaching methods they employ. **Method:** This study used quantitative correlational design. 367 English language teachers participated in the study. ELT Context-Specific Teacher Efficacy Instrument and Language Teaching Methods Scale were used in order to collect the data. Descriptive statistics, Pearson's Product-Moment Correlation, and path analysis were used to analyse the data.

Findings: The results indicated that English teachers' self-efficacy levels were high and they employed Communication Oriented Teaching more. There was a statistically significant correlation between self-efficacies of English teachers and language teaching methods they employed. The findings also revealed that the self-efficacy of English teachers was a significant predictor of the language teaching methods they employed. **Implications for Research and Practice**: This study found that as the self-efficacy levels of English teachers increased, they were more inclined to employ communication-oriented teaching methods. Therefore, both pre-service and in-service training should pay attention to the teachers' self-efficacies. Self-efficacies of English teachers should be considered as something important for a desired language teaching experience.

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Introduction

There is no doubt that globalization has increased the need for communication among countries as it has led countries to affiliate with each other in terms of their political, cultural, and economic interests. As a result of this need for communication among nations, learning a foreign language has become a necessity to be able to follow and catch up with the developments in the world without a need for a translation. Demircan (2012) expresses that learning a foreign language is a necessity, so people should learn a common language that people from different cultures and nations have been using to establish international relations. In other words, knowing a foreign language has an essential role to ensure improvement in personal development and professional career for people (Mirici, 2001). Today, English is much more than a language on its own. It has been the lingua-franca of science, art, entertainment, business, and politics; and the means for international communication, travel and higher education (McKay, 2003). As a result, learning and teaching English has become even more important, and this has led to a need for qualified English teaching through qualified English teachers (Sekerci, 2011).

There are some factors that are related to failure in foreign language teaching such as teacher efficacy (Aktas, 2005), motivation, (Cheng & Dornye, 2007; Lasagabaster, 2011) classroom learning environment (Atbas, 2004; Mutlu, 2017; S. L. Wei & Elias, 2011), and teacher interpersonal behaviour (Maulana, Opdenakker, den Brok, & Bosker, 2011; M. Wei, den Brok, & Zhou, 2009; M. Wei & Onsawad, 2007). As expressed by Aktas (2005), teacher efficacy is one of the factors that has much to do with foreign language teaching. Teachers' having the competencies that their jobs require them to have, and being able to perform them are closely related to not only having a proper education but also their beliefs about being able to fulfil the requirements and responsibilities of being a teacher; and this is called self-efficacy (Koca, 2012). Bandura (2006) claims that self-efficacy is the foundation of human agency by stating that if people do not believe they can perform what they desire, they will not have enough incentive to take the necessary actions nor resist in the face of difficulties. Creating an appropriate classroom environment for a qualified education depends closely on the skills and self-efficacy of a teacher (Bandura, 1993).

Self-efficacy is future-oriented and affects our future decisions and actions (Hoy & Spero, 2005). The optimistic or pessimistic beliefs that people have towards a behaviour shape that behaviour beforehand in accordance with their self-efficacies, and also people with high levels of self-efficacy put in more effort and put up more resistance compared to the ones who have low levels of self-efficacy (Scholz, Dona, Sud, & Schwarzer, 2002). Bandura (1977) lays emphasis on how self-efficacy plays a determining role on our behaviours by stating that self-efficacy has an effect on the selection of the activities and the effort we put in to perform that activity.

Self-efficacy levels of English teachers have been investigated by some research and found to correlate significantly with structures such as teaching satisfaction (Caprara, Barbaranelli, Steca, & Malone, 2006; Viel-Ruma, Houchins, Jolivette, & Benson, 2010), job-preparedness (Shim, 2001), classroom management (Holzberger,

Philipp, & Kunter, 2013; Korkut, 2009), academic emphasis (Shim, 2001), emotional intelligence (Rastegar & Memarpour, 2009); democratic values (Topkaya & Yavuz, 2011); reading and listening skills (Shim, 2001), student motivation (Mojavezi & Tamiz, 2012); metacognition and academic performance (Ghonsooly, Khajavy, & Mahjoobi, 2014); critical thinking (Zangenehvandi, Farahian, & Gholami, 2014), and reflective teaching (Babaei & Abednia, 2016). Teachers with high levels of self-efficacy consider innovative approaches as "congruent", "easy to implement" and "important" (Ghaith & Yaghi, 1997). That's why self-efficacy is an important factor on the adoption and implementation of the innovative approaches by the teachers. In addition to education, Crook (2016) points out that studies about self-efficacy cover many different fields such as medicine, business, psychology, and many more. All these studies reveal the effect and power of self-efficacy on learning, performance, and motivation (Hoy & Spero, 2005), and its importance on human life and affairs.

In 2017, the Ministry of National Education of Turkey (MoNE) made some changes in the English Language curriculum of all grades in order to meet the changing needs of society, and improve the quality of English language education. The latest curriculum lays emphasis on communicative competence, cooperation, interaction, group work, and learner autonomy; and asks teachers to employ task-based and project-based activities with authentic assessment. Although the curriculum adopts an eclectic approach rather than a single method (MoNE, 2017), by emphasizing the communicative competency it points to communication-oriented teaching. Considering that negative beliefs teachers have about their efficacies have the potential to affect their teaching practices, it is essential to investigate self-efficacies of teachers, and take necessary measures so as to avoid this negative effect. Therefore, in English teaching context, investigating English teachers' efficacies, language teaching methods they employ, and the relationship between them are quite important to improve quality of teaching English, and reach the desired level in teaching English.

Unlike some other research in the literature (Chacon, 2005; Eslami & Fatahi, 2008; Sekerci, 2011) which investigated the correlation between self-efficacies of English teachers and the language teaching methods they employed, path analysis was used to verify the theoretical model in this study. Another point that makes this study different from most of the other studies about self-efficacies of teachers is that a context-specific self-efficacy instrument was used in this study rather than a general teaching efficacy instrument. In this regard, this study aimed to investigate the correlation between self-efficacies of English teachers and the language teaching methods they employed. The research questions are as follows:

1. What is the level of English teachers' English Language Teaching (ELT) Context-Specific Self-Efficacies?

2. Which language teaching methods do English teachers employ?

3. What is the correlation between English teachers' ELT Context-Specific Self-Efficacies and the language teaching methods they employ?

4.   How well do ELT Context-Specific Self-Efficacies of English teachers predict the language teaching methods they employ?

Method

Research Design

This study investigated the correlation between self-efficacies of English teachers and language teaching methods they employed by using structural equation modelling (SEM). The theoretical model asserted that self-efficacy of English teachers could be a predictor of the language teaching methods they employed. In this sense, in order to investigate the first and the second research questions a survey design was used. To investigate the third and the fourth research questions, a correlational design was used. The rationale behind the idea that self-efficacy of English teachers could be a significant predictor of the language teaching methods they employed was that there were some studies in the literature (Chacon, 2005; Eslami & Fatahi, 2008; Sekerci, 2011) which found statistically significant correlation between these variables. In this study, self-efficacies of English teachers were taken as the independent variable while language teaching methods they employed were regarded as the dependent variable.

Research Participants

The participants for this study included 367 English teachers who were working at different grades of ministerial schools in 2016-2017 and 2017-2018 academic years, and volunteered to participate in the study. Schumacker and Lomax (2010) state that the research sample ranges between 250-500 in most of the SEM studies. In this sense, minimum of 250 participants were aimed, and 367 participants participated in the study through convenient sampling.

Research Instruments and Procedures

ELT Context-Specific Teacher Efficacy Instrument (ELTEI), developed by Akbari and Tavassoli (2014) and adapted to Turkish by Kaygisiz (2018), was used to determine the ELT context-specific self-efficacies of the teachers. Turkish version of ELTEI consists of 25 items with six subscales, which are "Efficacy in Skill and Proficiency Adjustment", "Efficacy in Teaching and Correcting Language Components", "Efficacy in Classroom Management and Remedial Action", "Efficacy in Classroom Assessment and Materials Selection", "Efficacy in Age Adjustment", and "Core Efficacy". Each item is rated on a 5-point Likert scale (1= very little to 5= very much).

Language Teaching Method Scale, developed by Eslami and Fatahi (2008) and adapted to Turkish by Sekerci (2011), was used to determine which language teaching methods English teachers were employing. Language Teaching Method Scale consists of 10 items with two subscales, which are "Grammar Oriented Teaching Methods", and "Communication Oriented Teaching Methods". Each item is rated on a 5-point Likert scale (1= never to 5= always).

Validity and Reliability

The factor validity of ELTEI was tested using first-order confirmatory factor analysis (CFA), which indicated a good model fit ($\chi 2$/ sd: 2.37, GFI: .89, AGFI: .86, CFI: .91, and RMSEA: .06). Internal reliability of ELTEI was .86. Cronbach's alphas for "Efficacy in Classroom Management and Remedial Action", "Efficacy in Classroom Assessment and Materials Selection", "Efficacy in Skill and Proficiency Adjustment ", "Efficacy in Teaching and Correcting Language Components", "Efficacy in Age Adjustment", and "Core Efficacy" were .88, .78, .86, .71, .88 and .74 respectively, which indicated a good degree of internal reliability (Buyukozturk, 2016).

The factor validity of Language Teaching Method Scale was tested using first-order CFA, which indicated a good model fit ($\chi 2$/sd=3.89, RMR= .06, GFI= .94, AGFI=.90, CFI= .90, and RMSEA= .08). Internal reliability for Communication Oriented Teaching Method subscale was .80, whereas it was .61 for Grammar Oriented Teaching Method subscale. The latter showed a rather low reliability; however, Cortina (1993) states that the number of items has a profound effect on Cronbach Alpha. Considering that this subscale has five items and was used in some other research in the literature (Eslami & Fatahi, 2008; Sekerci, 2011), this alpha value is acceptable.

Data Analysis

The data were analysed through SPSS 22 and SPSS AMOS 24 statistical software. First, all assumptions for the normality of the data were verified through checking skewness and kurtosis coefficients, and making a Kolmogorov-Smirnov Test for the data from ELTEI (p> .05) and Language Teaching Methods Scale (p> .05). In order to determine the self-efficacy levels of English teachers and the language teaching methods they employed; descriptive statistics were used. Pearson's Product-Moment Correlation was used to investigate the correlation between the variables of the study. Following that, a path analysis was used to test the theoretical model of the study which asserted that self-efficacy of English teachers could be a predictor of the language teaching methods they employed.

Results

Descriptive Statistics Related to the First and the Second Research Questions

Table 1 presents the results of the descriptive analysis of the self-efficacy levels of English teachers. It was seen that the self-efficacy levels of English teachers were high (X= 3,44). The participants reported the highest self-efficacy in Efficacy in Classroom Assessment and Materials Selection (X= 3,64) while reporting the lowest self-efficacy in Efficacy in Age Adjustment (X= 3,28).

Table 1

Descriptive Statistics for ELT-Context Specific Self-Efficacy Levels of English Teachers

Subscales	X	SS
1- Efficacy in Classroom Management and Remedial Action	3,47	.91
2- Efficacy in Classroom Assessment and Materials Selection	3,64	.78
3- Efficacy in Skill and Proficiency Adjustment	3,30	.93
4- Efficacy in Teaching and Correcting Language Components	3,50	.73
5- Efficacy in Age Adjustment	3,28	1.07
6- Core Efficacy	3,43	.89
7- Total	3,44	.50

N=367

Table 2 presents the results of descriptive analysis of the language teaching methods English teachers employ. It indicated that while English teachers employed Communication Oriented Teaching Methods "usually" (X= 3,63), they employed Grammar Oriented Teaching Methods "sometimes" (X= 3,00).

Table 2

Descriptive Statistics for Language Teaching Methods English Teachers Employ

Subscales	X	SS
1- Grammar Oriented Teaching Methods	3,00	.67
2- Communication Oriented Teaching Methods	3,63	.74

N=367

Correlation Analyses Related to Third Research Question

Table 3 displays Pearson's Product-Moment Correlation results conducted to determine whether there was a correlation between the variables of the study or not. It was clear on Table 3 that there were statistically significant negative correlation between Grammar Oriented Teaching Methods and self-efficacy subscales except for core efficacy. On the other hand, there were statistically significant positive correlation between Communication Oriented Teaching Methods and self-efficacy subscales except for efficacy in age adjustment. These findings revealed that self-efficacies of English teachers correlated with language teaching methods they employed. The more efficacious an English teacher was, the more he/she would be inclined to employ Communication Oriented Teaching Methods in his/her classroom. Efficacy in Skill and Proficiency Adjustment was the subscale that had the highest correlation with Grammar Oriented Teaching Methods (r=-.48, p< .01) and Communication Oriented Teaching Methods (r= .45, p< .01).

Table 3

Pearson Correlation between Self-Efficacy and Language Teaching Methods

Variables	1	2	3	4	5	6	7	8	9
1- Gr. Or. Met.	-	-.49**	-.44**	-.27**	-.24**	-.48**	-.34**	-.13*	-.07
2- Com. Or. Met.	-	-	.45**	.12*	.29**	.45**	.42**	.08	.23**
3- Self-Efficacy	-	-	-	.54**	.54**	.69**	.57**	.58**	.46**
Subscales									
4- Cl. Man.	-	-	-	-	.24**	.28**	.02	.17**	.09
5- Asses-Mat.	-	-	-	-	-	.40**	.24**	.03	.08
6- Lang. Skills	-	-	-	-	-	-	.39**	.26**	.04
7- Lang. Comp.	-	-	-	-	-	-	-	.20**	.24**
8- Age Adj.	-	-	-	-	-	-	-	-	.13**
9- Core Efficacy	-	-	-	-	-	-	-	-	-

N= 367, *p<.05, **p< .01

Gr. Or. Met.= Grammar Oriented Teaching Methods, Com. Or. Met.= Communication Oriented Teaching Methods, Cl. Man= Efficacy in Classroom Management and Remedial Action, Asses-Mat= Efficacy in Classroom Assessment and Materials Selection, Lang. Skills= Efficacy in Skill and Proficiency Adjustment, Lang. Comp= Efficacy in Teaching and Correcting Language Components, Age Adj= Efficacy in Age Adjustment

Model Estimation Related to the Fourth Research Question

To verify the theoretical model of the research, a path analysis was run using maximum likelihood estimations regarding self-efficacy as the independent and language teaching method as the dependent variable. Figure 1 shows the proposed model of the study.

To check the model fit, goodness of fit indices were examined, and they indicated that it was a good model fit revealing that the data fit well to the model. Table 4 shows the fit indices of the model.
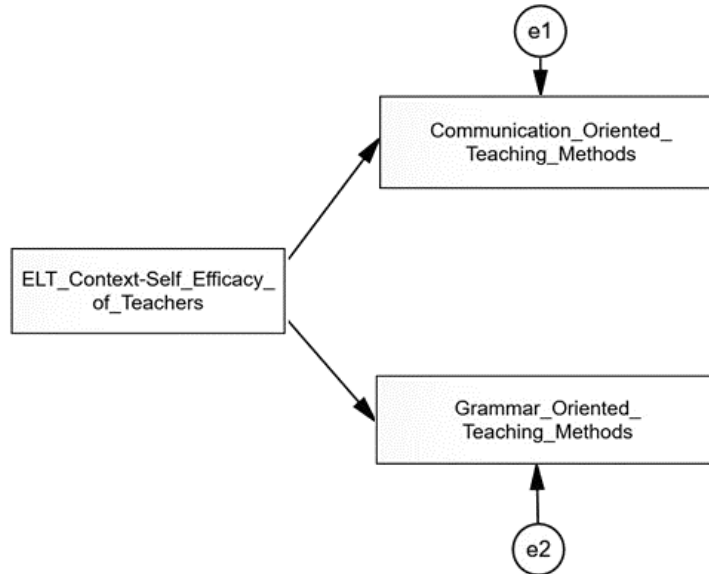
Figure 1. *Theoretical Model of the Study*

Table 4

Fit Indices of the Model

	Fit Indices	Fit
χ^2	67,76	-
Sd	18	-
χ^2/ sd	3,76	Good*
GFI	.95	Perfect**
AGFI	.91	Good**
CFI	.90	Good**
RMSEA	.08	Acceptable**

*Cokluk, Sekercioglu, and Buyukozturk (2016)
**Schumacker and Lomax (2010); Sumer (2000)

Figure 2 shows the results of the path analysis. As it was displayed on Figure 2, the self-efficacy of English teachers was a statistically significant predictor of the language teaching methods they employed.
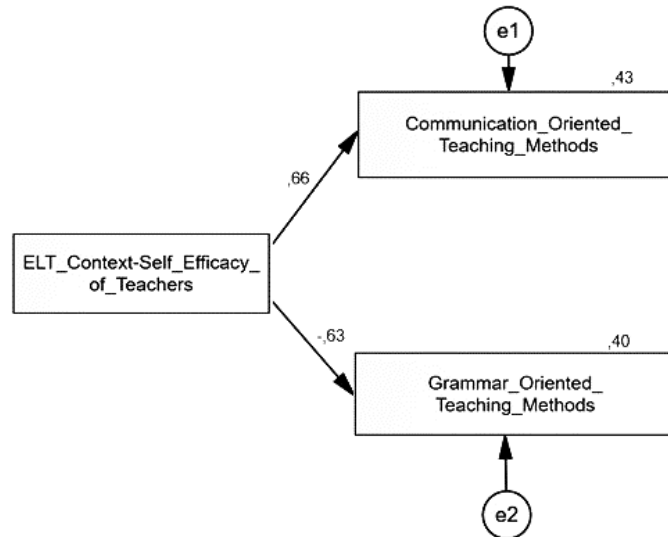
Figure 2. *The Path Analysis between Self-Efficacy and Language Teaching Methods*

To explore the extent to which self-efficacy explained language teaching methods, the regression weights were checked. Table 5 shows the regression matrix of the model.

Table 5

The Regression Matrix

Variable	β	R²	z	p
Self-Efficacy → Communication Oriented Methods	.66	.43	4,54	.00
Self-Efficacy → Grammar Oriented Methods	-.63	.40	-4,37	.00

Table 5 showed that while self-efficacy explained 43% of the variance in employing Communication Oriented Teaching Methods, it explained 40% of the variance in employing Grammar Oriented Teaching Methods. This revealed that self-efficacy predicted employing Communication Oriented Teaching Methods positively (β= .66, p< .00). On the other hand, Grammar Oriented Teaching Methods were predicted negatively by self-efficacy (β= -.63, p< .00).

Discussion, Conclusion, and Recommendations

In this study, ELT-Context specific self-efficacy levels of English teachers, and the language teaching methods they employ were examined. The results of the study were discussed in the following section.

The participants of this study reported high self-efficacy levels indicating that the English teachers felt efficacious in English language teaching, which conforms to the

findings of similar research in the literature (Akbari & Tavassoli, 2014; Chacon, 2005; Crook, 2016; Eslami & Fatahi, 2008; Ghasemboland & Hashim, 2013). However, the subscales that English teachers reported the highest self-efficacy might have differed in those studies as a result of cultural differences (Phan & Locke, 2016). While English teachers in Iran reported the highest self-efficacy in classroom management and remedial actions (Akbari & Tavassoli, 2014), English teachers in Venezuela reported the highest self-efficacy in classroom management (Lee, 2009). Vieluf, Kunter, and Vijver (2013) express that teacher self-efficacy levels are not the same in both individual and country levels by emphasising that cultural norms and values have an effect on self-efficacy. According to Lin, Gorrell, and Taylor (2002), the different self-efficacy levels of teachers from different countries may result from the fact that they have different expectations in teaching as well.

As for the language teaching methods, English teachers reported employing Communication Oriented Teaching Methods more than Grammar Oriented Teaching Methods. However, there are some studies in the literature (Chacon, 2005; Li, 1998; Okmen & Kilic, 2016) which reveal that teachers employ Grammar Oriented Teaching Methods more. Although employing communicative language teaching is encouraged, teachers sometimes employ Grammar Oriented Teaching, the reason of which needs further research.

The present study demonstrated a positive correlation between self-efficacies of English teachers and Communication Oriented Teaching Methods, which is parallel with the findings of some other research in the literature (Chacon, 2005; Eslami & Fatahi, 2008; Sekerci, 2011). However, those studies do not demonstrate a significant correlation between the self-efficacies of English teachers and Grammar Oriented Teaching Methods while this study does. The reason for this difference may result from the fact that in this study a context-specific self-efficacy instrument was used, unlike other research which used the teacher efficacy instrument by Tschannen-Moran and Hoy (2001), which does not cover the context-specific nature of teaching English (Akbari & Tavassoli, 2014). The fact that ELTEI includes the context-specific nature of teaching English and correlates significantly with employing both Grammar and Communication Oriented Teaching Methods indicate that this instrument reflects the context-specific nature of ELT setting better. In accordance with this finding, it would not be wrong to claim that using context-specific instruments would be more appropriate while determining teacher self-efficacies.

The findings of path analysis showed that self-efficacy of English teachers was a significant predictor of the language teaching methods they employed. The more efficacious an English teacher felt, the more he/she would be inclined to employ Communication Oriented Teaching Methods, or the less efficacious an English teacher felt, the more he/she would be inclined to employ Grammar Oriented Teaching Methods. This finding conforms to the findings of other research, which demonstrate that self-efficacy is an important factor for teaching methods and techniques. Appleton (2006) states that science teachers with low levels of self-efficacy employ teacher-centred activities more. Considering that Grammar Oriented Teaching activities are teacher-centred, it supports the finding of this study well. While teachers with low

levels of self-efficacy teach less content, and deal with low-risk activities (Davis, Petish, & Smithey, 2006), teachers with high levels of self-efficacy can create rich content teaching environments (Dembo, 1985). Ghaith and Yaghi (1997) also state that teachers with high levels of self-efficacy consider innovative approaches as "congruent", "easy to implement" and "important." Similarly, Sangueza (2010) states that science teachers with high levels of self-efficacy employ recommended teaching strategies in their classes. Considering that the current English curriculum in Turkey recommends teachers to employ Communication Oriented Teaching Methods, Sangueza's (2010) findings correspond well with the findings of this study. In another research which investigates the effect of self-efficacy on the foreign language teaching methods and techniques, Tavakoli, Pahlavannezhad, and Ghonsooly (2017) state that some teachers employ traditional methods like reading and translation; however, when their self-efficacy levels increase, they adopt contemporary teaching methods more easily, and manage their classrooms more effectively. Considering the context of this study, those contemporary teaching methods are surely Communication Oriented Teaching Methods rather than Grammar Oriented Teaching Methods. As it is also seen in the findings of the similar research in the literature, self-efficacies of teachers have an effect on the strategies, methods, and techniques they employ; the classroom atmosphere they create; and the teaching content they use. This is the case for teaching not only mathematics and science but also for English.

The fact that English curriculum asks the teachers to employ Communication Oriented Teaching Methods and the self-efficacy of English teachers is a significant predictor of them indicate that self-efficacies of English teachers are important factors that should be paid attention in curriculum development and teacher training. Cobanoglu (2011) states that self-efficacy level of preschool teachers is a significant predictor of their implementing the curriculum effectively. Similarly, Fettahlioglu, Ozturk, Yucel, Kartal, and Ekici (2012) state that science teachers with low levels of self-efficacy think that the objectives in the curriculum are not understood, performance assignments do not serve the purpose, and curriculum is not manageable for an academic year; on the other hand, science teachers with high levels of self-efficacy think that the curriculum is optimal for students' level, and objectives are clear. These findings show us that the self-efficacy affects how a teacher values the curriculum as well.

This research contributes to the field in that it has found self-efficacy level as a significant predictor of the language teaching methods English teachers employ. This finding indicates that self-efficacy levels of English teachers should be taken into consideration while developing the English language curriculum or updating it as it was found in previous research that self-efficacies of teachers had an effect on both their practices in their classrooms and their beliefs and opinions about the curriculum. Considering that mastery experience is the most important source of self-efficacy (Bandura, 1977), both pre-service and in-service training should be paid attention so that teachers can have successful experiences, and be readier for the reported difficulties in teaching English. It should always be kept in mind that successful experiences people have will raise their self-efficacy; on the other hand, repeated

failures will lower it causing pre-service and in-service teachers to believe that they do not have the necessary qualifications to perform that action (Bandura, 1977). Therefore, special attention should be paid for the novice teachers as leaving them alone in the first years of their career might result in unsuccessful experiences causing them to have low levels of self-efficacy, which in turn will affect their beliefs and teaching practices. Bandura (1995) notes that there are some factors which can affect how efficacy-relevant experiences are interpreted such as one's preconception of his/her capabilities, perceived difficulty of the task, amount of effort put in, physical and emotional state at the time of performing the task, amount of received external aid, and situational circumstances. While planning school experience lessons, all these factors should be taken into consideration so that student teachers can have successful experiences and have high levels of teaching self-efficacy. The schools that student teachers will attend, and the classes they will observe and teach should carefully be planned and organised. This research, however, does not measure the other predictors of language teaching methods English teachers employ. As it was found that there was a statistically significant relationship between the self-efficacies of English teachers and the language teaching methods they employed in this quantitative research, a qualitative research can provide us more insight about the nature of this relationship. A research focusing on what other factors can predict language teaching methods English teachers employ can also provide significant data for the studies which aim to make teachers employ Communication Oriented Teaching Methods more in their classrooms.

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İngilizce Öğretmenlerinin Öz Yeterliklerinin, Kullandıkları Dil Öğretim Yöntemini Yordayıcılığı

Özet

Problem Durumu: Yabancı bir dil bilme ihtiyacının giderek arttığı günümüzde bilim, sanayi, ticaret, edebiyat ve turizm gibi pek çok alanda geçer dil olarak kabul edilen İngilizcenin öğrenilmesi ve öğretilmesi daha da önemli hale gelmiştir. Ülkemizde de bu doğrultuda çeşitli adımlar atılmış ancak bireylerin ilkokuldan itibaren İngilizce eğitimi almalarına rağmen pek çok kişi İngilizce iletişim kurmada yetersiz kalmıştır. Yabancı dil öğretiminde başarısızlığın pek çok sebebi olmakla birlikte, bu sebeplerden birisi de öğretmen yeterlikleridir. Hem küresel hem de yerel düzeyde yaşanan gelişmeler ve değişen ihtiyaçlar doğrultusunda Milli Eğitim Bakanlığı değişen şartlara uyum sağlayabilmek ve uzun vadeli hedeflerini gerçekleştirebilmek için hem öğretmen yeterliklerini güncellemiş hem de öğretim programlarında değişikliğe gitmiştir. Öğretmenlerin gerekli mesleki yeterliklere sahip olmaları aldıkları eğitime bağlı olduğu kadar mesleki görev ve sorumluluklarını yerine getirebileceklerine olan inançları olarak tanımlanan öz yeterliklerine de bağlıdır. Alanyazında pek çok çalışmada öğretmenlerin öz yeterlik inançlarının başvurdukları eğitim öğretim uygulamalarını, oluşturdukları sınıf atmosferini, öğretim içeriğini ve sınıf yönetimi becerilerini etkilediği ortaya konulmuştur. Yenilenen İngilizce öğretim programlarında öğrencilere iletişimsel yeterliğin kazandırılmasının altı ısrarla çizilmiştir. Bu da yenilenen İngilizce öğretim programlarında benimsenen yaklaşımlardan birisinin İletişim Odaklı Dil Öğretimi olduğunun bir göstergesidir. Öğretmenlerin mesleki yeterliklerine yönelik sahip olduğu olumsuz düşüncelerin, onların sınıflarında kullanacağı öğretim yöntem ve tekniklerinden sınıf yönetimlerine kadar pek çok faktörü olumsuz etkileyebileceği göz önüne alındığında öğretmenlerin öz yeterlik inançlarının incelenmesi bu olumsuz etkinin önüne geçebilmek için önemli bir adım olacaktır. Bu doğrultuda İngilizce öğretmenlerinin öz yeterlik inançları ile kullandıkları dil öğretim yöntemi arasındaki ilişkinin incelenmesi İngilizce öğretiminde istenilen düzeye ulaşmak için önemli görülmektedir.

Araştırmanın Amacı: Bu araştırmanın amacı, İngilizce öğretmenlerinin öz yeterlik inançları ile kullandıkları dil öğretim yöntemi arasındaki ilişkiyi incelemektir.

Araştırmanın Yöntemi: İngilizce öğretmenlerinin İngilizce öğretimi bağlamında öz yeterlikleri ile kullandıkları dil öğretim yöntemi arasındaki ilişkiyi inceleyen bu araştırmada, İngilizce öğretimi bağlamında öz yeterliğin kullanılan dil öğretim

yöntemini yordadığı şeklinde bir teorik model oluşturulmuş ve bu model yapısal eşitlik modeli kapsamında açıklanmıştır. Bu araştırma korelasyonel desende tasarlanmıştır. Alanyazında kimi çalışmalarda bu araştırmanın değişkenleri arasında anlamlı ilişkiler bulunmuştur. Alanyazında yer alan bu ilişkiden yola çıkarak, İngilizce öğretimi bağlamında öz yeterliğin kullanılan dil öğretim yönteminin bir yordayıcısı olabileceği düşünülmüştür. Araştırmada 2016-2017 ve 2017-2018 eğitim öğretim yıllarında Milli Eğitim Bakanlığına bağlı okullarda görev yapan 367 İngilizce öğretmeninden uygun örnekleme yolu ile elde edilen veriler kullanılmıştır. Araştırmada öğretmenlerin öz yeterlik inançları "İngilizce Öğretimi Bağlamında Öğretmen Öz Yeterlik Ölçeği" ile kullandıkları dil öğretim yöntemi ise "Dil Öğretim Yöntemi Ölçeği" ile toplanmıştır. İngilizce Öğretimi Bağlamında Öğretmen Öz Yeterlik Ölçeğinin Türkçe formu yapılan doğrulayıcı faktör analizi sonucunda "Sınıf Yönetimi ve İyileştirici Eylemlerde Bulunmada Yeterlik", "Değerlendirme ve Materyal Seçiminde Yeterlik", "Dil Becerileri ve Dil Düzeylerine Göre Öğretimde Yeterlik", "Dil Alanlarını Öğretme ve Hata Düzeltmede Yeterlik", "Yaşa Uygun Öğretimde Yeterlik" ve "Temel Mesleki Yeterlik" olmak üzere altı alt boyuttan oluşmuştur. Ölçeğin Türkçe formunun güvenirliğinin tespit edilmesi için de iç tutarlık yöntemi kullanılmış ve Türkçe formun geçerli ve güvenilir bir ölçme aracı olduğu belirlenmiştir. Dil Öğretim Yöntemi Ölçeğinin orijinal faktör yapısının elde edilen veriler ile doğrulanıp doğrulanmadığının tespit edilmesi için doğrulayıcı faktör analizi yapılmış ve ölçek "İletişim Temelli Öğretim" ve "Dil Bilgisi Temelli Öğretim" olmak üzere iki alt boyuttan oluşmuştur. Ölçeğin güvenirliğinin tespit edilmesi için de iç tutarlık yöntemi kullanılmış ve ölçeğin geçerli ve güvenilir bir ölçme aracı olduğu belirlenmiştir. Toplanan verilerin analizi SPSS 22 ve SPSS AMOS 24 veri analiz programları ile yapılmıştır. İngilizce öğretimi bağlamında öz yeterlik düzeyi ile kullanılan dil öğretim yöntemini belirlemek için betimleyici istatistikler, bu değişkenler arasındaki ilişkinin belirlenmesi için Pearson Çarpım Momentler Korelasyon Analizi; araştırma kapsamında oluşturulan yapısal eşitlik modelinin test edilmesi için ise Yol Analizi kullanılmıştır.

Araştırmanın Bulguları: **Araştırma** sonucunda İngilizce öğretmenlerinin İngilizce öğretimi bağlamında öz yeterliklerinin yüksek olduğu ve İletişim Temelli Öğretimi daha fazla kullandıkları bulunmuştur. Ayrıca İngilizce öğretmenlerinin İngilizce öğretimi bağlamında öz yeterliklerinin İletişim Temelli Öğretimi ile anlamlı ve pozitif (r= .45, p< .01); Dil Bilgisi Temelli Öğretim ile de anlamlı ve negatif yönde bir ilişki gösterdiği bulunmuştur (r= -.44, p< .01). Yol analizi sonuçları ise İngilizce öğretimi bağlamında öz yeterliğin İletişim Temelli Öğretimin anlamlı ve pozitif (β= .66, p<.00); Dil Bilgisi Temelli Öğretimin ise anlamlı ve negatif bir yordayıcısı olduğunu göstermiştir (β= -.63, p< .00). Bu sonuçlara göre İngilizce öğretimi bağlamında öz yeterlik, İletişim Temelli Öğretim kullanımının %43'ünü; Dil Bilgisi Temelli Öğretimin ise %40'ını açıklamaktadır.

Araştırmanın Sonuçları ve Öneriler: Elde edilen sonuçlar, İngilizce öğretimi bağlamında öz yeterliğin hem İletişim Temelli Öğretim hem de Dil Bilgisi Temelli Öğretim ile ilişkili olduğunu göstermiştir. Bir İngilizce öğretmeni İngilizce öğretimi bağlamında kendisini ne kadar fazla yeterli hissederse, İletişim Temelli Dil Öğretimi kullanmaya

daha fazla yatkın olacaktır. Yapılan yol analizi sonuçlarına göre ise İngilizce öğretmenlerinin İletişim Temelli Öğretim kullanmalarının önemli ve anlamlı bir yordayıcısı olarak İngilizce öğretmenlerinin öz yeterlik inançları bulunmuştur. Araştırma sonucunda elde edilen bulgulara göre öğretmen yetiştirme programlarında kesinlikle öğretmenlerin öz yeterlik inançlarını artırmaya yönelik çalışmalara yer verilmelidir. Öz yeterlik inancının en önemli kaynağının geçmiş deneyimler olduğu göz önüne alındığında öğretmen adaylarına başarılı deneyimler geçirecekleri fırsatlar sağlanmalıdır. Özellikle okul deneyimi dersleri bu husus göz önüne alınarak öğretmen adaylarının başarılı deneyimler yaşayabilmelerine yönelik dikkatlice planlanmalıdır. Öğretmen adaylarının gidecekleri okullar, gözlem yapıp ders anlatacakları sınıflar dikkatlice belirlenmelidir. Öz yeterlik inançları, öğretmenlerin derslerinde başvurdukları yöntem ve tekniklere ek olarak öğretim programlarına bakış açılarını da etkileyebildiği için öğretim programları geliştirilirken ve güncellenirken öğretmen öz yeterlik düzeyleri göz önüne alınmalıdır. Öğretim programlarının uygulayıcı olan öğretmenlerin öğretim programlarında benimsenen yaklaşıma uygun yöntem ve teknikleri uygulamaları öz yeterlik düzeyleri ile ilişkili olduğu için görev yapmakta olan öğretmenlerin öz yeterlik düzeylerinin belirlenmesi ve artırılması için hizmet içi eğitim çalışmaları yapılabilir. Gelecekte yapılacak nitel bir araştırma ile İngilizce öğretmenlerinin Dil Bilgisi Temelli Öğretim kullanmalarının gerekçeleri ve İletişim Temelli Dil Öğretim kullanırken karşılaştıkları zorluklar belirlenerek bunlara çözüm önerileri getirilebilir. Ayrıca gelecek araştırmalarda öğretmenlerin kullandıkları dil öğretim yönteminin diğer yordayıcılarının neler olduğu belirlenebilir.

Anahtar Sözcükler: Yapısal eşitlik modeli, yol analizi, yabancı dil öğretimi, İngilizce öğretim programı.

Teacher Views on the Applicability of Mastery Learning Model in Teaching Learning Process

Suleyman GOKSOY*

A R T I C L E I N F O	A B S T R A C T
	Purpose of the study: The purpose of the sudy wasto determine teacher views on teaching and learning in terms of the aspects of mastery learning method. To this aim, the following questions were examined: Do teachers believe that all students can learn all the course subjects, why? Do teachers believe that they can teach all the subjects of a course, why? **Method:** In the research, phenomenology (phenomenological method) was used as a qualitative research method. The phenomena investigated in the study was the views of teachers on whether they could teach mastery and whetherstudents could learn mastery. Interview method was used in

data collection, and the data were analyzed using content analysis techniques. Purposeful sampling method was carried out in determining the study group. The study group consisted of 15 volunteer teachers who worked in various educational stages in 2016-2017 academic year in Duzce province. **Findings and results:** Expectation perceptions of participant teachers towards teaching all subjects and students' learning levels were frequently low due to their own beliefs, environmental conditions, school facilities, and individual differences among students. **Conclusions and recommendations:** The results of the current study are worrisome in terms of qualified and effective school principles. Besides, this study demonstrates that both interdisciplinary and interinstitutional cooperations, trainings and support activities should be carried out in order to eliminate the negativities in teachers' perceptions towards students' learning levels and in their self-efficacy levels about their teaching skills.

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Introduction

The most important factor for an effective school is great expectations for educators, students and school members. This is because teachers need to believe in both themselves and their students, and they need to set high but achievable goals in order to create a healthy school environment. Perception of great expectations for everyone embraces the philosophy that all students can learn important, hard and interesting subjects as long as they are motivated, and sufficient conditions are provided. Important information is notintended merely for succesful students. This kind of information addresses all students regardless of their social status or career goals (Lunenburg & Ornstein, 2013). Holmes and Wynne (1989), and Weber (1971) state that teacher and students are the primary resources in effective school studies and models, and that physical facilities, classroom size, teaching program and teaching strategies are the secondary resources contrary to popular belief. An important factor shaping the beliefs of teachers, who are effective in students' learning, is teachers' high expectations toward students' success. In line with this perspective, Edmonds (1992) admits that all school age children can be educated (cited from Balci, 2013). Teachers convey their expectations of students by both verbal and nonverbal clues. It has been accepted that these expectations affect the interaction between students and teachers. Thus, they affect students' performances as well. In many occasions, teacher expectations turn into prophecies which become real in the end. Accordingly, if a teacher thinks that students learn slowly, and exhibits pursuant behaviour, students alter their behaviours paralel to this expectation (Lunenburg & Ornstein, 2013; Jacobson & Rosenthal, 1968).

Both activity-based school culture and reliance-based school culture increase student success. Research demonstrate that reliance-based relations among teachers increase the success and improvement levels of students. In order to provide a successful school, teachers evaluate necessary ways, probable obstacles, available resources, and teaching aims and in terms of their teaching skills. This evaluation carried out by teachers contains all students' perceptions toward their learning abilities. In his research, Bandura (1993) highlighted that there is a positive relationship between student success and teacher efficacy, and that this relationship has greater effect on academic success when compared to students' socio-economic status (Hoy & Miskel, 2012).

As previously mentioned, many studies indicate that private reasons of school efficacy are not related to money. On the contrary, they are related to organizational climate and culture (Lunenburg & Ornstein, 2013). Research emphasize that effective leadership skills, motivation, and responsibilities have more importance than money and materiality, and they put forward that roles, values, and beliefs in teaching and learning processes need to be changed and improved (Ducan, 2009). Similarly, Hill (2000) asserts that three factors are crucial for schools to be effective. He states that teachers should have a particular philosophy in terms of aims, targets, and strategies, and that teachers should be given more responsibilities to improve their teaching practices.

There is a sequence of important principles concerning school efficacy and excellence. The most prevalent of these principles is that teachers and managers have the expectation that all students can learn. Also, they need to give hints to the students about their expectations. Teachers who believe that students can learn, and who devote themselves to this belief are substantial for an effective school (Lunenburg & Ornstein, 2013). In order to achieve this, teachers should clearly define their aims and expectations for all the students. In an environment of high expectations, educators believe that all students are able to achieve competence in basic skills ecause many behaviors are based on individuals' expectations from the results of the behaviors (Robbins & Judge, 2012).

According to Schlechty (2005), the idea that schools and teachers are responsible for the success of their students is indirectly related to the idea that teachers can do something about this success. This is a meaningful explanation. If schools and teachers do not know what they can do to influence student achievement, why do they exist? Teachers should be directly, personally, and urgently responsible for ensuring that learning outcomes of the students will lead to results that increase the likelihood of learning. More specifically, each teacher should be held accountable for ensuring that what is taught to students is the same as what they are intended to learn. At the same time, every teacher should be held accountable for enhancing student's participation, determination, and satisfaction in the activity they apply.

In 1963, John B. Carroll initiated a fundamental change in thinking about teaching characteristics. In his paradigm, Carroll has recommended that different students need different time to focus on learning the same material. Carroll's theory is based on the idea that all students have the potential to learn any content provided by the teacher but that each student needs different amount of time to learn the same material. He identified two factors that affect the learning rate of a student; the learner's willingness and opportunities for learning. The first one depends on the student (how much time he / she spends learning), and the second depends on the teacher who organizes the learning time. Nevertheless, it was Benjamin Bloom who developed the theory currently known as Mastery Learning in 1968. Bloom concluded that if enough time and qualified instruction are given, almost all students can learn. In addition, Bloom's mastery learning model present the idea that most of the learning is achieved by the teacher rather than inheritance. The theory of mastery learning has resulted in a radical shift in teacher responsibility in the form of student failures stemming from instruction rather than the lack of skills of the student. In this type of learning environment, the main purpose is to provide sufficient time for all students to learn at the same level, and to use effective teaching strategies. (Bloom, 1981, 1995; Borich, 2014; Levine, 1985). In other words, it is suggested that when additional time and learning opportunities are provided tostudents, almost all students can learn all the new behaviors and achievements taught in schools (Senemoglu, 1997).

According to Bloom, learning in a particular period is the basis for what will be learned in later periods. A student's success in a unit facilitates the learning of other units related to that unit. If the learning process is approached sensitively, and appropriate learning conditions are created for the students, all the students can learn

the subjects taught at school (Fidan, 1985). In the mastery learning model proposed by Bloom (1995), relevant pre-learning, which constitutes the prerequisites for teaching the skills to be taught, needs to be achieved in advance. According to him, about twenty-five percent of the variance of success can be explained by the characteristics of affective input; and for cognitive input behaviors this percentage can be up to fifty percent. Another important element in the mastery learning model is the quality of teaching. The quality of the teaching service is composed of various items. These items consist of clues and signs presented to the student, active involvement of the student in the learning process, reinforcements provided to learners, feedback, and correction system.

Therefore, when the characteristics of the students and the quality of the teaching service are positive, the level and quality of the learning productsincrease, and the difference of success among the students is minimized. Otherwise, the level and quality of the learning products diminish, and the achievement gap between the learners increase. This shows that the students' level of learning can be improved by making the changeable features affecting learning positive in the teaching-learning process, as stated by Senemoglu (1997). Thus, learning differences between students can be minimized, and the education system can be removed from being selective and skeptical. As a result, schools may become institutions where students realize themselves.

According to the literature and the results of the research, it has been seen that behaviors of students are usually in accordance with the expectations of their teachers (positive or negative). There are findings that students at schools where teachers have high expectations are more successful than those at other schools (Slavin, 2013). The fact that teachers have high expectations, and that they are rewarded for what they come up with are very effective in reducing the difference in success among students (Borich, 2014).

The most successful teachers are realistic about high and low success levels of students. A teacher who develops strict and explicit expectations towards the students causes them the most violent damage. On the other hand, a teacher that understands presence of difference, and chooses realistic methods and appropriate content will create a positive impact on students (Lunenburg & Ornstein, 2013; Rosenthal & Jacobson, 1968). As it has been emphasized in the literature, assumption that all students can learn and all teachers can teach underlies the basis of effective school understanding. In other words, it is accepted that effective schools are able to create a difference in students' learning. Student's role is defined as the one who succeeds at high levels (Balci, 2013).

The aim of the present researchwas to determine if teachers were able to adopt the assumption that all learners could learn all the subjects taught in schools when sufficient time and qualified teaching-learning opportunities were provided to students suggested in the mastery learning model.

Method

Research Design

The qualitative research model was used in the study. In qualitative research, qualitative data collection methods such as interview, observation, and document analysis are used; and perceptions and concepts are exhibited in their natural environment in a realistic and holistic way. The most important contribution of these methods is that they allow researchers to demonstrate the social structure and processes (Yildirim & Simsek, 2005). In the study, phenomenology (phenomenological method) was used as a qualitative research method. According to Holt & Sanderg (2013), studying a phenomenon is about knowing how objects and events are related, and how they relate to the context they are in. Phenomenology is the study of a kind of relation and the condition of the relation. In the, the phenomenon investigated was teachers' perceptions of their ability to teach mastery of the subjects and students' ability to learn mastery of the subjects.

Research Sample

In the study, in order to have rich information, a purposeful sampling method was used, and the maximum diversity sampling method was chosen among the purposeful sampling methods. The aim here was to reflect the diversity of the individuals who were related to the problem at the maximum level, and to present different dimensions of the problem according to this diversity. In addition, common themes may arise among different features (Yildirim & Simsek, 2016). To provide maximum diversity in the research; A study group was formed with 8 female and 7 male volunteer teachers working in various grades such as kindergarten (3), primary school (3), junior high school (3), general high school (3), and vocational high school (3). The study group consisted of teachers in the fields of Foreign Language Education (2), Preschool Education (2), Vocational Education (1), Religious Culture (1), Mathematics (1), Counselling (1), Physical Education (1), Classroom Teaching (2), Geography (1), History (1), Literature (1), and Physics (1) in Duzce province during 2016 – 2017 academic year.

Research Instrument and Procedures

Interview method which is one of the data collection methods was used in the study (Patton, 2014). Related literature was reviewed for interview questions, and possible interview questions were determined. These questions were prepared by taking the views of two academicians. The interviews were conducted by four trainers before and at the end of the application with the following semi-structured questions:

1) Do you believe that all the students in your class can learn all the topics of your lesson? Why?
2) Do you believe that you can teach all the subjects to your students? Why?

Validity and Reliability

Lincoln and Guba (1985) used the term *"trustworthiness"* to define reliability and validity in qualitative research. They stated that trustworthiness involves establishing -four criteria: Credibility, transferability, dependability, and confirmability (Sencan, 2005).

Credibility is defined as the correlation between research results, and the perceptions of the individuals who participated in the research (Sencan, 2005). In order to increase research credibility, various questions were asked to educators, all answers were recorded in detail, and their opinions were included individually. The researcher tried to introduce the research application in a comprehensive way to ensure the transferability condition. At the same time, the factors that could affect the results were explained. The validity and reliability of qualitative research depends on the degree of overlap between the facts a person or an institution in real life and the recordings or comments made by the researcher. (Sencan, 2005). In order to increase the transferability of the research, the research process and the structures in this process were tried to be explained in detail. In order to increase the internal consistency of the research, all of the findings were given.

Data Analysis

Interview method was used in data collection. The data were analyzed using content analysis techniques. The data are presented considering the questions used in interviewing processes (Yildirim & Simsek, 2008). Accordingly, similar data were collected under particular concepts, and were interpreted after they were organized. The opinions of the participants were cited directly. The identities of the participants were kept private, and each interview form was given a different code in data analysis. Research process was explained in detail in order to increase the transferability. Also, all of the findings were given in order to increase the internal consistency of the research.

Results

As a result of the content analysis, research findings were categorized under the following four main themes, and they were explained with participant opinions.

a) Teachers who believe that all students in the school can learn all subjects of the course

b) Teachers who do not believe that all students in the school can learn all subjects of the course

c) Teachers who believe that their lessons can teach all subjects

d) Teachers who do not believe that their lessons can teach all subjects

Teachers' Belief that All Students Can Learn All of the Subjects in a Lesson

Only four of the teachers participate in the study (T1, T2, T9, T14) believed that all students ina class could learn all subjects of a lesson. These teachers' views were categorized as follows;

- *taking individual differences between students into account,*
- *use of different teaching strategies, methods and techniques of the tools and materials in the courses, individualized education,*
- *teachers' creativity and patience,*
- *teacher's belief*

As a result, teachers stated that all students in a class could learn all subjects in a class. Teachers' opinions on this topic were as follows:

Being a primary school teacher, I believe that it is not possible for students to maintain their concentration at the highest level during a lesson of 40 minutes. I think if the lesson was 30 minutes long, it would be more beneficial for students at this age period. I surely try to make lessons more effective and to approach to the maximum learning level. I enliven the lesson with many different methods, and try to reach out to all of the students while considering personal differences among them. For instance, I taught the subject of 'the family' at the third grades last week. I thought at least half of the classroom would participate in simple activities such as writing the meanings of the words, reading, and singing. I encouraged several more students to participate while they tried to introduce their family members with their photographs they had brought to the classroom. In the last lesson, they built a family play using the costumes that I brought, and nearly the whole classroom willingly participated in the activity. I think they implicitly learned the vocabulary related to the subject. (T1)", "I do believe that every child can learn. Each child in a classroom is different in many ways, but we can teach all subjects in a lesson using various methods and techniques with the help of individual studies. At this point, teachers need to be creative and patient. (T2)" , "I believe all students in my classrooms can learn all of the subjects. Their levels may depend, some of them may take longer to learn but it is possible for them to learn with sufficient patience and time.(T9)", "I believe that all of my students are able to learn all subjects of my lesson. Because I think if they believe themselves, they can succeed no matter what their learning styles and levels are. If one person can do it, then others can also do it. If they find out their learning styles, listen carefully, revise, participate actively to the lesson with their materials, and do their homework regularly, they can learn. Each learning will be different for sure, but I believe that learning will occur to some extent. Some learn the first time a topic is introduced, others learn after many repetitions. But eventually they learn (T14)

Teachers' Disbelief that Students Can Learn All of the Subjects in a Lesson

The majority of the teachers who participated in the survey di not believe that all students in a class would be able to learn all subjects of a lesson (T3, T4, T5, T6, T7, T8, T10, T11, T12, T13, T15). The reasons for teachers' views were categorized as follows;

- individual differences such as intelligence, talent and interest among students,
- limitations in terms of time and facilities in the school,
- differences in pre-learning and readiness levels of students.
- differences inperception and understanding of each student

- differences in student environments
- differences in student levels
- differences and limitations in student capacities
- lack of teachers' belief that every student can learn
- differences in family structures, hereditary characteristics and up bringing environments

For these reasons, teachers believed that all students in a class could not learn all subjects. Teachers' opinions on this topic were as follows:

> *I do not believe that all students in a classroom can learn all of the subjects. Because all students have different interests, abilities and intelligence levels. I think it is utopic to think that learning occurs as long as suitable learning environment is provided. Students' learning is affected by limited time and facilities in schools. Everyone cannot learn a subject at the same level (T3)", "No, I do not believe it. Every student is at a different readiness level. Also, their family structures and environments are different (T4)", "No, I do not think. Every student has a different learning pace and comprehension ability (T5)", "No, I do not believe it. Because students are not at the same level of capacity to learn all subjects (T6)", "I do not believe because some students may have developed certain positive or negative prejudices towards some lessons. They may have different abilities. It is not correct to think that all students are obliged to have the same courses. For instance, a student who likes mathematics lesson may not be succeed at Turkish (T7)", "I do not believe that all of my students are able to learn all subjects. Because each student is different in terms of perception and learning levels. Since studentsare of different ages, have different family structures, financial statuses and capacities, it would be unfair to expect them to succeed at the same level. Students may need different methods to learn a particular subject. I cannot apply these methods sufficiently due to lack of facilities. This situation decreases the learning level of the students (T8)", "I do not believe it because learning levels of the students are not the same. It is not possible to teach all students at different levels in a classroom. The main reason is that students' environments and attention levels are different (T10)", "I do not believe it because students have different learning levels, desires, and interests; therefore, they learn what attracts them the most. Only students at a certain level can learn uninteresting units. It depends on their readiness levels (T11)", "No, I do not believe it. I think the levels of the students are different from one another. Besides, genetic factors, environmental factors, age, nutrition… All of these affect learning cooperatively. Also, there are students at various levels in the classrooms (T12)", "Since each student has a different readiness level, perception level, and learning way, it is very hard for them to learn all of the subjects. Each student interprets and structures the information in a different way (T13)", "I think this possibility can never happen. Because people are born with personal differences. This situation covers cognitive features as well as physical features. In modern educational approach, this can be explained with multiple intelligence theory. Students concentrate on distinctive parts of a lesson as a result of their interests and abilities. This situation affects whole learning directly and causes differences at the level of learning in individuals. Different methods should be applied in order to overcome this condition. (T15)*

Teachers' Belief That They Can Teach All Subjects in a Lesson

Teachers believed that they could teach all subjects in a lesson, and they stated that it depended on teachers' competency, their preliminary preparation, and usage of various different methods and techniques (T2, T4, T6, T7, T9, T14, T15). On the other hand, some of the teachers did not believe that students could learn all subjects due to the fact that they had personal and environmental differences. However, they believed that they could teach all subjects in their lesson as long as they made preliminary

preparation. The main understanding behind this opinionwas that the failure of students to learn a subject was related to their personal features, rather than teachers' teaching approaches. Teachers' opinions were as follows:

> *I believe it. I can teach my students any subject I feelcompetent. It depends on teacher's competency (T2)", "Yes, I believe it. I can get prepared to the subjects I I am not competent enough, so there will be no problem (T4)", "Yes I believe it, I can apply various methods and techniques, and I can make preliminary preparation (T6)", "Teaching can be carried out successfully as long as sufficient material is provided, and teaching techniques are effectively implemented (T7)", "I can surely teach all subjects of my lesson. I believe that I can teach them within the time period reserved for my lesson (T9)", "I believe that I can teach all subjects of my lesson in my classrooms. I can teach by providing different examples, making connections with current issues, guiding students practice, and providing their participation. I believe that I can make a progress with trust, reliance, patience, and affection. However, a teacher may successfully teach all subjects, but students still may not master all of them. Also I have doubts about the necessity and prability of it. Which one of us has ever learned all subjects in a lesson completely? Or which one of us has ever needed to learn them? (T14)", "If the readiness level, physical and cognitive statuses of the students are not extremely different, which requires Individualized Education Program, I believe that I can teach all subjects, and achieve the results using evaluation and assessment. I also experience it. I teach theoretical part of the subjects to the students who have posture or physical problems. Their friends perform the activities; therefore, the students with problems have the chance to learn them. Therefore, I can evaluate both theoric and practical parts. I have the chance to observe that learning has occured. However, all of these aspects are not separated from students' motivation to my lesson (T15).*

Teachers' Disbelief That They Can Teach All Subjects in a Lesson

Teachers who did not believe that they could teach all subjectsrelated to their fields stated that it depended on their students' readiness levels, learning deficiencies, and their prejudices. On the other hand, they stated that they did not feel themselves competent in their lessons. Despite their negative beliefs and opinions, they also kept preparing interesting materials and made preliminary preparations beforehand. They also tried to keep the motivation of the classroom high, tried to attract their attention, started the lesson with great energy, approached to the topic with small steps, and implemented brainstorming activities. Direct quotations of teacher opinions were given below.

> *Since students are more interested in certain subjects, they cannot learn all subjects at the same level. Their readiness level and the effect of the previous teacher may turn into prejudices, and this may result in deficiencies in learning. At this point, the motivation of the classroom should be maintained as high as possible, and their attention should be kept. This can be achieved by starting the lesson with great energy, approaching the topic with small steps, carrying out a brainstorm activity, or encouraging them to tell their similar memories related with the topic. The previous subject may not have been taught effectively. Therefore, cyclical approach may be utilized in order to make a connection with the previous subjects. They can be taught again comprehensively. The main reason is students' readiness, learning deficiencies, and prejudices (T1)", "I do not believe that I can teach all subjects effectively in my classrooms. I may not have the required knowledge in all subjects. However, I challenge myself, I make preparations, and Iprepare interesting activities and materials (T5)", "I do not believe that I can succeed in teaching all subjects of my lesson. Just as a student cannot learn and understand all courses at the same level, a teacher also cannot teach all subjects (T8)",*

"Teachers start their lesson with enthusiasm. We want to convey all information we have to the students. We try to teach them everything we know. However, the unwillingness of the students decreases the motivation of the teacher. We can only teach willing and enthusiastic students (T10)", "Just like any other classroom, my classroom includes students who have different learning levels. Fot this reason, it is not possible to provide whole learning. There are age differences among students in the current system. We have to address different age groups by using various activities. Teaching can be easier as long as the opportunities are provided, and the students are willing to learn (T11)", "The reluctance of students affects our motivation. I start the lesson thinking that I will teach all subjects effectively, but I get affected by the behaviours of the group. Also the families should be willing. (T12)", "No, all students learn what they want to learn (T13).

Discussion, Conclusion and Recommendations

Only four of the teachers participated in the survey (T1, T2, T9, T14) believed that all students in a class could learn all subjects of a lesson. When the opinions of these teachers were analyzed; students were expected to learn all subjects in the lessons as a result of taking individual differences among the students, different teaching strategies, methods and techniquesused in the lessonsindividualized nature of education, creativity and patience of teachers, and teachers' support into account. The result of the study revealed that all learners would be able to achieve all the outcomes that are taught when adequate time and qualified learning conditions were provided to them. This result shows that the teachers have the same attitudes with the mastery learning model (Bloom, 1981, 1995; Borich, 2014; Fidan, 1985; Levine, 1985; Senemoğlu, 1997). This is a gratifying result for the students and the education system.

The majority of the teachers participated in the survey (T3, T4, T5, T6, T7, T8, T10, T11, T12, T13) did not believe that allstudents ina class could learn all subjects ofa course. These teachers' opinionswere categorized as follows; individual differences such as intelligence, talent and interest among students, limited time and opportunities in school, differences in pre-learning-readines levels of students, differences in perception and perception of each student, differences in student environments, differences in student levels, different and limited student capacities, inability of teachers to learn each student, and differences in hereditary characteristics and environments. For these reasons, teachers believed that all students in a class could not learn all subjects. This finding demonstrates that most of the teachers are not of the same opinion with the the mastery learning model (Bloom, 1981, 1995; Borich, 2014; Fidan, 1985; Levine, 1985; Senemoğlu, 1997) which advocates the assumption that all learners can achieve all the outcomes they are taught when sufficient time and qualified learning conditions are provided to them. In order to improve this situation, it is necessary to determine the preconditions (cognitive and emotional) for learning, and whether the students have achieved these outcomes, as stated by Senemoglu (1997). Courses should be monitored and assessed constantly. Elements that increase quality of the teaching-learning process (hints and signs, active participation, reinforcements, and feedback and corrections) should be used. Teachers should be given the sense that almost all students can learn if adequate time and qualified teaching are provided. For teachers, the perception that one cannot pass to another

topic without the mastery of understanding the outcome related to that topic must be established.

Seven of the participant teachers (T2, T4, T6, T7, T9, T14) believed that they could teach all subjects related to their fields as long as they were competent, make preliminary preparation, implement various methods and techniques, and reserve sufficient time. Nine of the participant teachers (T1, T3, T5, T8, T10, T11, T12, T13) did not believe that they could teach all subjects of a lesson since there were differences in readiness levels, learning deficiencies, and prejudices. They also stated that they did not feel themselves competent in their lessons, and they mentioned the role of personal differences, unwillingness of students and teachers, students' forgetting of what have been taught, age differences among students, and lack of motivation. Despite these negative beliefs and opinions, teachers prepared materials, made preliminary preparations, tried to keep the motivation of the classroom at high levels, attracted their attention with interesting activities, and started the lesson with great enthusiasm to teach.

The results of the current study support the results of many previous studies. Research have indicated that teachers not only hide behind their low expectation of success when students fail in a lesson, but also convey the message that it is inevitable for them to fail. Thus, teachers expect success and certain behaviours from particular students. As a result of these different expectations, teachers behave these students in a different way. High expectations of success affect the success level of students to a great extent. Also, low expectations create low levels of success (Lunenburg & Ornstein, 2013; Rosenthal & Jacobson, 1968).

As a consequence, expectations of teachers towards their teaching skills and students' learning levels are quite low. Their self-perceptions, environmental conditions, school facilities, and differences in students' personal features and input behaviours are effective on this result. The result of the current study is worrisome in terms of qualified and effective school principles. Besides, it demonstrates that both interdisciplinary and interinstitutional cooperations, trainings, and support activities should be carried out in order to eliminate teachers' negative perceptions towards students' learning levels and their self-efficacy levels about their teaching skills.

As emphasized in the literature, expectations of teachers need to be compatible with the constructivist approach because students are concerned about what their teachers think and expect for themselves. Research shows that teachers think all learners can learn, and their learning is related to teachers' actions and students' achievements. (Braun, 1976; Cooper& Good, 1993; Copper & Tom, 1984; Dusek, 1985; as cited in Rosenthal, 2002; Schunk, 2014). Therefore, teachers should think that all students can learn and are able to carry out their expectations.

Based on the research findings, the following suggestions can be made. As stressed in the case of the problem of the research, the assumption that all students can learn and that all teachers can also teach lies at the basis of effective school understanding. For this reason, teachers should have both the beliefs and motivations of what learners can learn and what they can teach, and carry a high level of teaching

and learning expectations about themselves and their students. Thus, more qualified individuals will be trained and, the quality in education will be further increased.

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Tam Öğrenme Modeli Varsayımlarının Öğretme Öğrenme Sürecinde Uygulanabilirliğine İlişkin Öğretmen Görüşleri

Özet

Problem Durumu: Öğrencilerin öğrenmelerinde etkili olan öğretmen özelliklerinden önemli bir değişken öğretmenlerde, öğrencilerin başarıları için yüksek beklentiler içinde olmalarıdır. Bu bakış doğrultusunda tüm okul çağı çocuklarının eğitilebileceğini

kabul eder. Öğretmenler, öğrencilere ilişkin beklentilerini sözel ve sözel olmayan ipuçları ile iletmektedirler. Bu beklentilerin öğretmen ve öğrenciler arasındaki etkileşimi etkilediği artık bilinmektedir. Ve sonuçta öğrencilerin performanslarını da etkilemektedir. Birçok durumda öğretmen beklentileri kendini gerçekleştiren kehanete dönüşmektedir. Buna göre eğer bir öğretmen öğrencilerin yavaş olduğu beklentisinde ve buna uygun davranış sergiliyorsa bunun karşılığı olarak öğrenciler de davranışlarını bu beklentiye uygun hale getirmektedirler. Okul etkiliği ve mükemmelliğini sağlayacak bir dizi önemli ilke mevcuttur. Bu ilkelerin en öncelikli olanı; öğretmen ve yöneticilerin öğrencilerin öğrenebileceği beklentisine sahip olması ve bu beklentilerini öğrencilere bildirmeleridir. Daha etkili bir okul açısından öğrencilerin öğrenebileceğine inanan ve bunun için kendisini işe adamış öğretmenler önemli bir etmendir. Bunu için de öncelikle öğretmenin tüm öğrenciler için hedef ve beklentilerin açıkça tanımlanması gerekmektedir. Büyük beklentilerin olduğu ortamda eğitimciler bütün öğrencilerin temel becerilerdeki yeterliklere ulaşabileceğine inanır. Çünkü birçok davranış kişilerin bu davranışlardan beklediği sonuçlara bağlıdır. En etkili öğretmenler, yüksek ve düşük başarı gösteren öğrenciler hakkında gerçekçidir. Öğrencilere ilişkin katı ve belirgin bir algı geliştiren öğretmen, en zarar verici etkide bulunmaktadır. Farklılıkların varlığını anlayan ve geçeçci yöntemler ve uygun içerik seçen öğretmen öğrencileri üzerinde olumlu etki yaratacaktır. Alan yazında da vurgulandığı gibi etkili okul anlayışının temelinde tüm öğrencilerin öğrenebileceği ve tüm öğretmenlerin de öğretebileceği varsayımı yatar. Diğer bir anlatımla etkili okulların, öğrencilerin öğrenmelerinde bir farklılığa yol açacağı kabul edilir ve öğrenci rolü, yüksek düzeyde başaran öğrenci olarak tanımlanır.

Araştırmanın Amacı: tam öğrenme modelinde ileri sürülen öğrencilere yeterli veya ek zaman ve nitelikli öğretme-öğrenme olanakları, koşulları sağlandığında tüm öğrencilerin okullarda öğretilmek istenen tüm yeni hedefleri, kazanımları öğrenebileceği varsayımının öğretmenlerin kabul edip, benimseyip öğretme-öğrenme sürecinde uygulayıp uygulamadıklarını tespit edebilmektir.

Araştırmanın Yöntemi: Araştırma, nitel araştırma anlayışı doğrultusunda yürütülmüştür. Nitel araştırmalar, gözlem, görüşme ve doküman analizi gibi nitel veri toplama yöntemlerinin kullanıldığı, algıların ve olayların doğal ortamda gerçekçi ve bütüncül bir biçimde ortaya konmasına yönelik nitel bir sürecin izlendiği araştırma olarak tanımlanmaktadır. Bu yöntemlerin en önemli katkısı araştırılan sosyal yapıyı ve süreçleri ortaya koymaya olanak vermesidir. olgubilim (fenomenolojik) yöntemi kullanılmıştır. Bir fenomeni araştırmak demek, nesnelerin ve olayların belirlenmesinin ve içinde göründükleri bağlam ile nasıl ilgili olduğunu kavramaktır. Fenomenoloji, görünürlerdeki bir tür ilişkilerin ve bu tür ilişkilerin koşullarının incelenmesidir. Araştırmada, ele alınan olgu, öğretmenlerin konularını tam öğretebilme ve öğrencilerin tam olarak öğrenebilmelerine yönelik öğretmen algılarıdır.

Araştırma, verilerinin toplanmasında görüşme yöntemi kullanılmıştır. Veriler içerik analiz teknikleri ile çözümlenmiştir. Araştırmanın çalışma grubunun belirlenmesinde amaçlı örnekleme ve ölçüt örnekleme yöntemleri kullanılmıştır. Araştırmada her bir öğretmenin ayrı bir branş ve faklı bir eğitim kademesinde görev yapıyor olma ölçütleri esas alınmıştır. Araştırmanın çalışma grubunu Düzce ilinde 2016-2017 eğitim öğretim

yılında çeşitli öğretim kademelerinde görev yapan 15 öğretmen gönüllü olarak katılarak oluşturulmuştur.

Araştırmanın Bulguları: Tüm öğrencilerin dersin tüm konularını öğrenebileceklerine inanan öğretmenler; Çocukların bireysel farklılıklarını göz önüne alarak dersi farklı yöntemler ile renklendirip herkese ulaşmaya çalışma, farklı yöntem ve tekniklerle hatta gerekirse bireysel çalışmalar yaparak her çocuğun öğrenebileceğine inanmaktadırlar. Sınıflardaki tüm öğrencilerin dersin tüm konularını öğrenebileceklerine inanmayan öğretmenler; tüm çocukların ilgileri, yetenekleri, yaşı, zekâ seviyeleri, hazırbulunuşluk düzeyinde, aile yapıları, kalıtsal özellikleri ve yetişme ortamları farklı farklı olduğu için sınıflarındaki öğrencilerin tüm ders konularını öğrenebileceklerine inanmamaktadırlar. Öğretmenler, öğretmenin yeterliliğine, ön hazırlık yapılmasına, çeşitli ve etkili yöntem, teknik uygulayarak, ön hazırlık yaparak ve yeterli zaman ayırmak suretiyle derslerinin tüm konularını öğretebileceklerine inanmaktadırlar (Ö2,Ö4,Ö6,Ö7,Ö9,Ö14,Ö15), Öğretmenlerin bazıları ise (Ö4; Ö5); öğrencilerdeki bireysel farklılık, aile yapıları ve yetişme ortamlardaki farklılıklardan dolayı tüm ders konularını öğrenebileceklerine inanmamalarına rağmen, kendi konularını önceden hazırlık yapmak şartı ile öğretebileceklerine inanmaktadırlar. Böyle bir düşüncenin temel felsefesi, öğrencilerdeki öğrenememe durumunun öğretmenlerin öğretim yaklaşımlarından değil de öğrenen bireyin özelliklerinden kaynaklandığı yönündedir. Derslerinin tüm konularını öğrencilere öğretebileceklerine inanmayan, düşünmeyen öğretmenler bu durumun nedenlerinden birini "öğrencilerdeki hazırbulunuşluk, ön öğrenme eksiklikleri, ön yargılar varlığı ile açıklarken bir diğer neden olarak da öğretecekleri ders konularda kendilerini yeterince bilgi ve donanımda görmeme olarak göstermektedirler. Öğretmenlerdeki tüm bu olumsuz inanç ve düşünceye rağmen aynı zamanda ders öncesi materyal hazırlama, ön çalışma yapmayı da ihmal etmiyorlar. Öğrencilerin motivasyonlarını olabildiğince yüksek tutmaya, ilgilerini yakalamaya çalışmakta, derse yüksek bir enerji ile başlamakta, konulara küçük adımlar ile başlamakta, beyin fırtınası yapmaktadırlar.

Araştırma Sonuç ve Önerileri: Araştırmaya katılan öğretmenler çoğunlukla tüm konularını öğretebilme ve tüm öğrencilerin öğrenebileceklerine yönelik algıları (inanç ve düşünceleri) gerek kendileri, gerek çevre şartları, okul imkânları ve gerekse öğrencinin bireysel ve giriş davranışlarındaki farklılardan kaynaklı olarak olukça düşüktür. Mevcut sonuç kaliteli ve etkili okul olma ilkeleri açısından kaygı verici olup öğretmenlerin öğrencilerin öğrenmelerine yönelik beklenti düzeylerinin ve kendilerinin öğretebileceklerine yönelik öz yeterlik algılarındaki olumsuzlukların giderilmesi yönünde gerek disiplinler arası gerekse kurumlar arası işbirliği, eğitim ve destek çalışmaları yapılmasını gerektirmektedir.

Anahtar Kavramlar: Öğrenci öğrenebilme beklentisi, öğretebilme beklentisi.

Tablet Use in Teaching: A Study on Developing an Attitude Scale for Academics

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A R T I C L E   I N F O

A B S T R A C T

Purpose: Measuring and understanding academics' attitudes towards adapting the use of tablets into teaching seem necessary because there is a need for control of attitudes before making decisions on tablet use in teaching. The purpose of this study was to develop a standard attitude scale towards tablet use in teaching. **Research Methods:** Five judges contributed in developing items for tablet use in higher education after a review of the related literature. 152 volunteer faculty members of higher education around the world participated in the study.

To provide evidence of validity for the scale, item total correlation coefficients were computed by using SPSS 16.0. Kaiser-Meyer Olkin (KMO) coefficient for the sampling adequacy of the data for principal components analysis, and the principal components factor analysis were employed to determine the factor loadings of the items. A confirmatory factor analysis was also employed to support the structure of the scale. For the reliability of the scale, Cronbach's alpha (Crα) calculations were made. **Findings:** Item analysis showed that the 20-item scale had three factors comprising 71.848 percent of the total variance with Eigen values of 14.286, 2.378, and 2.019. Item validity values ranged between .43 and .65. The internal consistency of the scale was calculated as .88. **Implications for Research and Practice**: The results indicate that the attitudes towards tablet use in teaching can be measured in a valid and reliable manner before making institution-wise or country-wise decisions. Implementation of the scale in local and international levels to better understand the concerns and attitudes of academics can be recommended.

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Introduction

Whenever a new technology is introduced, it is not surprising to have some resistance to this technology. A better understanding of the underlining attitudes and concerns can help developers adopt such technology to address this issue. Nowadays, educational technologies including the use of tablets and smartphones have shown a remarkable increase of use (Cassidy, Colmenares, Jones, Manolovitz, Shen, & Vieira, 2014; Garrison, 2011; Haßler, Major, & Hennessy, 2016). The focus of the widely-held research on using tablets and mobile technologies to supplement and enhance the educational matter concentrates on whether these educational technologies have any sort of impact on learning and teaching. Their empirical results show mixed outcomes causing the business value of these technologies lack a strong knowledge base (Laiw, 2008). When reviewing the literature related to the value of technologies, theories of information systems put great emphasis on attitude towards the use of technology (Bobbitt & Dabholkar, 2001; Davis, Bagozzi, & Warshaw, 1989; Hebert & Benbasat, 1994). This attitude is declared among the critical success factors for a successful experiment of tablet use. The paper reviews the current literature on tablet use in education to build a picture of the current research direction, and reveal the constructs. In doing so, a case is put forward for an empirical tool that enables the measurement of attitude towards tablet use. Thus, the paper attempts to define the related constructs, develop a standard scale of measurement to determine the attitudes towards tablet use and verify its reliability and validity.

Exploiting technology in the form of e-learning to supplement classroom teaching has been the study of many studies (Bayliss, Connel, & Farmer, 2012; Daccord & Reich, 2015; Garrison, 2011; Georgiev, Georgieva, & Smrikarov, 2004; Liaw, 2008; Park, 2011). Dependency on technology has continued to develop over the last two decades from being an auxiliary tool to becoming part of the essential blended learning and a companion to class teaching (Young, 2002). While current publications have focused on the technology of delivery in the form of tablets and M-learning (Bayliss, Connel, & Farmer, 2012; Daccord & Reich, 2015; Georgiev, Georgieva, & Smrikarov, 2004; Park, 2011), there is a general agreement that there is potential academic importance for tablets, which are currently underutilized in academia although some valuable attempts have been made to highlight their potential (Daccord & Reich, 2015; Park, 2011; Sharples, Taylor, & Vavoula, 2010). There is an increased acceptance that personal computers and portable laptops are no longer the main e-learning tools for students (Georgiev, Georgieva, & Smrikarov, 2004). Tablets present distinctive features when compared to personal computers and laptops including lightness and extended use due to more efficient battery life (Maina, 2015). Other features including the ability to customise tablets for academic use have provided additional dimensions, which have not yet been considered in higher education (Safieddine, Nakhoul, Kayapinar, Spathopoulou, & Kadry, 2016).

Method

In this part of the study, the design of the research, the participants, data collection process, and the analysis of the data are presented.

Research Design

The purpose of the study was to develop an attitude scale for academics. For this reason, an empirical scale development process was employed with validity and reliability studies as questionnaires often seem to lack reliability and validity which might lead to difficulties in interpreting research results (Schriesheim, Powers, Scandura, Gardiner, & Lankau, 1993). For this reason, the method of the study flowed from Likert-type item development and scale try-out to validity and reliability analysis.

Participants of the Item Development Process

First of all, an open-ended question form was presented to five faculty members from different backgrounds and different colleges (college of education, business administration, engineering, liberal arts, and maths) who used or had used tablets in classroom practices. The items in this form included four topics based on the responses given for tablet use in the first round of the try-out: classroom management, teaching practices, student learning, and faculty development. The researchers acted as judges, and their responses were examined line by line in order to develop items. After an item pool including 63 items had been developed, four other judges, who were experts in educational sciences, evaluated the items. These judges were chosen among the ones who had been using tablets in teaching, and they were provided with a review of literature so that they could be more thoroughly informed. After the feedback from the experts had been received, the items were re-examined and revised for the try-out.

Participants of the Try-out Scale

The participants who responded to the try-out scale consisted of 152 volunteer faculty members from different countries (32 from Kuwait, 30 from Canada, 20 from the USA, 19 from Turkey, 18 from England, 13 from France, 4 from Saudi Arabia, 3 from Belgium, 3 from UAE, 2 from Brazil, 2 from Italy, 2 from Lebanon, 2 from Romania, 1 from Denmark, and 1 from Vietnam). Participants were randomly selected among teaching academics who had been invited via social media and email from different colleges. The participants were selected because of their convenient accessibility and diversity to an online try-out scale and to the researcher(s) in order to represent the variability of university teaching. The items were in English as it was the common language used in most universities around the world. In order to provide language validity as the respondents were from different countries around the world, the items were in the form of basic English sentences in simple present tense. Also, the participants had sufficient proficiency in English to able to read and understand a question in simple present tense, so they were able to respond to the items on a Likert-type scale. Responses of 13 participants were not included in the analyses because of incomplete responses to the items. The percentage of the respondents who owned a

tablet was 77, but the percentage of the respondents who used a tablet in teaching practices was only 34. No personal information was requested from the respondents except for some descriptives which are given in Table 1 below:

Table 1

Pilot Study Sample

Gender	%	Experience	Departments
Female	37		MIS, Education, Statistics, English, Computer Science, Special Education, Teacher Education, Language Education, Finance, SCS, Management, Translation, Business, Marketing, HRM, Nutrition, Mechanical Engineering, Adult Literacy, Industrial Engineering, Electrical Engineering, Informatics, Turkish, Language and Intercultural Communication, Computing and Technology
		6-40 years	
Male	63		

Research Instrument

The items in the scale were constructed and structured in different headings such as tablet use in teaching practices, tablet use in student learning, and tablet use in faculty development. Later, some other questionnaires and surveys related to tablet use in schools and/or technology use in education were examined to give ideas about the terminology and phraseology to be used in the try-out scale. In the first run, there were 63 items, together with the reversed items, intended to measure tablet use attitude in teaching, and these items were generated under three headings namely teaching practices, student learning, and faculty development. After the comments had been received from the judges, 47 items, including reverse items, were decided to be used in the try-out scale. Although some headings were used in the item development process, the items were shuffled in the try-out process as not to direct the respondents and create bias. The items were re-examined, and they were suggested to be compiled under the headings of tablet use in teaching practices, student learning, and faculty development as those items were developed under these headings during the item development process.

Here, the operational definition of attitude is taken as *a psychological tendency* (Eagly & Chaiken, 1993) expressed by evaluating tablet use in teaching with some degree of favour or disfavour. Five experts-one in measurement and evaluation, two in language teaching, one in educational technology, and one in computer engineering- again examined the initial scale items to assure the content validity and the representation of the domain content, and a 47-item try-out scale was built and used for the study.

The scale was developed in Likert (1932) format on a 5-point scale ranging from "Strongly Agree" on one end to "Strongly Disagree" on the other. A 5-point scale was chosen for collecting levels of agreement of the respondents as sorting response categories on a 5-point scale was seen more convenient, meaningful, and easier to respond.

Data Collection

The data were collected by using an online survey software. In order to guarantee anonymity, no personal information was requested from the respondents, and Respondent Anonymity Assurance (RAA) was enabled by the researcher(s). Once RAA is enabled, it will remain perpetual and cannot be rescinded by the researcher(s) or anyone else. In this way, the software never presents a respondent's email address linked to the response data in any of the analysis tools, reports, and data downloads.

Data Analysis

The collected data were analysed by using SPSS 22, Microsoft Office Excel 2010, and LISREL 8.3. The analyses were carried out to ensure validity and reliability of the scale, and to provide supportive evidence to the factor structure of the scale. The following are the data analysis tools used in the study:

- Test-Retest reliability and Cronbach's (Cronbach, 1951) alpha (Crα) calculations for reliability

- Item-total test correlations for item validity measures

- Kaiser-Meyer Olkin (KMO) coefficient for the sampling adequacy of the data for principal components analysis

- Factor Analysis for construct validity

- Exploratory factor analysis to evidence the possibility of the scale structure for similar samples.

- Confirmatory factor analysis to provide supportive evidence to the factor structure of the scale.

The selection of the items was made via analysis results of item-total correlations and the factor structure of the scale. In addition, the internal consistency of the scale was computed by using Cronbach's alpha.

Results

This section presents the results of the analyses for the validity and reliability evidence of the scale.

Factorability of the Scale

Kaiser-Meyer-Olkin (KMO) coefficient of the try-out scale was calculated to identify the factorability of the scale and the sampling adequacy of the data for the analyses. The analysis resulted in a 0.833 KMO value which indicated that the data were highly suited to factor analysis. Bartlett's test of sphericity value was also significant as it was found 3642.078 (p<0.01).

Validity Evidence

In order to provide evidence for the content validity of the scale, four judges, who were experts in educational sciences, evaluated the items after the item development process mentioned in the research instrument section earlier had been completed. These judges were chosen among the faculty members who had been using tablets in teaching, and they were provided with a review of literature so that they could be more thoroughly informed. They examined the content representativeness and the content relevance of the items, and, with consistent judgements, they reached an agreement ratio of 100.00. Later, two experts, one in linguistics and one in language teaching, examined the items considering the content and some technical features such as language use and mechanics.

To collect evidence for the construct validity of the scale, components analysis with Varimax rotation was employed. Factor analysis showed that the factor loadings of 27 items (1, 2, 3, 6, 7, 8, 14, 15, 16, 19, 20, 22, 23, 24, 25, 27, 30, 31, 32, 33, 34, 35, 39, 40, 41, 42, and 46) did not characterize the attitude; hence, they were removed from the analysis. The items kept for the analysis had a 3-factor structure. The first factor had 10 items which were 4, 5, 9, 10, 11, 12, 13, 17, 18, and 21. The Eigenvalue of the first factor was 14.286, and it explained 54.944 % of the variance. The second factor had six items which were 26, 28, 29, 36, 37, and 38. The Eigenvalue of the second factor was 2.378, and it explains 9.142% of the variance. Finally, the third factor has 4 items which are 43, 44, 45, and 47. The Eigenvalue of the second factor was 2.019, and it explained 7.762% of the variance. These factors together explain 71.848 % of the total variance of the attitude towards tablet use in teaching. The factor loadings of the items ranged between 0.456 and 0.843. In order to find evidence for the item validity and the homogeneity of the items in the scale, item-total test correlations were computed, and the values ranged between .42 and .65. These findings of factor analyses and item-total test correlations indicated that the scale had construct validity, and the items in the scale measured the same construct which was intended to be measured. The total variance and the rotated factor loading matrix (Varimax) giving validity evidence of the scale are presented in Table 2 below:

Table 2

The Rotated Factor Loading Matrix (Varimax), Eigenvalues, and Total Variance

Item No	Item No in the scale	Item	Factor 1	2	3
1.	12	A tablet would contribute to my development of being a more organized teacher.	.795		
2.	10	A tablet would contribute to my development of being a more effective teacher.	.780		
3.	9	Using tablets would help me present my material in a more organised way.	.723		
4.	21	The courses I am teaching will greatly benefit from the use of tablets.	.709		
5.	4	The courses I am teaching would greatly benefit from the use of tablets.	.694		
6.	5	The courses I am teaching would not benefit from the use of tablets.	.655		
7.	18	A tablet would contribute to organising the teaching material.	.587		
8.	11	A tablet would contribute to my development of being a more creative teacher.	.539		
9.	17	Tablets would be used in innovative ways that go beyond the traditional approach.	.474		
10.	13	I would use a tablet for presenting the material in the classroom.	.456		
11.	29	A tablet would contribute to student participation in the classroom.		.817	
12.	26	A tablet would increase student-student interaction in the classroom.		.789	
13.	28	A tablet would increase teacher-student interaction in the classroom.		.785	
14.	36	Tablet use promotes an active learning environment.		.677	
15.	38	A tablet would be encouraging for the students to explore learning topics.		.520	
16.	37	Tablet use would have a positive impact on their learning experience.		.488	
17.	47	Instructors would adopt a more proactive way to approach the subject.			.843
18.	45	Instructors would be more motivated to adopt a more proactive way to approach the subject.			.830
19.	44	Instructors would be more motivated to review the way they teach.			.728
20.	43	Instructors would be more motivated to adopt a more personalised way to approach the subject.			.581
		Eigenvalues	14.286	2.378	2.019
		% of Variance	54.944	9.142	7.762

Table 2 gives evidence of three possible factors and their relative explanatory powers. Three factors comprised 71.848 of the total variance. As seen in the table, factor 1 accounted for 54.944% of the variance with an Eigenvalue of 14.286; factor 2 accounted for 9.142% with an Eigenvalue of 2.378; and factor 3 accounts for 7.762% with an Eigenvalue of 2.019. This might mean that the scale items represented the intended behaviour with a total of almost 72%, and the complexity of the data set could be reduced using these factors with a loss of information of 28%. Item validity coefficients are also given in the following table:

Table 3

Item Validity Coefficients of the Scale İtems

Item No	Item No in the scale	Correlation Coefficient	Item No	Item No in the scale	Correlation Coefficient
1.	4	.65	11.	26	.43
2.	5	.43	12.	28	.44
3.	9	.52	13.	29	.46
4.	10	.58	14.	36	.51
5.	11	.56	15.	37	.52
6.	12	.57	16.	38	.45
7.	13	.43	17.	43	.56
8.	17	.53	18.	44	.48
9.	18	.56	19.	45	.42
10.	21	.62	20.	47	.43

The structure of the scale based on factor analysis revealed three components considering the relevant literature and the items included in these factors. These components were examined, and they were suggested to be compiled under the headings of teaching practices, student learning, and faculty development as those items were developed under these headings during the item development process.

A confirmatory factor analysis was also conducted to provide evidence for the three-factor structure of the scale. The confirmatory factor analysis supported the three-factor structure that emerged from the exploratory factor analysis. The estimates computed ranged between .57 and .96, and the t-values were significant (p<.05). The results are presented in the following Table 4.

As seen in the table, the items in the scale had moderate to strong standardized loadings. χ2 statistic for model fit is 5.63 (df=167), which was too small to reject the null of a good fit (p=.314). In addition, RMSEA declined to .014 (below .05), which was small enough to indicate a good fit. Fit indices such as GFI, SRMR, AGFI, CFI, and NFI also suggested that the factor structure fit the data (GFI=.96, SRMR=.06, AGFI=.91, CFI=.92, NFI=.90). The results suggested that the model fit the data, and the underlying structure of the scale was composed of three factors that measured the attitudes towards tablet use in teaching indicating that each item contributed significantly to the scale.

Table 4

Estimates, t-Values, and Standardized Coefficients of the Scale İtems

Item No	Factor 1	Factor 2	Factor 3	t-values	R^2
4	.70			8.61	.72
5	.57			6.64	.58
9	.81			10.74	.72
10	.94			13.66	.83
11	.77			9.84	.66
12	.89			12.36	.80
13	.70			8.64	.57
17	.67			8.16	.53
18	.80			10.40	.69
21	.86			11.61	.82
26		.87		11.87	.95
28		.83		11.04	.89
29		.82		11.97	.96
36		.87		11.91	.81
37		.68		8.25	.52
38		.63		7.46	.53
43			.69	8.58	.54
44			.79	10.30	.60
45			.96	14.15	.76
47			.93	13.30	.80

Reliability Evidence

To find evidence for the reliability of the scale, item-total test correlations and Cronbach's alpha reliability coefficient were computed for the items in each factor. A table listing these factors against each question was then generated. The results are given in Table 5 below:

Table 5

Item-Total Test Correlations of the Items of Each Factor

Item No	Item No in the scale	Factor 1 Total & Sub.		Crα	Item No	Item No in the scale	Factor 2 Total & Sub.		Crα	Item No	Item No in the scale	Factor 3 Total & Sub.		Crα
1.	4	.65	.66	.86	11.	26	.43	.45	.84	17.	43	.56	.60	.80
2.	5	.43	.45		12.	28	.44	.45		18.	44	.48	.46	
3.	9	.52	.54		13.	29	.46	.43		19.	45	.42	.44	
4.	10	.58	.51		14.	36	.51	.48		20.	47	.43	.48	
5.	11	.56	.53		15.	37	.52	.54						
6.	12	.57	.52		16.	38	.45	.49						
7.	13	.43	.40											
8.	17	.53	.48											
9.	18	.56	.51											
10.	21	.62	.59											
Crα		.88												

As seen in Table 5, Crα reliability of the scale was .88. Crα of the first factor was .86; Crα of the second factor was .84; and Crα of the third factor was .80. The findings showed that the reliability of the scale was significantly high. The correlations between total scale scores and factors are given in Table 6 in the following:

Table 6

Correlations between Total Scale Scores and Factors

	Scale Total	Factor 1	Factor 2
Factor 1	.87		
Factor 2	.85	.66	
Factor 3	.80	.54	.60

The legend of the table provided evidence that the correlations between total scores and each factor ranged between .54 and .87 (p<0.01), and they were significant. The correlations between factor 1 and 2, 1 and 3, and 2 and 3 were also significant at the same level (p<0.01). These results proved that these three factors were components of the attitude towards tablet use in teaching.

Discussion, Conclusion and Recommendations

In this study, a valid and reliable scale for measuring the attitudes towards tablet use in teaching was developed to be used by academics and/or the decision makers planning to integrate tablet use in curricula. 152 volunteer faculty members from different countries participated the study to respond the try-out scale. The items were presented in English as it was the common language used in most universities around the world. As the respondents were from different countries around the world, in order to provide language validity, the items were in the form of basic English sentences. The participants had sufficient proficiency in English to be able to read and understand a question in basic English, so they were able to respond to the items in a Likert-type scale. A 5-point scale was used for collecting data to make it easier for the respondents to respond, and to obtain a total number which could be employed in analyses. Based on the results of the analyses, the internal consistency of the scale provided strong evidence for attitudes towards tablet use in teaching, and the scale could be effectively used to measure particular attitudes towards tablet use in teaching practices, student learning, and faculty development as the structure of the scale based on factor analysis revealed three components which were teaching practices, student learning, and faculty development. The content validity of the scale was evidenced by experts and judges with a background in educational sciences reaching a consensus of 100%. Factor analyses were employed to provide evidence for the construct validity of the scale. Repeated factor analyses revealed a 20-item scale which had three factors explaining 71.848% of the total variance. The factor loadings of the items range between 0.456 and 0.843. The first component accounted for 54.944% of the variance with an Eigenvalue of 14.286; the second accounted for 9.142% with an Eigenvalue of 2.378; and the third accounted for 7.762% with an Eigenvalue of 2.019. In order to find evidence for the item validity and the homogeneity of the items in the scale, item-total test correlations were computed, and the values ranged between .42 and .65. These

findings of factor analyses and item-total test correlations indicated that the scale had evidence of construct validity, and the items in the scale could measure the same construct which was intended to be measured. The confirmatory factor analysis also provided evidence for the underlying structure of the scale. The fit indices for the three-factor model and the standardized estimates of the items indicated a good fit. Cronbach's alpha reliability coefficient (Crα=.88) showed that the reliability of each component was significantly high. Crα of the first factor was .86; Crα of the second factor was .84; and Crα of the third factor was .80. The correlations between each pair of components were also significant at the same level (p<0.01). These results proved that these three components were factors of the attitudes towards tablet use, and this scale could be used for measuring attitudes of academics on tablet use. Standard comparisons among different samples are also possible by using this scale. Beside the shortage of empirical studies held on this particular subject, there are some survey attempts by using questionnaires and semi-structured interviews regarding iPad use at schools examining student behaviours which are generally positive such as for fostering student engagement, motivation, independent research, and participation (Hallissy, Gallagher, Ryan, & Hurley, 2016). Still, as rapid developments in technology appear day by day, this study might be worth to make amendments in curricula and lead educators and decision makers to step forward by considering tablet use for possible effectiveness in education.

Although this study was carefully conducted, the researchers are aware of its limitations and shortcomings. The questionnaire quite often fails to cover very busy and pre-occupied people among the respondents, or the type of respondents who need to conceal a lot about themselves. Saunders, Cienkowski, Forsline, and Fausti, (2005) explain the limitations of questionnaires with regards to the expected result, which might, for example, highlight trends or attitudes, but will fail to explain the underlying reasons for the result. A multi-method approach, where the researcher combines questionnaires with, for instance, interviews to explain the results, is therefore proposed. In addition, further studies with larger samples might be needed for examining the structure of the scale and studying the attitudes of students on tablet use, the effect of attitudes on tablet use in teaching and learning environments, and/or the relationship between attitudes towards tablet use and some other variables such as student success, self-efficacy of teachers and/or faculty, and motivation in different subjects. Furthermore, cross-cultural comparisons can be made and generalizability studies can also be conducted by using the scale items. Further research might also employ the scale not only in a variety of educational contexts but also in business contexts such as company training.

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Öğretimde Tablet Kullanımı: Bir Tutum Ölçeği Geliştirme Çalışması

Özet

Problem Durumu: Kimi çalışmalar, eğitim ve öğretimde tablet kullanımının olumlu sonuçlar verdiğini gösterse de yüksek öğretimde, akademisyenlerin tablet bilgisayarı bir eğitim aracı olarak kabul edip etmeyecekleri konusu üzerine ampirik bir çalışma görülmemektedir. Bu durum, akademisyenlerin tablet kullanımını öğretim süreçlerine dahil etmelerini ve buna iliskin tutumlarını, düşünce ya da kaygılarını tartışılır hale getirmektedir. Yüksek öğretimde tablet kullanımına ilişkin alınacak kararların, akademisyenlerin tutumlarının ölçülerek bilinçli bir şekilde alınması mantıklı olacaktır. Söz konusu tutumların ölçülmesi için standart karşılaştırmalara olanak sağlayan bir ölçeğin geliştirilmesi uygun olacaktır.

Çalışmanın Amacı: Bu çalışmanın amacı, tablet bilgisayarların yüksek öğretimde bir eğitim aracı olarak kullanımına ilişkin akademisyen tutumlarının ölçülmesi amacıyla standart karşılaştırmalara olanak sağlayacak geçerli ve güvenilir bir ölçeğin geliştirilmesidir.

Yöntem: Denemelik maddelerin geliştirilme aşamasında beş uzman yargıcı katkıda bulunmuştur. Geliştirilen maddelerin yanıtlayıcıları dünya çapında 152 gönüllü akademisyenden oluşmaktadır. Ölçeğin geçerliğine kanıt oluşturmak için madde toplam test korelasyon katsayıları SPSS16.0 kullanılarak hesaplanmıştır. Örneklem yeterliğinin ölçülmesi için Kaiser-Meyer Olkin katsayısı hesaplanmış, maddelerin faktör yüklerinin hesaplanması için ise temel bileşenler analizi yapılmıştır. Faktörlerin faktör yapılarına uygunlugunu sınamak amacıyla Doğrulayıcı Faktör Analizi yapılmıstır. Ölçeğin güvenirliğinin ölçülmesi için Cronbach Alpha katsayısı hesaplanmıştır.

Bulgular: Madde analizi sonucunda 20 maddelik, toplam varyansın yüzde 71.85'ini açıklayan ve Eigen değerleri 14.286, 2.378 ve 2.019 olan 3 faktörlü bir ölçek elde edilmistir. Madde geçerlik düzeyleri .43 ile .65 arasında değişmektedir. Ölçeğin iç tutarlık katsayısı .88'dir.

Sonuçlar ve Öneriler: Sonuçlar, ülke ya da kurum bazında köklü kararlar almadan önce, tablet kullanımına ilişkin tutumların geçerli ve güvenilir bir şekilde ölçülebilmesini sağlayacak bir ölçek ortaya koymuştur. Geliştirilen ölçeğin, ulusal

ya da uluslararası düzeyde akademisyen tutumlarının ölçülmesinde ve standart karşılaştırmaların yapılmasında büyük ölçekli kullanımı önerilebilir.

Anahtar Sözcükler: Tablet, tutum, ölçme, geçerlik güvenirlik.

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Indicate that this submission is ready to be considered by this journal by checking off the following.

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		Method (*Araştırma deseni, örneklem, very taoplama aracı ve verilerin analizinini kısaca açıklayınız*), **Findings** (*En önemli ve çarpıcı araştırma bulgularını verelim*) **Implications for Research and Practice,** (*Uygulama ve ileriye dönük araştırmalar için olası çıkarımlarınız*) 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.
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