

EXPLORING GIFTED STUDENTS' SCIENCE HOMEWORK SELF-
REGULATION SKILLS

THE THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

NURDAN BERBER

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER
IN
THE DEPARTMENT OF ELEMENTARY SCIENCE AND MATHEMATICS
EDUCATION

DECEMBER 2019

Approval of the Graduate School of Social Sciences

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ABSTRACT

EXPLORING GIFTED STUDENTS' SCIENCE HOMEWORK SELF-REGULATION SKILLS

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December 2019, 114 pages

Education of gifted students is very crucial because these children have different properties from their peers, such as cognitive abilities, talents, and learning strategies. Thus, they need special education with a unique curriculum. Out of schoolwork which is homework should also be differentiated for gifted students. The present study explored gifted students' homework self-regulation skills and the effects of gender, grade level, and parents' education level on gifted students' homework self-regulation levels. Participants of this study consisted of seventy-two 5th, 6th, 7th, and 8th grade gifted students. A survey named as Student Homework Scale (Taş, 2013) was the data collection tool of the study. After analyzing the data, it was found that there were no significant differences in homework self-regulation levels of gifted students with respect to gender, grade level, and parent education. It was also seen that gifted students use self-regulation skills such as management strategies, goal orientations, deep learning strategies while doing science homework.

Keywords: gifted students, science homework, self-regulation skills, middle school, students

ÖZ

ÜSTÜN YETENEKLİ ÖĞRENCİLERİN FEN BİLİMLERİ EV ÖDEVİ ÖZ-DÜZENLEME DÜZEYLERİNİN ARAŞTIRILMASI

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Aralık 2019, 114 sayfa

Üstün yetenekli öğrencilerin eğitimi çok önemlidir çünkü bu çocuklar bilişsel özellikler, yetenekler ve öğrenme yöntemleri gibi alanlarda akranlarından farklı özelliklere sahiptir. Dolayısıyla akranlarından farklı özelliklere sahip olan bu öğrenciler, özel hazırlanmış bir müfredatla özel eğitime ihtiyaç duyarlar. Bu öğrencilere okul dışı etkinlik olan ev ödevleri de özel olarak hazırlanmalıdır. Bu çalışma üstün yetenekli öğrencilerin ev ödevlerindeki öz-düzenleme becerilerini ve cinsiyet, sınıf düzeyi ve ebeveyn eğitim düzeyinin öz-düzenleme becerilerine etkisini araştırmaktadır. Bu araştırmanın katılımcıları, yetmiş iki kişiden oluşan, 5.6.7.ve 8.sınıfta okuyan, üstün yetenekli öğrencileri içermektedir. Çalışmada veri toplamak için Öğrenci Ödev Ölçeği (Taş,2013) isimli bir anket kullanılmıştır. Veriler analiz edildikten sonra, üstün yetenekli öğrencilerin ev ödevlerinde öz-düzenleme düzeylerinde cinsiyet, sınıf düzeyi ve ebeveyn eğitime göre anlamlı bir fark olmadığı bulunmuştur. Ayrıca üstün yetenekli öğrencilerin fen ödevlerini yaparken yönetim stratejileri, hedef yönelimleri, derin öğrenme stratejileri gibi öz-düzenleme becerilerini kullandıkları da görülmüştür.

Anahtar kelimeler: üstün yetenekli öğrenciler, fen bilimleri ev ödevi, öz-düzenleme becerileri, ortaokul öğrencileri

To my family

and

To my lover

ACKNOWLEDGEMENTS

This thesis would not have been possible without the contribution of many people. I would like to thank to all of them that they don't leave me alone. First of all, I would like to show my deepest appreciation to my supervisor, Prof. Dr. Jale Çakıroğlu and co-adviser Ceren Öztekin. I am really grateful about their infinite support, guidance and assistance. Without their encouragement, I would not have been completed this thesis in this short period of time. They provided many opportunities to foster my academic skills and you helped me a lot to find my own academic interest.

I am also thankful to my jury members, Assoc. Prof. Dr. Sevgi Kingır and Prof. Dr. Semra Sungur. I am grateful to their support and valuable suggestions.

I am also grateful to my lovely friend Zeynep Ertekin. She is always with me especially in my difficult times and support me also academically. Without her infinite support, I could not handle with my stress. In addition, I would like to thank to Gül Yücel for her social support and sharing her knowledge with me especially in statistics and technical works. Moreover, I am thankful to my lovely friends, Shakiba Rahimingtam for their infinite friendship. She is always with me and trust me to write thesis. I am also thankful to Burcu Özçevik for her patience and valuable help. She always provides me technical support in this process. Faruk Özdem Yıldırım is also very helpful to me for technical works.

In addition, the special thanks go to my family, especially my mother Nagihan Berber and my father Kadir Berber. They always believe me and never hesitate about my success. I am also thankful to my sister, Melda Yıldırım. She always felt me better and he is one of the reasons for choosing my academic interest. I am also thankful to my lover Arda Konuş for his unconditional love and encourage for me.

Finally, I want to present my appreciation to the students and school managers Yasemin Kiziroğlu and Erdal Kiziroğlu that I studied with. They are always helpful to me.

There are also many people that deserve acknowledgments that I could not list their names.

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CHAPTER 1

INTRODUCTION

In this section, background information related to homework, gifted students' education, and self-regulation strategies on homework are presented under headlines.

1.1 Background Information Related to Homework

Homework is a debated issue for education over a century. Because it is not evidenced yet whether homework is necessary for learning or not, homework seems like both good and bad (Riggall, Churches & Elwick, 2014). Homework is believed as meaningful, purposeful, and designed to meet students' needs. It also supports and develops classroom learning and reinforces the home–school relationship (Baran, 2019). The studies show that the most critical impact of homework is related to time (Epstein & Van Voorhis, 2001). When students spend more time on homework, students' success increases because students complete more tasks and have a better performance. Completion of homework is related to management of time. Time management is vital for students to manage their time and to build a sense of responsibility. The amount of homework is critical because it directly affects students' intrinsic motivation. If students spend more time on homework, they are intrinsically motivated more. On the other hand, anxiety and negative attitudes toward school occur among students if the amount of homework is too much (Estevez, Regueiro, Rodríguez & Piñeiro, 2018).

In the study of Sawyer, Nelson, Jayanthi, Bursuck, and Epstein (1996), students identified factors that make homework easy and difficult for them. Factors that make homework easy were reported as assistance for students, attitude and effort, routine and structure, students' ability, traits, and methods of assigning homework. Students find easier completing homework if they have assistance from teacher, coach, friend, or various family members. The routine and the structure of homework which is provided by the teacher is essential because students prefer to keep homework in one specific

place such as book, folder, to record due dates of homework, and use an assignment book. The other factor is expressed as a sense of future. When students are aware of the importance of homework completion for their graduation, they have a positive attitude on homework (Sawyer et al., 1996). In the same study by Sawyer et al. (1996), students also specified factors that make homework difficult. If students find homework difficult, it creates a negative impact on them. Moreover, if students have negative attitudes towards homework, the subject, or their teacher, they are less willing to complete homework or do not ask for help about the topic that they do not understand. Finally, when students are frustrated or angry, they decide not to complete homework.

For the completion of homework, motivation, and self-set goals of students are critical (Pajares, 2002). Motivation positively affects homework completion. According to expectancy-value theory, homework motivation has an expectancy and a value component. Expectancy is known as individuals' beliefs about how they will perform on a future task. Task values are reflections of the reasons for engaging in activities (Eccles & Wigfield, 2002). To be motivated, setting academic goals is needed (Pintrich, 2004). Students' academic goals are divided into three types; performance goals that focus on achieving better performance, learning goals focusing on mastery and comprehension of the content, and work avoidance goals that are avoiding challenging tasks. Moreover, deep learning strategies which aim to understand content deeply are related to adopting learning goals (Valle et al., 2016; Stipek, 2002). Studies show that motivation to increase learning is related to managing homework efficiently (Siegle & McCoach, 2005; Valle et al., 2016). The approach of students to homework influences not only homework outcomes but also homework quality. If students adopt a deep approach to complete homework, students relate the homework exercises to prior knowledge and monitor their mastery of the content learned in the class (Cano, Garcia, Justicia & Garcia-Berben, 2014). Thus, self-regulation strategy use of students is vital to search, and in the next section, it is discussed.

1.2 Background Information Related to Self-Regulation

Self-regulation is a proactive process of individuals' organizing and management of their emotions, behaviors, thoughts, and environment to reach academic goals

(Boekaerts & Corno, 2005). To be a self-regulated learner, students set goals, use strategies, monitor their performance, reflect on learning outcomes over time (Zimmerman, 2008). To operate self-regulation, learners need three areas of psychological functioning; cognitive, motivational, and metacognitive (Trautwein & Köller, 2003). Aiming to get knowledge and skills personally for learning is known as self-regulated-learning strategies. There are fourteen academic self-regulated learning strategies identified by Zimmerman and Martinez-Pons (1988). One of these strategies is self-evaluation that is students' initiated evaluations about the quality or progress of their work. Another learning strategy is organizing and transforming meaning that instructional materials are rearranged to improve the learning of students. Goal setting which was a learning strategy was setting of educational goals and planning for sequencing, timing, and completing activities related to those goals. Another learning strategy is seeking information that means initiated efforts of students to secure further task information from nonsocial sources while taking an assignment. Keeping records and monitoring which is another learning strategy is initiated efforts of students to list events or results. Environmental structuring is another learning strategy means initiated efforts of students to choose or order the physical setting for learning easier. Another learning strategy is self-consequence that means deciding student arrangement or imagination of rewards or punishment for achievement or failure. Another strategy is rehearsing and memorizing means students' efforts to recall material by overt or covert practice. Seeking social assistance, another learning strategy, is demands of students for help from teachers, peers, and adults. The other learning strategy is reviewing records are defined as efforts of students to reread tests, notes, or textbooks to prepare for class or further testing.

In the literature, there are theories for self-regulation (Beakart, 1997; Pintrich, 2000; Zimmerman, 2005). For example, Beakart (1997) suggested that students need prior knowledge to learn independently and categorized this prior knowledge into six models. This six-component model has six cubes which are cognitive self-regulation, motivational self-regulation, domain specific level, the strategic level, goal level, and motivational belief. Each of them represents a specific type of prior knowledge that a

student has potentially available at any given time. There are also cognitive strategies which important for information processing, such as selective attention, decoding, rehearsal, elaboration and organization. Learners need to make practice to apply general cognitive strategies to new domains. Motivational strategies depend on external regulations to sustain motivation (Boekaerts, 1994). Motivational beliefs focus on the students' beliefs, rather than on their capacity to regulate motivational and emotional processes before, during and after learning activities. Moreover, Pintrich (2000) defines self-regulation as an active process whereby learners set goals for their learning and then attempt to control their cognition, motivation, and behavior, constrained by their goals and the contextual features in the environment in his theory. There are four phases for self-regulatory learning that are forethought and planning, monitoring, and control and reaction and reflection processes. Forethought and planning include the activation of relevant prior knowledge. This process of activation of prior knowledge can happen automatically and without conscious thought. Cognitive monitoring includes the awareness and monitoring of various aspects of cognition (Baker, 1989). Cognitive control and regulation involve cognitive and metacognitive activities that learners adapt and change their cognition. Reaction and reflection processes include learners' judgments and evaluations of their performance on the task. The other self-regulation theory is presented by Zimmerman (2005). According to him, self-regulation is described as cyclical because feedback from prior performance is used to make adjustments. Due to change of personal, behavioral, and environmental factors during learning and performance such adjustments are needed. Self-observing and strategically adjusting performance processes are included in behavioral self-regulation. Monitoring and adjusting cognitive and affective states are included in covert self-regulation. Based upon these theories, self-regulation models which are led by behavior, cognition, and environment (Puustinen & Pulkkinen, 2001) are developed. These models of self-regulation contain social-cognitive cyclical contents (Zimmerman, 2000), information processing approaches (Hadwin & Winne, 2001), and Boekaerts' (1992) model of adaptive learning. All the models have one common property having basic assumptions such as, the potential for control assumption, constructive assumption, goal criterion, or

standard assumption, and self-regulatory activities. The constructive assumption implies that learners are active and constructive participants in the learning process. Being active of learners means that learners do not get information from teachers, parents, or other adults directly; they construct their learnings. Another assumption, which is the potential for control assumption, means the probability of learners' regulation of their own motivation, cognition, some characteristics of their environment, and behavior. The goal criterion or standard assumption, which is another assumption, assumes that to raise learning, setting standard goals and then adapting and regulating learners' own motivation, cognition, and behavior to reach goals is needed. (Miller, Galanter & Pribram, 1960). The other assumption that is self-regulatory activities means that in addition to factors affecting learning and achievement such as learners' cultural, demographic, or personality characteristics achievement, contextual characteristics of the classroom environment and learners' self-regulation of their cognition, motivation, and behavior affects learning and achievement (Pinritch, 2000). This study was guided by self-regulatory activities and goals, criterion, or standard assumptions.

The use of self-regulation strategy differs among students by gender. In the study of Martin (2004), it was seen that the use of self-regulated strategies such as mastery focus, planning schoolwork, managing study effectively, and persisting in the face of challenge are in favor of girls. The study was with non-gifted, Australian, high school students and also seen that girls have higher anxiety. These differences were related to the degree of motivation of boys and girls. In a study of Xu and Wu (2013), the use of self-regulation strategies on homework of girls was higher than boys. They studied with middle school non-gifted students on homework in all subjects in China. The difference was related to higher socialization to be self-reliant, resourceful, and assertive of girls and having a stronger learning goal orientation of girls. Moreover, in a study of Zimmerman and Martinez-Pons (1990) with middle and high school, Italian gifted students the use of self-regulated learning strategies in different learning contexts such as classroom situations, home, when completing writing assignments outside class, when preparing for and taking tests, and when poorly motivated in math context were investigated. It was found that girls use more goal setting and planning settings because

they keep records and self-monitor themselves than boys. The reason behind this was correlated with being lower in the verbal efficacy of girls. According to that study, it was concluded that girls use more self-regulation strategies but girls are less efficient than boys. Xu and Corno (2006) searched American students' homework management in five directions as arranging the environment, managing time, focusing attention, monitoring motivation, and monitoring and controlling emotion. In the context of these features, it was found that the use of homework management strategies such as working to budget time, to be self-motivating during homework, and to control potentially interfering emotions were higher of girls. This finding was supported by Harries Nixon and Rudduck's (1993) study. Harris et al. studied with high school non-gifted students and gathered data by using interviews. They found that girls organize more regularly their homework than boys. Boys mentioned that they do their homework at the last minute because boys had problems of the motivation of self-discipline. Moreover, the difference across gender was as a result of inequality in the education system of the United Kingdom, where the study was guided. Teachers were in favor of girls who have self-discipline.

Across the grade level of students, the use of self-regulation is different. Cleary and Chen (2019) studied with 6th and 7th grade non-gifted students to find self-regulation strategies use difference in math context in the United States. The reason behind choosing math context is that the complexity of the course content and variety in quantity. It was found that 7th grade students use less self-regulatory strategies than 6th grade students. It was concluded by developmental researchers that self-directedness and intrinsic desire to engage in learning of students decrease during the early middle years. In a similar study of Karademir and Deveci (2019) with Turkish students, the finding was supported that the use of self-regulation strategies is higher at younger ages. They studied with middle school students in math context.

In addition, parental education level is a factor affecting students' self-regulation strategy use. In general, children whose parents have higher education levels use more self-regulation strategies than children whose parents have a lower education level (McClelland, Morrison & Holmes, 2000).

Self-regulation has subdimensions as procrastination, feedback, management strategies, deep learning strategies, homework quality, and goal orientation. In the following section, these subdimensions were reported in detailed.

1.2.1 Procrastination

Procrastination means postponing academic tasks that can debilitate students' academic success (Schraw, Wadkins & Olafson, 2007). No to complete homework learners find some excuses. They enroll in other activities and wait until the last minute to complete homework. As a result, students feel stress and anxiety while procrastinating. By procrastinating, students do not take the necessary steps to complete homework. For example, they do not do planning, regulate their environment. To solve this problem, students should learn the organization, critical thinking, and elaborating strategies, time management. The reasons of tendency to procrastination were found in the literature as poor time management skills, self-efficacy beliefs, discomfort regarding tasks, fear of failure, personal characteristics, irrational thoughts, lower degree of self-respect, inability to concentrate, anxiety, inability to orient objectives of success, external controls, working habits, problem-solving skills, and unrealistic expectations (Howell & Watson, 2007; Pfeister, 2002; Senecal, Koestner & Vallerand, 1995; Watson, 2001). In another study conducted by Kağan et al. (2010), academic procrastination was associated with extroversion, responsibility, personal traits, and "order" sub-dimension of perfectionism and in a negative way, and the "contemplation" sub-dimension of obsessivity in a positive way. The reasons for procrastination can be classified as intrinsic and extrinsic. To find out reasons for procrastination, Senécal, Koestner and Vallerand (1995) studied with college students and found that students who have intrinsic reasons procrastinate less than students who have extrinsic reasons. Moreover, students who have a low GPA and weak academically tend to procrastinate more (Schiming, 2012). The procrastination tendency of students on homework was also related to feedback on homework. If students received feedback on time and were informed about their performance on homework, they were less likely to postpone homework (Taş, 2013).

1.2.2 Deep Learning Strategies

Leading to the depth processing of knowledge by using cognitive and metacognitive skills when performing homework is called as deep learning strategy. Deep learning includes connecting topics to previous knowledge and the real world. Higher Education Academy (2011) identified some situations that deep learning occurs. Deep learning occurs when students have interaction actively, look for the meaning of their learning, and associate new and previous knowledge. When students want to achieve deep learning, they aim to understand, engage with, operate in, and value learning (Danker, 2015). Deep learning strategy use was predicted by perceptions of feedback on homework. This means that when students' homework was checked regularly, discussed in class, and evaluated in a short time, students had a more tendency to use deep learning strategies (Taş, 2013).

1.2.3 Feedback on Homework

Feedback is known as a form of reinforcement. It is a tool to show learners their mistakes in learning and provide correct information. By behaviorist paradigm feedback was seen as a form of reinforcement. To give effective feedback, Kulhavy (1977) specified some criteria. First of all, when the learner was sure about the answer and makes wrong, feedback was more effective. Immediate feedback was less effective than immediate feedback due to persistence on the answers of students. Finally, for effective feedback, it must be given after learners answer the questions and when learners do not understand well the subject to build a meaningful answer (Cole & Todd, 2003). Several criteria under which feedback is most effective were described. Ineffective feedback was given when feedback is available before the learner construct a response (pre-search availability) or when the learner did not understand enough about the subject to build a meaningful answer (Kulhavy, 1977).

1.2.4 Goal Orientation

While doing homework, students asset several goals, such as increasing their level of knowledge, comparing themselves with other students (Elliot & Church, 1997). Goal orientation theory focuses on reasons of students' doing homework. According to goal orientation theory, goal orientation is classified as three types; mastery, performance-approach, and performance-avoidance goal orientations. Mastery goal orientation is an

orientation to develop learner's competence by focusing on understanding and gaining favorable judgments and school grades (Gonida & Cornida, 2014). In other words, the purpose of mastery goal orientation is acquiring new knowledge or skills. Performance goal orientation has a purpose to gain a positive external evaluation and to perform better than others affecting the effort, the direction, and the quality of student investment. Performance avoidance goal orientation is avoiding receiving a negative external evaluation or being considered as incapable (Madjar, Shklar & Moshe, 2016). When learners follow performance goals, they enter into information processing, experience negative emotions during learning, such as boredom and fearful, and give up when they face with failure (Kaplan & Maehr, 2007). Goal orientations affect students' achievement in different ways. While mastery goal orientation affect achievement in a positive way, performance-avoidance goal orientation affects achievement in a negative way (Dinger, Dickhäuser, Spinath & Steinmayr, 2013; Jiang, Song, Lee, & Bong, 2014). Teacher practices and classroom goal structures play an important role in students' own goal orientations (Midgley et al., 2000). In a study of Dupeyrat and Marine (2004) it was also found that mastery goals affect students' achievement by using active strategies and putting more effort in learning activities. In addition to the effects of goal orientation, there were factors affecting goal orientation, such as feedback on homework. When students received feedback on homework, on time, they were more likely goal orientated (Taş, 2013).

From a perspective of social cognitive theorists, a part of student's life within contexts such as the school and the family become goal orientations (Gonida & Cornida, 2014). These orientations are important for many educational processes within various contexts, such as the use of self-regulated learning strategies (Pintrich, 2000; Zimmerman, 2008), and the use of help-seeking strategies (Karabenick, 2004).

1.2.5 Homework Quality

Homework quality means well-prepared homework assignments (Trautwein, 2006). Developmentally appropriate, meaningful, and promoting self-efficacy and self-regulation assignments are identified as high-quality homework. In more detailed, the homework provides students to use time efficiently and have an obvious aim connected

to what they are learning. Meaningful homework means that homework allows students to engage in solving problems with real-life situations. High quality homework focuses students on tasks they can do without help, differentiates tasks, provides suggested time frames, and delivers clear directions (Bembechat, 2019).

Teachers of elementary and middle school students indicated that the main characteristics of qualified homework are instructional purposes and strengthens students' knowledge. Moreover, teachers indicated that qualified homework should promote students' development as an instructional purpose (Rosario et al., 2019). In a study of Trautwein et al. (2006), the relationship between perceived homework quality and homework behavior was searched with 8th grade students. It was found that there is a positive relationship between homework quality and students' efforts at individual and class levels. A similar result was found by Rosario et al. (2018) that when elementary students perceive homework in higher quality, they put greater effort, and greater homework performance, and get higher results on math.

1.2.6 Management Strategies

Controlling emotion, motivation, time management, and environmental regulation when performing homework is called as management strategy (Xu, 2008). Students generally use five features of homework management strategies that are setting up the environment, managing time, focusing attention, controlling emotion and monitoring motivation (Xu & Corno, 2003). It was found that these dimensions of homework management are related positively to learning strategies and homework purpose for middle school students (Xu & Du, 2015). For homework completion use of time management strategy while doing homework is important (Xu, 2010)

Homework preferences of students are an important issue of gifted students because gifted students' preferences can be different from non-gifted students. In the next part, gifted students and their properties in education are discussed.

1.3 Background Information Related to Giftedness

When giftedness is referred, many definitions come to mind. Gifted students show a high level of intellectual, artistic, and leadership ability (Philips, 2019). Giftedness is defined as people who display great levels of aptitude or competence in one or more

domains by The National Association for Children (NAGC). These domains can be any structured area of activities such as mathematics, science, music, language, and sensory-motor skills such as dance, sports, painting (NAGC, n.d.). The other two kinds of theories that define giftedness are domain-general and domain-specific theories (Schindler & Rott, 2017). In domain-general theory, giftedness is related to intelligence, and people whose IQ scores are above 130 or who belong to the smartest 2% of their peer group are defined as gifted. However, in domain-specific theory, individuals differ in developing their specialty across many different domains (Sternberg, 2001). The studies to show similarities, differences, and connections about these theories are less or made explicit. Early conceptualizations of giftedness, for instance, giftedness is viewed as domain-general by Galton (Kaufman & Sternberg, 2011). Some researchers think that domain-specific theories should be in the field of domain-general theories about giftedness while others do not. According to Renzulli (1986), giftedness includes three clusters of human traits; creativity, being above average in general abilities, and task commitment. There is a clear interaction between these three human traits. As the educational characteristics of students are seen, there are some stereotypes for them like perfection, high achiever, having a high level of intelligence, being successful. Although this may be correct for some students, in general, it is not the case. Teachers should be aware of students' characteristics and behaviors. There are six profiles for gifted students proposed by Neihart and Betts (2004). These profiles are being successful, which is getting high grades, choosing safe activities, and needing to be challenged. Being creative as a result of these challenging teachers and rules and being highly sensitive is another property of gifted students. Third, being underground that is desiring to belong socially, feeling pressure and unsure, and rejecting challenges. Another profile is being at risk like resentful, depressed, and angry. Having behavioral problems, poor academic self-concept, not feeling as successful that determines twice/multi exceptional profile of gifted students is another property of them. Finally, gifted students are autonomous learners that means having self-confident, ambitious, excellent social skills.

When giftedness is referred, concepts of giftedness and talent are generally confused. A model was developed to differentiate talent and giftedness by Gagne (2004). Gagne's model suggests that the terms gifted and talented are not synonymous and cannot be used interchangeably. Gagne (2004) defines giftedness as a competence that is higher than average in one or more domains. On the other hand, talent is defined as a performance that is higher than average in one or more domains of human activity. It is clear that a talented person is necessarily gifted (Besançon, 2013). Both giftedness and talent are normative; that is, they mention individuals who differ from average, and both refer to human abilities. Moreover, to define giftedness, some patterns were identified. Sternberg (2001) proposed types of patterns for giftedness rather than types because people may show certain patterns or may be at the intersection between patterns, and their patterns may change over time. In his study, Sternberg (2001) proposed a triarchic theory, which was supported by empirical research on thousands of participants of various ages from many countries using a variety of different methodologies. Three common attributes, analytical, creative, and practical, were stated as gifted individuals' contributions. Analytical individuals have an ability to analyze and evaluate their own ideas and others'. Creative individuals have a talent to originate from one or more major high-quality ideas. Practical individuals have a talent to convince people's value of ideas. Different patterns of giftedness arise by different combinations of these analytical, creative, and practical skills. Also, there were patterns such as practitioner, creative practitioner, analyst, creator, analytic creator, analytic practitioner and consummate balancer, but no one fits exactly into any categories. Indeed, it is important to understand the patterns into which distributions of abilities fall (Sternberg, 2001).

Regulation of curriculum is in need because gifted students are different from their peers and have different learning styles. The curriculum for them can be personalized to satisfy personal needs. Specialized programs providing facilities to reach specialist expertise in the wider community and experiencing of students' specialist facilities also can be organized. Gifted students also need an accelerated curriculum because they have rapid cognitive development. Gifted students progress

rapidly on material higher than their non-gifted peers. If they are not presented rapid curriculum, they are bored, and this makes them not gaining actual learning (Rogers, 2007).

Apart from school context activities, done out of school are important for academic success. Makel, Li, Putallaz and Wai (2011) searched for which type of activities that students do out of school time. These activities can be categorized into two types that are academic-related activities such as academic clubs, homework, and non-academic activities such as arts, athletics, vocational clubs, service clubs, and watching TV. Gifted students spend their time with academic-related activities in general. In the same study, gender difference was also investigated, and results showed that girls join activities which are related to academic more than boys.

The education programs for gifted students are relevant to internal policy, but they differ in countries and countries generally have national policies. There are consistencies, and inconsistencies among perceptions, policies and practices from nation to nation. In general, gifted education programs are in need of teacher training, knowledge exchange, and continuing education for the enhancement of pedagogy and instructional skills. Moreover, definitions of giftedness differ in countries. In Turkey, giftedness is defined as performing a high level of abilities according to his or her peers (MoNE, 1991a). For special education, the first Science High School was established in 1964. Teachers were trained by laboratories, trips, books, discussions, observations, small group works, and individual support practices in the boarding school environment. In 1996, Science and Art Center was founded for gifted students and gave education in times outside formal education. These centers accepted students by intelligence tests who get over 130 points in intellectual capacity. As an undergraduate program for teachers of gifted students at Istanbul University, Maltepe University, Biruni University, and Sebahattin Zaim University have started to give education since 2002 (Birgili & Çalık, 2013).

In brief, the use of self-regulation strategies while doing homework of gifted students is important for completion of homework efficiently. Gifted students'

recommendation for homework is that homework should focus on practice about the things they understand (Swan et al., 2015).

1.3 Purpose of the Study

The purpose of the study was to examine self-regulation skills on homework of gifted students such as their deep learning and management strategies, procrastination tendency, goal orientations, and feedback that teacher gives to their homework.

1.4 Research Questions

The research questions that guided this study were:

- 1- What are the gifted students' homework self-regulation skills?
 - a. What are the gifted students' homework self-regulation levels about deep learning strategies?
 - b. What are the gifted students' homework self-regulation levels about management strategies?
 - c. What are the gifted students' homework self-regulation levels about goal orientations?
 - d. What is the gifted students' procrastination tendency on homework?
 - e. What are the gifted students' homework self-regulation levels about feedback?
 - f. What are the gifted students' homework self-regulation levels about homework quality?
- 2- Are there any significant differences in homework self-regulation levels of the gifted students with respect to gender, grade level, and education level of parents?

Related to this research question, the following hypothesis is specified.

There are no significant differences in homework self-regulation levels of the gifted students in terms of gender, grade level and education level of parents.

1.5 Significance of the Study

Gifted education is not limited to one strategy due to students' differences in terms of intelligence, learning styles (Sternberg, Grigorenko & Jarvin, 2011). Modification of curriculum and school environment is needed for gifted education. To modify curriculum, content can be accelerated, such as grade skipping, nestling two years into one. In addition to modifying curriculum enrichment on subjects, regulation

for homework is also needed for gifted education. According to Samardjza and Peterson (2015), there is not enough homework research focusing on gifted children and exploring the gifted students' needs while doing homework. They found their needs as quietness, music, space, school supplies, and help from parents.

There are many things to do to satisfy the needs of the education of gifted students in Turkey. First, qualified public education policy is needed to meet the special needs of individuals. Another issue is related to the identification of students because it is not fair. Students who are in low socio-economic status are less likely to be identified. This is a result of the inequities in opportunities for learning, such as mathematics instruction, vocabulary exposure, access to test preparation (Crabtree et al., 2019). Another problem is that the National Educational Council has been made various decisions, but there is still no systematic plan for the classroom. There are some studies but transferring the results of these studies to real life is not performed. Moreover, follow up studies are needed. In conclusion, the inconsistency between theoretical definitions and their reflections in real life should be eliminated. The same problem is also valid in homework studies (Güçyeter et al., 2017).

In the field of gifted education, there are studies about educational activities, personal properties, counseling, educational programs, and identification and very fewer studies about scientific works on this field and policies (Sak et al., 2015). When the field related to gifted education, it was seen that studies are limited in Turkey.

The self-regulation use of gifted and non-gifted students was compared in the literature. It was found that gifted students use more self-regulation strategies than their non-gifted peers. Gifted students are independent and in favor of individual study. They do not prefer monitoring of their work by their teacher, so they are in favor of self-monitoring. In this way, they control their studies and aware of their tasks and errors (Risemberg & Zimmerman, 1992). On the other hand, some gifted students fail to set an appropriate goal or choose ineffective strategies meaning that they are weak in the use of self-regulation strategies (Pressley, Borkowski & Johnson, 1987). Like these studies, most of the studies about gifted student's self-regulation use inform about a general picture of self-regulation. The studies about self-regulation use of gifted

students while doing homework is less (Malpass, O'Neil & Hocevar, 2010). The present study aimed to gain information about middle school gifted students' self-regulation use on science homework and carries great importance for the literature. The study will also help to teachers of science gifted students on how to prepare qualified homework and give efficient feedback.

CHAPTER 2

REVIEW OF THE LITERATURE

The literature related to homework and gifted students' education and homework self-regulation strategies are reviewed in this chapter.

2.1 Homework

An important learning tool in education is homework. Homework refers to out of school activities that complement students' learning by questions and any different type of tasks. Whether to give homework or not has been debated by educational researchers and practitioners for decades (Meer et al., 2010). Proponents of homework support that homework is useful for students when it is used appropriately (Cooper, Robinson & Patall, 2006). According to Cooper et al. (2006) positive effects of homework are long-term academic effects, immediate academic effects, long-term academic effects, nonacademic effects, and parental involvement effects. Students' attitudes toward school increase and study skills are improved by homework. Homework implies that learning can take place in anywhere in addition to school. Lastly, parents are involved in homework by enhancing their appreciation. Homework provides parents to understand what goes on in the classroom and let them to express positive attitudes toward the value of school success (Cooper, 2007). On the other hand, opponents of homework believe that a gap is homework it widens the gap between privileged and disadvantaged students. They support that homework perpetuates the social-class inequity. Because homework needs time, space, study aids, and resources, so for poor students who may not have such necessities, giving homework is not proper (Kralovec, & Buell, 2000, as cited in Solomon, Warin & Lewis, 2002).

There are many purposes of homework given by teachers in compliance with the literature. To develop speed, mastery and maintenance of skills, to enlarge participation of each student in learning task, to increase responsibility of student, honesty, time

management and self-confidence, to create communication between parent and child on schoolwork and learning, to accomplish directives from administrators at the district or school level, to notify parents about what is happening in class, to prompt students of teachers' demands for class behavior or work are identified as purposes of homework (Epstein, 1988).

Many studies were conducted to examine the relationship between homework and student's achievement. For example, Fan, Xu, Cai, He and Fan (2016) made a synthesis of studies, which published in the years between 1986 and 2015, explored the relationship between homework and achievement in math and science areas. By examining 2328 studies done with Asian and USA students, they found that homework is related to achievement in math/science less but in a positive direction. They also found that this relationship is stronger for middle school students than high school students. Similarly, Cooper et al. (2006) searched studies which were conducted between 1987 and 2003 in the USA. They found 50 studies examining the relationship between homework and achievement. By conducting a meta-analysis from the studies, Cooper et al. concluded that there is a significant relationship between time spent on homework completed by students and student achievement.

In addition to academic benefits, homework also has non-academic related effects on students, such as self-regulation. Self-regulation involves metacognitive and cognitive knowledge of tasks, learning strategies, learning motivation, and epistemological beliefs. Self-regulation also involves setting a goal, acting according to goals, controlling strategies and actions, and adjusting actions to get the achievement (Zimmerman, 2000). Self-regulation skills are conceptualized as a general tendency that students bring into the classroom by researchers. However, some researchers conceive self-regulation as a trait of a person's situation and attending domain-specific self-regulation skills. These two opinions are compatible (Boekaerts & Corno, 2005). In a different study, Taş (2013) found that the use of self-regulation skills for science homework increases students' science achievement. She studied with middle school students in Turkey. She also found that students who want to enhance their learning use more cognitive and metacognitive strategies during homework. Moreover; in her study,

it was suggested to teachers to give a particular homework and pursue high levels of master goals and use more deep learning strategies.

The self-regulation in homework was associated with planning, execution, and evaluation in a study of Cadime, Cruz, Silva and Ribeiro (2017). They studied with 1014 Portugal students from primary school and 5th and 6th grades by using a scale naming Ktpc to measure the frequency of use of self-regulated strategies to complete homework. They explored gender differences and found that girls use more self-regulated strategies to complete homework than boys. It was also found in their study that students' use of these strategies increases by age. In a similar study, Xu (2008) associated homework self-regulation with arranging the environment, managing time, handling distractions, monitoring motivation, and controlling emotion. His sample was composed of urban and rural middle school students from China. He found that urban middle school students manage their homework well in compared to rural middle school students. He also found that management homework of students is affected by family help, gender, teacher feedback, and students' attitudes.

Learning with self-regulation skills consists of many models which have similar basic assumptions about regulation and learning. One of these assumptions is an action that is sided by a general cognitive perspective. This means that in all models, learners are active in the learning process. Constructing learners' their own goals, meanings, and strategies from information are assumed. Learners do not get information from teachers, parents, or other adults directly and make constructive meaning. Another assumption is related to control, which means that learners can control, monitor, and regulate some aspects of their own motivation, cognition, behavior, and features of environments. However, this assumption says such monitoring and controlling of learners of their motivation, cognition, and behavior is possible at sometimes not always. One other assumption is goal and criterion assumption. Learners can set standards or goals to learn, monitor their actions for their goals, and control their motivation, cognition, and behavior to reach their goals. It is like the process of a thermostat at home. The desired temperature is set, and the thermostat regulates the temperature of the house. The thermostat turns the heating or cooling to maintain the standard. Likewise, in this

assumption, students set their goals and with motivation, cognition, and behavior they reach their goals. The other assumption is that personal characteristics and actual achievement or performance are related to self-regulatory activities. It is meant that self-regulatory activities in terms of cognition, motivation, and behavior contribute to individuals' achievement as well as students' personal characteristics. In the light of these assumptions, self-regulated learning can be defined as an active learning process in which learners set their goals and then control their motivation, cognition, behavior, which is guided by their goals. The relationship between learners and context and their overall success is mediated with self-regulatory activities (Pintrich, 2000).

Kitsantas and Zimmerman (2009) conducted a study with 223 students to explore influences of homework on academic grades with students' self-efficacy for learning and responsibility beliefs as mediated variables in the USA. It was found that achievement influences homework indirectly, but self-regulatory beliefs influence directly. Lee (2016) also searched homework preferences of 317 American high school students who have low self-regulation skills with regards to gender variables in Ohio. It was found that while girls who lack self-regulation skills prefer pencil and paper homework, boys who lack self-regulation skills prefer online homework and both genders prefer another type of homework, which is video or multimedia.

2.2 Gifted Students' Education

Gifted education that focuses on the talents of individuals is important for both developed and underdeveloped countries. Unfortunately, gifted education has not gained public support enough, and many people disregard the importance of gifted education (Chowdhury, 2016). Heilbronner (2009) proposed that gifted students should take an education that is based on their needs, talents, interests, and learning styles. Unfortunately, so few teachers really care about students' individual differences. Thus, students get bored for hours in regular schools. Differentiated education, considering adjustments, in the level, depth, and pacing curriculum is needed for gifted students. For gifted students' instruction, challenging activities are needed so that students can use their creativity to resolve issues. In a monotonous instruction, they do not have a chance of using their creativity (Stoltz, Piske, Freitas, D'Aroz & Machadoet, 2015). A school

that meets the educational needs of gifted students should have a general school provision, and such provision does not need to be very different. Thus, while assessing school provision, general education should be reviewed, and the specific needs of gifted students should be determined. One of the parts of school provision is enriching for gifted students (Eyre, 2013). In gifted students' curriculum the disciplinary and interdisciplinary content must be developed to deep, abstract, depth, broad, and complex of understanding. The curriculum for gifted students should also include learning environments such as emphasizing real-world problems, asking students to function while practicing professionals by using processes and materials, allowing self-directed learning guided by student interests, supporting flexibility in pacing, and variety (Hockett, 2009). When gifted students' experiences were explored, it was found that generally, pull-out programs were selected for the education of them. After pull-out programs, gifted students mostly were involved in computer-based courses (Swiatek & Shoplik, 2003). In Turkey, for curriculum adjustment, Kahveci and Atalay (2015) studied with nine gifted students in a primary school and applied a differentiated curriculum that was called as Integrated Curriculum Model (ICM). According to their results, this model satisfied gifted students' needs, and students' views were positive due to integrating real-world problems. Moreover, Troxclair (2000) proposed a compact curriculum, independent studies, conceptual thematic units, and mentorship for differentiation in social studies. For differentiation of curriculum in social studies of gifted learners, there are some models and features. These features are the complexity of curriculum, advanced context, and depth of engagement in problem-based learning activities. It was also suggested that the curriculum for gifted students should be broad and balanced (Iowe, 2013). Moreover, the curriculum for gifted students should address real-world problems at an abstract level, and students should be given creative opportunities (Van Tassel-Baska, 2008). On this issue, Beason-Manes (2017) studied with students and implemented a creative problem-solving method. According to his results, most of the students advanced in their confidence and used their ability to create change. During the implementation of identifying important problems and making positive change, gifted students were participated well and were powerful. For the

education of gifted students, Cornell et al. (1990) showed four types of gifted educational (GATE) program choices. Programs include part-time grouping (homogeneous grouping for specific content areas such as math or reading), cluster grouping in heterogeneous classes, special classes (self-contained GATE classes), and magnet schools that enroll students exclusively with the curriculum focused on their needs. Siegle (2014) proposed an interesting instructional strategy for students, that is flipping the classroom. Flipping the classroom provides students to take differentiated lesson, which was modified in content, process, product, and learning environment. Moreover, flipping the classroom allows students to make groups during the school day and provides time to teachers to give feedback to students needed for a high level of academic success.

For both primary and secondary gifted education, differentiation is important. Teachers should give importance to differentiation and deal with differences. Tomlinson (2003) proposed some guidelines to provide differentiation. These suggestions were that teachers focus on the essentials, attend to student differences, and modify content, process, and products, teachers, and students collaborate through learning and work together. For enrichment, teachers should create enrichment materials. To provide this, school policy should provide education in another school or pull out classes and there should be coordination between regular education programs and enriched education (Boer et al., 2013). Renzulli (2002) also provided the information for gifted students that gifted students have a high ability to abstract think, and they get information rapidly by sorting relevant from irrelevant. Gifted individuals develop learning faster than others. Gifted children also love challenges, so they use their creativity and independent thinking skills in specific areas and not always academic, and they learn fast with minimal instruction. Thus, an effective classroom for gifted students was defined by Eyre (2013) such that it makes learning pleasurable, provides opportunities to show ability, assesses learning as well as learning outcomes, puts on what is known about thinking and learning styles of gifted students, provides higher level of achievement, and needs children to persist, strive, and self-regulate.

To educate gifted students, motivation should be considered. Students need to be promoted to overcome with challenges over time with efforts, new strategies, learning, asking help from others, and patience by their teachers (Dweck & Yeager, 2012). There are many theories for the motivation of gifted students. Motivation theories are generally arising from a cognitive perspective and expectancy-value framework. Gifted students' expectancies are generally to perform high in a task, and their values generally depend on the task which is assigned. Siegle and McCoach (2005) formulated a model for students related to an expectancy-value theoretical framework. The model includes four components: goal valuation, self-efficacy, environmental perception, and self-regulation. Patrick, Gentry, and Owen (2006) advised matching the challenge level of a task with the abilities of the gifted students so that to make expectancies for success and values for the task. Another motivational theory is extrinsic and intrinsic motivation. Intrinsic motivation refers to having the motivation to learn and being interested, curious, and focusing on the task. Extrinsic motivation refers to the motivation for outcomes of learning rather than the task itself. Most people are motivated by a combination of these two types. (Schunk, Pintrich & Meece, 2008). A longitudinal study with intellectually talented adolescents was made by Csikszentmihalyi, Rathunde, and Whalen (1993) in England. They found that gifted students have more intrinsic motivation for reading, thinking, and solitude than average students. Csikszentmihalyi (1991) had a theory of flow and implements of gifted students' motivation. When students spend their time on easy tasks at school, they are in a state of flow, or to experience any form of intrinsic motivation. In another study, Deci and Ryan (1985) formulated self-determination theory that is humans need to feel competent, control of their own lives, and related to others. Moreover, there are self-concept and self-efficacy theories that arise from the expectancy side of expectancy-value theory. Self-efficacy is people's beliefs, whether they succeed in a task. Students have both self-concept and self-efficacy (McCoach & Siegle, 2003). The other motivational theory is attribution theory. This theory says that individuals examine reasons of achievement outcomes. Attributions for success and failure vary on controllability, a locus, and stability over time (Weiner, 1985). Internal and controllable attributions are more positive attributions

for success. To believe in doing well, liking of the teacher, easiness of the task is less positive attributions for success. While lack of effort and using the wrong strategy are positive attributions for failure, lack of ability and bad luck are negative attributions for failure. Some studies showed that gifted students have more positive attributions than other students do (Clinkerbard, 2012). To conclude, gifted students who are successful have high motivation. To motivate gifted students, some strategies were suggested, such as successive achievements, constituting personal relations, goal setting in order to cope with low motivation (Sak, 2010). Low motivation is a problem of gifted students' education. Thus, motivation for education and homework should be taken into consideration by teachers (Tortop, 2015).

While the education of gifted students is mentioned, learning styles of them should be considered. Griggs (1984) investigated some studies, and he found six different learning styles of children that are persistent, perceptually strong, nonconforming, self-learners, internally controlled, and highly motivated. Gifted students prefer independent studies and generally do not like lectures. While studying, they do not tend to be externally controlled. Instead, students tend to be internally controlled, and they are mindful of their feelings, own needs, and attributes. Moreover, gifted students are persistence with their learning. They do not give up their studies and are highly motivated.

Gifted students also want to be unique for their studies. They are highly creative in terms of thought, attitude, and behavior. On the other hand, Rayneri, Gerber and Wiley (2006) focused on three learning styles, which are auditory, visual, and kinesthetic. It was founded that gifted students tend to be kinesthetic at the 6th to 8th grades. These Georgian students were tended to be active out of the classroom, such as field trips or active workshops. Altun and Yazıcı (2014) explored differences in learning styles between gifted and non-gifted students in Turkey. It was found that gifted students prefer visual and kinesthetic learning styles, while non-gifted students prefer the auditory learning style. Dunn and Price (1980) also studied with 109 students to identify the learning styles of gifted students in the USA. According to their results, gifted students preferred a formal design and did not need structure. Moreover, gifted

students first learn kinesthetically, then they develop visual capability during adulthood, and finally, when they are adolescents, they develop auditory. In a comparative study, Dunn and Price (1980) found that gifted students are less auditory learners than non-gifted students because students hold ideas easily and learn more rapidly than teachers can speak. When learning styles from homework perspective were examined, it was found that there is a relation of learning styles with homework completion. But the results of the studies about this issue were contradictory. Most of them stated that homework effectiveness is related to individual preferences of time, place, and conditions on the process of learning outside of school (Hong, Milgram, & Perkins, 2009).

The use of different strategies to meet the needs of gifted students by teachers is an important research subject. Troxclair (2000) suggested that teachers should implement different strategies for the educational needs of gifted students. To meet the needs of gifted students, there are some educational options such as inclusive practices and co-teaching so that their intellectual capabilities increase, and they get an appropriate education. On the other hand, inclusive schools may have problems for educating gifted students such as their curriculum is not modified, instruction progresses slowly, mastered facts and information are repeated, personal interest topics lack, and thinking skills are not focused (Smith, 2002). People who educate gifted students may take support for available resources, purifying programs, and preparing effective plans (Schroth & Helfer, 2008). Moreover, the preparation of teaching staff may be the indicator of a gifted child. The professional development program of teachers should include issues related to gifted education. Teachers should see themselves as ‘talent spotters’ and be aware of their talents. For an effective classroom setting, teachers should make learning pleasurable and challenging, provide an opportunity to access a high level of achievement, and require students to self-regulate (Eyre, 2013). To be able to teach well to gifted students, teachers should build a good relationship with students. While teachers should have a good relationship with their gifted students, they also should support them in all aspects (Clinkebard, 2012). For providing a good education for gifted students, teachers should first identify their

students. Some characteristics of gifted students are specified to help teachers for identifying gifted children. These characteristics are preference for challenge, independence of idea, creativity, language which has been acquired since childhood, high capacity of verbal knowledge, fast-progressing for understanding complex sentences with abundant vocabulary, and abilities in specific areas not necessarily academic, early physical development such as crawling, sitting, and walking before expected normally, interesting questions, intellectual curiosity, and persistence to achieve the desired information, fast learning with minimal instruction, high concentration when they are interested, high level of energy which can lead to hyperactivity when they are insufficiently stimulated, developed sense of humor, interests in specific areas with a high level of commitment to become experts in these areas, sensitivity to social problems and feelings of other people, high level of abstract reasoning, high level of moral development, and high ability in the area of his / her interest (Piske, Stoltz & Machad, 2014).

Apart from learning styles and instructional strategies for gifted education, working alone or as a group of students is an important research issue for gifted education. Davis and Rimm (1998) stated that gifted students prefer to work alone or with 'true peers' rather than regular students. Dunn and Price (1980) found that preference to work alone increases with age and grade. French and Shore (2009) searched preference for working and found interesting conclusions. The preference might be situational rather than a personality characteristic. There is a simple dichotomy between working alone or with others, and, without considering context, might be an oversimplification or stereotype. Vygotsky's (1978) social constructivist theory predicts that children who do not feel socially and cognitively supported by their environments will prefer to learn alone.

Gifted students' opinions and preferences are also different from their non-gifted peers. While working with gifted students about homework, Coleman (2002) recognized that gifted students categorize homework into five different types, which are busywork, writing, reading, projects, and task term. In his study, he worked with academically gifted students who joined the program in Greenhouse Institute about

homework in China. Students categorized homework based on the subjects. For example, busywork was defined as producing a set of facts, and Math and Science homework fit into this category because students study them in short periods of time and can pass into another easily. Worksheets and problems are examples of busywork. For Humanities reading type of homework is suitable because it takes time and needs to be alone and necessary to think. Writing homework almost fits into all subjects and labs, papers, essays are an example of that homework. For Humanities projects are also suitable because it leads to discussions and speeches and needs to be presented. Finally, task term homework is given for special task courses within a fixed time by teachers. Fisher and Frey (2008) studied with 48 English students to search instructional frameworks in their school. By conducting an interview, they asked students in the interview what type of homework they prefer. Students' responses were like that they prefer familiar homework, allowing them to practice. They also suggested that homework should be limited to vital information and key ideas rather than busywork or classroom instruction due to time limitations.

Most of the studies which search for gifted students' homework behaviors found that gifted students spend more time than less able students. There are some studies searching relationship the between spent time on homework and ability. Spent time on homework and student achievement in seniors was taken from the high school and beyond the database was examined by Keith (1982). He found that gifted students who spend greater time on homework get higher grades related to all three ability levels, which are creativity, task commitment, above average in general abilities. In a succeeding study, Keith and Page (1985) found that gifted students spend more time on homework than less able students with the same database.

Participation in homework is another research area. Johnson (2002) showed that students' participation in homework assignments can be impacted and influenced by social-emotional factors. He studied with 36 gifted American middle school students with emotional support from parents and teachers. Students who did not complete homework got lower grades in the exams and class projects than expected. This problem was due to the social-emotional factors rather than academic weaknesses,

learning, or emotional disabilities. The research emphasized the negative effects of social-emotional factors on achievement and school participation. For the education of students, social-emotional factors should be considered because gifted students develop intelligence, but they are still in the same emotional age. Thus, this situation could be a problem while performing tasks. For example, teachers supporting students' social-emotional factors use positive feedback, encourage students, praise them, and improve students' participation and academic achievement Johnsen (2002). In another study, completion of homework assignments was searched, and the results showed that students both boys and girls as a group showed an increase from pre-intervention to post-intervention with emotional factors (Smith, 2002).

Being different from other studies, Guldemon et al. (2007) compared to time spent on homework with regards to giftedness level of students as highly, moderately, mildly, and above-average intelligent students in Netherlands. Results showed that the mildly students spend more time than highly and moderately students, and above-average intelligent students spend more time than highly and moderately students. In a study by Coleman (2002), it was found that doing homework is a dominant force for gifted students. It was concluded that the time spent on homework depends on the school context. From the gender side, it was found that girls spend more time than boys for homework and girls are more active (Makel et al., 2011). It was seen with 5277 participants of the study that boys spend their time mostly on watching TV, which is a passive activity in the USA.

When homework is considered, there are no studies focusing on the relationship between academic ability and homework for gifted or academically talented students. In his study, Johnsen (2002) focused on the relationship between education for gifted students (Quest) program and students' academic achievement; and homework and class assignment completion. Quest program did not only focus on academic development but also social-emotional development. It was found that social-emotional factors affect students' academic achievement and homework completion.

Samrdzija and Peterson (2015) searched for a different issue about homework. They asked students about their needs while doing homework. The participants of the study

were 23 eight grade American gifted students mostly preferred quietness, music, space to spread out materials, school supplies such as books, internet, and calculator, and help from parents. By quietness, gifted students mean that they do not interfere with interruptions such as someone's yielding or crying, television, cell phones, and rain. The gifted students need a space while doing homework to spread out their materials such as paper, calculator, books. While doing homework, gifted students also want their parents to be available to ask them if they have a question. To do homework, gifted students prefer a bedroom, desk or table, and a coach.

The other search subject is parent involvement for gifted students' homework. Bicknell (2013) made a study with gifted students to explore parents' contribution to students' development in mathematics in New Zealand. Parent involvement in students' math homework completion was categorized into five as motivators, resource providers, monitors, mathematics content advisers, and mathematics learning advisers. When parents are motivators, they encourage and motivate their children. As mathematics content advisors, parents support their children and help to learn. When parents have a resource provider role, they hold a learning environment at home.

2.3 Self-regulation Skills

Self-regulation is important in education because it develops lifelong learning skills (Zimmerman, 2002). Self-regulation is a self-directive process that is transferring mental abilities into the academic skills of learners rather than a mental ability or an academic performance skill. It refers to feelings, behaviors, and self-generated thoughts (Zimmerman, 2000). Self-regulated learners are aware of their strengths and limitations so are proactive learners. These learners manage their behavior about their goals and self-reflect on their increasing effectiveness. This provides them to enhance their motivation to improve their learning methods and their self-satisfaction (Zimmerman, 2002).

The self-regulation learning process includes three phases that are forethought, performance, and self-reflection phase. The forethought phase means processes and beliefs occurring before efforts to learn. Students specify learning strategies and sources of motivation to be able to complete homework successfully while in the forethought

phase. The performance phase includes processes occurring during behavioral implementation. Self-reflection means processes occurring after each learning effort. During the self-reflection phase, learners search their homework efforts and react to the experience by evaluating their feelings of satisfaction and standards for learning. The last two phases are related to self-regulatory learning strategies. Self-regulation involves metacognitive and cognitive knowledge of tasks, epistemological beliefs, learning strategies and learning motivation. Self-regulation also involves setting a goal, acting according to goals, controlling strategies and actions, and adjusting actions to get the achievement (Zimmerman, 2000). Self-regulation skills are conceptualized as a general tendency that students bring into the classroom by researchers. However, some researchers conceive self-regulation as a trait of a person's situation and attending domain-specific self-regulation skills. These two opinions are compatible (Boekaerts & Corno, 2005).

Canter (2019) developed three skills in the e-learning environment based on Zimmerman's self-regulation process as the ability to manage time effectively, the power to request help if needed, and self-evaluation competences. He also identified behaviors for students to develop self-regulated learning which are spending enough time in every week, in each lesson and loading themes on their personal portfolio to develop the ability of managing time effectively, asking questions in the forum, sending emails to the teacher and colleagues to ask for help, participating in discussion to develop the habit of asking for help if needed, doing self-evaluation questionnaires regularly, logging into their own learning activity, and developing and posting revisions of their own work periodically to competence self-evaluation.

In science learning, learning environments are important to ensure self-regulated learning skills for gifted students. They need an environment that provides a range of requirements. In addition to learning environment, internal requirements such as motivation is important (Van Tassel-Baska et al., 2017). Providing learning environments already promotes motivation.

Development of students' self-regulation skills is affected by different variables such as gender, age, education level of parents, and type of living place. The gender

difference in self-regulation skills was in favor of girls (Montry et al., 2016), meaning that girls use more self-regulation strategies than boys. Aggur and Gürşimşek (2019) also found the same finding in their study with pre-school children in Turkey. Moreover, Adıgüzel and Orhan (2017) also studied with Turkish university students who study English, and they found that there is a significant difference in favor of girls on self-regulation strategy use. High levels of self-regulation levels of boys were related to the awareness of their own skills and knowing how to learn. Cadime et al. (2017) studied with 1014 students from primary school and 5th and 6th grade students to measure gender difference and found that girls use more self-regulated strategies to complete homework than boys. This gender difference was explained by differences in cultural settings because the study was conducted with both Portuguese and Chinese students and differences in educational levels assessed. When gifted students' gender difference in self-regulation was observed in science, it was seen that gifted students' self-regulation skills differ in gender in favor of girls (Zimmerman & Martinez-Pons, 1990). In different studies, this finding is confirmed. In their study, Ablard and Lipschultz (1998) studied with 7th grade gifted students and found that girls use more self-regulated strategies than boys. However, Neber and Schommer-Aikins (2002) found no gender difference in the use of self-regulation learning strategies in their study with American high school gifted students. The education level of mothers also affects children' self-regulation skills in learning. Aggur and Gürşimşek (2019) found in their study that children of university graduate mothers use self-regulated learning strategies more than children of all other education level. It is because of having the opportunity to offer information to their children of university graduate mothers.

Based on the grade level, the studies showed that there is a significant difference in students' self-regulation scores in favor of 5th grade students (Ilgaz, 2011). The reason behind this was graduating from primary school and keeping self-regulation skills in there. Moreover; having on teacher and seeing him/her a role model were other reasons for having differences on students' self-regulation scores. By the increase in age, the use of self-regulation skills of students decreases (Ilgaz, 2011). Older students tend to expend less effort, do homework less, engage in self-checking less than younger

students. This finding was provided with a study of Hong et al. (2000) with Chinese students. One of the reasons for this decline was psychological changes taking place around transitional age time. Another reason was that while in primary school students has one teacher and they take their teacher as a role model but in middle school students have more than one teacher with many approaches. Thus, students have a conflict between teachers (Kızıkan, 2017). The other reason was that when students get older, they enter the exam and motivate according to the exam, so their self-regulations skills decrease. Due to of having exams, students adapt into memory-centered approach (Kızıkan, 2017).

Using of self-regulation strategies of students has a positive impact on their academic achievement in different lessons. It is because of they are aware of their own skills, know how to learn, and know to set learning strategies (Adıgüzel & Orhan, 2017). In a different study, Taş (2013) found that use of self-regulation skills for science homework increases students' science achievement.

A positive relationship was found between homework activities and self-regulation skills in the study of Bembenu (2011). Students' motivational beliefs and self-regulatory behaviors affect homework completion significantly (Bembenu, 2009). The development of self-regulation processes such as time management, goal setting, maintaining attention, and controlling the environment are enhanced by the homework. At the college level, assigning homework can improve students' self-efficacy beliefs for learning and enable them to take responsibility for their academic achievement. (Ramdass & Zimmerman, 2011).

Completion of homework was affected by homework management (Xu, 2008). Management of homework was positively associated with monitoring of adults such as helping of the family in homework and getting feedback from the teacher (Pintrich, 2004). On the other hand, homework management was negatively related to time spent on watching TV (Xu, 2010) In another study of Xu and Xu (2012), a positive relationship was found between homework management and affective attitude, learning-oriented reasons, family homework help, self-reported grade, teacher feedback, homework interest, and adult-oriented reasons. This homework management has several

variables such as gender, and family help, and school location. Xu (2007) studied with Chinese 5th and 6th grade students' homework management and he found that girls and those students who take help from their family manage homework more frequently. School location such as urban and rural influenced homework management (Xu, 2009).

Parental education has an important role in students' self-regulated learning levels. Parental involvement in academic situations provides opportunities to instruct students in the use of self-regulatory behaviors (Crosnoe, 2001). For example; parents who graduated from college can help their students to learn self-regulatory behaviors such as managing time, obtaining appropriate study skills and learning how to organize themselves (Gregory & Huang, 2013). College graduated parents can encourage their children self-efficacy also. They help stressful high school and college situations and provide them to realize the importance of having a degree (Orange & Hodges, 2015). It was also found that students from less educated families should receive special attention to develop self-regulation (Tetering, Groot & Jolles, 2018). However; in a study of Xu and Corno (2003) in China, there was no relationship between parents' educational level and students' self-regulation use. Xu and Corno studied with middle school students to search management of homework in five settings: setting an appropriate work environment, controlling the time spent on homework, controlling attention and motivation, and potentially interfering emotions. It was found that family involvement provides to arrange homework environment and to cope with difficulties and disruptions while doing homework for students, but it did not change in terms of parent education.

The type of living places of students and its relationship with the use of self-regulation strategies was searched by Xu (2008). He found that there is a significant relationship between self-regulation and controlling time, arranging the environment, monitoring motivation, coping with distraction, and controlling emotion. His sample was composed of urban and rural middle school students. He found that urban middle school students manage their homework well in compared to rural middle school students. He also found that management homework of students is affected by family help, gender, teacher feedback, and students' attitudes.

In conclusion, both homework and giftedness are important to search because gifted students have special needs for their education so for their homework. The homework preferences of gifted students are familiar homework that means they should know the topic and can practice their learning (Fisher & Frey, 2012). Homework self-regulation use of gifted students is important for effectiveness and completion of homework. Deep learning strategies, management strategies, feedback on homework, goal orientation, procrastination and homework quality are assessed as self-regulation skills for doing homework and are discussed in this study.

CHAPTER 3

METHODOLOGY

The method, design, population and sample of the study, data collection instruments; assumptions and limitations of the study are explained in this chapter.

3.1 Design of the Study

In this study, quantitative research method was used. Quantitative research is used to test theories and measure the relationships between variables or the impact of these variables in various natural and social sciences (Couchman & Dawson, 1995). There are different types of quantitative research which can be classified as experimental, correlational, survey, and causal-comparative research (Sukamolson, 1996). The survey research method was the type of the present study. The survey research method includes three characteristics; information is collected from sample to describe some aspects or characteristics, the main way of the collecting information is asking questions, and information is collected from a sample rather than from population. In the present study, information about gifted students' self-regulation strategy use levels was provided by a survey and from a sample. The main purpose of the survey method is to describe characteristics of a population (Fraenkel, Wallen & Hyun, 2012).

3.2 Population and Sample

The target of the study was gifted students who are educated in special schools which educate only gifted students in Turkey. From this target gifted students who are educated in schools which educate gifted students in Turkey was selected as a sample.

3.2.1 Sampling Procedure of the Study

The target of the study was gifted students who take education from the schools which give education only for gifted children. Such schools were limited in Turkey. Students of a private school which educates in that way in one of the districts of Ankara were sampled. This school was the only school which educates gifted students in middle

levels. The students in the school were selected by the implementation of the Wechsler Intelligence Scale for Children. This test measures five structures that are fluid reasoning, verbal comprehension, working memory, visual spatial, and processing speed (Reynolds & Keith, 2017). Students who take score 110 or over can be selected to the school. An academic test which is prepared by the school on general subjects; Maths, Science, Literature, and Social Studies also was applied to the students for entrance. Moreover, students' talents were assessed as music, drama, or visual arts. There are also Science and Art Education Centers (BİLSEM) in Turkey for gifted students. BİLSEMs give education to such students after school so students of BİLSEMs were not target of the study. Thus, convenient sampling method was used. For the study, all students in the gifted school were selected because middle school students were the target of the study. To explore grade level, from all levels of middle school as 5th, 6th, 7th, and 8th students were selected. A total of 72 students was involved in the study. Among 72 students, 29 of them were the 5th grade (40.3%), 13 of them were the 6th grade (18.1%), 18 of them were the 7th grade (25.0%), and 12 of them were the 8th grade (16.7%). There were 24 girls and 48 boys. The range of the ages was from 9 to 14 years old with a mean of 12.15 (SD=1.25). Table 3.1 presents the distribution of students into the grade level and gender.

Table 3.1 Distribution of students into the grade level and gender

Grade levels	Number of Students (n)	Percentage (%)
5	29	40.3
6	13	18.1
7	18	25.0
8	12	16.7
Gender		
Male	48	66.6
Female	24	33.4
Total	72	100

Moreover, working and educational status of parents, having a room for doing homework and having internet access for studying was obtained from students for the current study as an indication of socioeconomic status. Socioeconomic status (SES) about participants of the study is presented in Table 3.2. Most of the mothers (73.6%) and fathers (86.1%) were employed. Majority of the mothers (65.3%) and fathers (68.1%) were graduated from university. Many of the students (94.4%) had a room to study at their home. Almost all students (98.6%) had internet access at their home.

Table 3.2 SES status of students

Mother working status	Frequency	Percentage
Employed	53	73.6
Unemployed	14	19.4
Not employed regularly	1	1.4
Retired	4	5.6
Father working status		
Employed	62	86.1
Unemployed	1	1.4
Not employed regularly	3	4.2
Retired	6	8.3
Mother education level		
Illiterate	2	2.8
High school	6	8.3
University	47	65.3
Post-Graduate	17	23.6
Father education level		
Middle school	1	1.4
High school	5	6.9
University	49	68.1
Postgraduate	17	23.6

Table 3.2 (Continued)

Having a study room		
Yes	68	94.4
No	4	5.6
Having internet access at home		
Yes	71	98.6
No	1	1.4

About 63.9% of the students use the internet to do science homework. For homework, 29.2% use science textbook and 1.4% use library to do science homework. The rest use other sources (test book, notebook, asking other people who are knowledgeable about the topic of homework). Table 3.3 provides information about sources used by the students to do science homework.

Table 3.3 Distribution of the students according to use of sources for science homework

Sources	Frequency	Percent
Internet	46	63.9
Textbook	21	29.2
Library	1	1.4
Other	4	5.6
Total	72	100.0

More than half of the students spent less than one hour for completing science homework (See Table 3.4).

Table 3.4 Distribution of the students according to the time spent on homework

	Frequency	Percent
Less than 1 hour	41	56.9

Table 3.4 (Continued)

1 hour	15	20.8
2 hours	7	9.7
More than 2 hours	9	12.5
Total	72	100.0

3.3 Data Collection Instruments

In this study, the data were collected through the Student Demographic Information Scale and Student Homework Scale.

3.3.1 The Student Demographic Information Scale

The gifted students' gender, age, class level, working status and education levels of parents, and whether having room to study, internet access at home, and the time spent on science homework in a week assessed in The Student Demographic Information Scale.

3.3.2 The Student Homework Scale

The Student Homework Scale was developed by Taş (2013) to gather information middle school students' self-regulation skills on science homework and it had 56 items with 5 Likert-type ranging from 1 “totally disagree” to 5 “totally agree”. The scale consists of eight subscales and is presented in Table 3.5 with the number of questions they include (See Appendix A). In the present study same scale was used to gather information about gifted students' self-regulation strategy use on homework.

Table 3.5 Subscales and reliabilities of the Student Homework Scale Questionnaire

	# of items	Taş (2013) Cronbach Alpha	Current Study Cronbach Alpha
Mastery goal orientation	6	.88	.93
Performance goal orientation	3	.77	.65
Work-avoidance goal orientation	5	.82	.65
Deep learning strategy use	7	.83	.86

Table 3.5 (Continued)

Management strategy use	9	.80	.60
Homework procrastination	12	.96	.93
Homework quality	7	.85	.90
Feedback on homework	7	.83	.96

One of the subscales is goal orientation, which students set to be successful. The items include students' ideas for doing science homework such that learning new things, the importance of taking admiration of parents, and desire to do science homework better than others. Deep learning strategy is a deep strategy that provides depth processing of knowledge leads to the in-depth processing of knowledge by using metacognitive and cognitive skills while doing the student homework (Taş, Vural & Öztekin, 2016). Students use strategies such as repeating the subjects that are not understood, using different sources while doing homework, asking questions to themselves to check learning. For the management of homework, students use some strategies. For example; students prepare materials needed, try to do homework in a suitable time such as after dinner, before sleeping, and tidy their rooms. Another subscale is about procrastination that is defined as postponing work that must be completed. Procrastination generally affects students' academic life negatively (Schraw et al., 2007). In the scale, there were items like that I postpone doing science homework which is important, or I do not like, I wait until last day to finish homework, and even if I make plans to do science homework, I delay it. Another subscale is homework quality that provides students to engage in real work situations (Bempechat, 2019). The items that include perception of students about the quality of homework were like that: Our science homework is well prepared, science homework helps us to understand subjects, provides us to develop our knowledge and skills, our science teacher explains us the purposes of the homework. Lastly; feedback is included in the scale. Feedback is defined as teachers' reactions to students' homework fulfilment (Cooper, 2001).

3.3.2.1 Reliability of the Subscales in Student Homework Scale

Internal reliability estimation of Student Homework Scale in the original and current study are shown in Table 3.5. Cronbach alpha reliabilities of the subscales ranged from .77 to .96 for the original study and Cronbach alpha reliabilities of the subscales of the current study ranged from .60 to .93. These values are acceptable because 0.60 value of Cronbach alpha is acceptable (Tavakol & Dennick, 2011).

3.5 Data Analysis

The data analysis for the study was conducted via SPSS 22.0 Package program. Before beginning the analysis, data cleaning procedure was applied to check the accuracy of data entry. Moreover; missing values and the assumptions of the test were evaluated. After that descriptive analysis were performed to investigate self-regulation levels of gifted students on science homework. Finally; One Way Analyses of Variance (ANOVA) test was conducted to see whether there is a significant difference of gifted students' homework self-regulation strategy use in terms of grade level, gender and parent education. The assumptions of ANOVA were checked. While dependent variables are self-regulation strategies, which are feedback, procrastination, homework quality, deep learning strategy, management strategy, and goal orientation, independent variables are gender, grade level, and parent education level. In fact, Multiple Analysis of Variance (MANOVA) should be used for this study. MANOVA is used to evaluate differences among centroids for a set of dependent variables when there are two or more independent variables. MANOVA is also used when there are within-subject independent variables (Tabachnick & Fidell, 2007). To run MANOVA, minimum sample in each group must be greater than the number of dependent variables. Due to small sample size, this test could not run

3.6 Assumptions of the Study

- 1- The Student Homework Scale was done under standard conditions.
- 2- The items of the Student Homework were answered sincerely by students.
- 3- Students did not interact with each other during the application of the instrument.
- 4- Characteristics of the sample were the representative of the population.

3.7 Limitations of the Study

- 1- This study was limited to gifted students attending to the only one private school.
- 2- The Science Homework Scale was self-reported, and this may cause to be unrepresentative of opinions and behaviors.

CHAPTER 4

RESULTS

This chapter consists of results of the study data gifted students' homework self-regulation skills use. Firstly, descriptive results are given, and then inferential results are discussed.

4.1 Descriptive Statistics for the Student Homework Scale

At this part, descriptive statistics such as mean, standard deviation, percentage for student homework scale were presented. Descriptive statistics were given about levels of the gifted students on homework quality, feedback, goal orientation, procrastination, deep learning strategies, and management strategies.

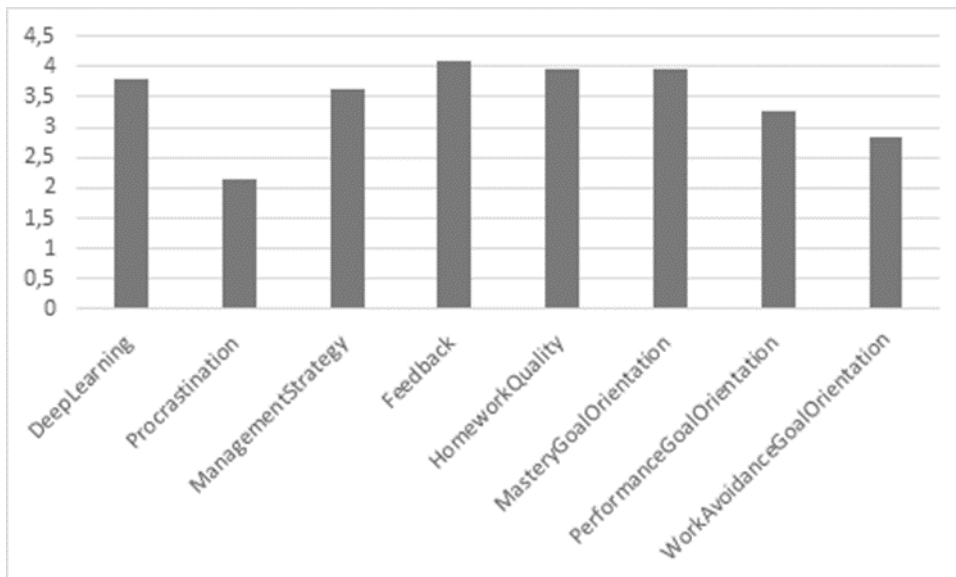


Figure 4.1 Descriptive statistics on students' science homework self-regulation skills

As shown in the Figure 4.1, the highest mean value belongs to feedback ($M=4.09$; $SD=0.88$) which is a tool to show mistakes to students. Homework quality ($M=3.97$;

SD=0.99) that is well prepared homework assignment follows feedback and there comes mastery goal orientation ($M=3.95$; $SD=0.89$) which is an orientation towards developing one's competence by focusing on understanding and skill acquisition, deep learning strategy use ($M=3.79$; $SD=0.81$) that means leading to the depth processing of knowledge by using cognitive and metacognitive skills, management strategy use ($M=3.64$; $SD=0.83$) that means controlling of emotion, motivating time management and environmental regulation when performing homework, performance goal orientation ($M=3.25$; $SD=1.06$) which is gaining a positive external evaluation or to perform better than others, work avoidance goal orientation ($M=2.84$; $SD=0.86$) which purposes to avoid receiving negative external evaluation or being considered incompetent, and homework procrastination ($M=2.13$; $SD=0.94$) that is postponing academic tasks respectively. These findings implied that the gifted students use self-regulation strategies while doing science homework especially feedback with highest mean value.

4.1.1 The Gifted Students' Perceptions of Feedback on Science Homework

The gifted students reported that they get feedback on science homework ($M=4.09$; $SD=0.88$). Students responded that their science homework is evaluated in a short time and provides them to see their mistakes. Students are informed about correct answers and mistakes and have a chance of correcting their mistakes on their science homework. Students also reported that they discuss their science homework at science class. Most of the students approved that their science homework is checked regularly (87.5%) and they are informed about the correct and incorrect parts of their homework (86.2%) (see Table 4.3). On the other hand, some students (22.9%) were undecided for the items "We discuss Science homework in the class" and We are given the opportunity to correct our mistakes in Science homework. Frequency and mean values of the items about feedback are illustrated in Table 4.1.

Table 4.1 Students' science homework self-regulation levels about feedback on science homework

	Disagreement Percentage	Undecided Percentage	Agreement Percentage	Mean
Incorrect parts of our Science homework are reviewed in the class.	9.8	18.1	70.8	4.01
We discuss Science homework in the class.	18.0	22.2	58.3	3.69
We are informed about the correct and incorrect items of our homework.	7.0	5.6	86.2	4.44
We are given the opportunity to correct our mistakes in Science homework.	19.4	22.2	56.9	3.60
Science homework is evaluated in a short time.	13.9	8.3	76.4	4.14
Evaluated Science homework enables us to see our deficiencies in the subject material.	9.7	5.6	83.4	4.24
Science homework is checked regularly.	7.0	4.2	87.5	4.48

4.1.2 The Gifted Students' Perceptions of Homework Quality

The gifted students thought that science homework has high quality. The mean value is 3.98 over 5. Students reported that science homework helps them to understand science topic mentioned in the classroom, to improve their knowledge and abilities, and to understand missing parts of the subject matter. They also reported that science homework is well prepared, varies in difficulty, and makes them think about science topics. The item which had the highest percentage (83.3%) and mean value (4.24) was 'Science homework is well prepared'. The item following this was 'Science homework helps us understand the material covered in the class.' with 80.5 percentage. As far as undecided responses were considered, it was found that the gifted students (20.8%) are unsure about whether their science teacher explains to them purposes of assigning

particular homework or not and this item had the lowest mean value (3.53). A few of the gifted students (20.8%) did not agree to the item: ‘Science teacher explains us purposes of assigning particular homework.’ Table 4.2 presents frequencies and mean values of the items about homework quality.

Table 4.2 The students’ perceptions of homework quality

	Disagreement Percentage	Undecided Percentage	Agreement Percentage	Mean
Science homework helps us develop our knowledge and skills.	11.1	12.5	75.0	4.04
Science homework helps us understand the material covered in the class.	13.9	6.9	80.5	4.20
Science homework makes us think on the material covered in the class.	11.1	8.3	76.4	3.98
Science homework helps us overcome knowledge deficiencies.	1.0	13.9	73.6	4.01
Science homework is well prepared.	3.9	1.4	83.3	4.24
Science teacher explains us purposes of assigning particular homework.	20.8	20.8	55.6	3.53
Science homework varies in difficulty.	16.7	15.3	66.7	3.82

4.1.3 The Gifted Students’ Self-Regulations Levels About Homework Goal Orientation

Components of homework goal orientation were analyzed as mastery goal orientation, performance goal orientation, and work-avoidance goal orientation. The

gifted students were orientated well in terms of mastery goals on science homework ($M=3.95$; $SD= 0.89$). Students try to learn many things as soon as possible while doing science homework. Students do their science homework because it develops their work discipline and sense of responsibility. Most of the students (84.7%) agreed with the item which is ‘While doing my science homework, it is important for me to consolidate my skills which I learned in the class about improving skills.’ (see Table 4.3).

Table 4.3 The students’ science homework self-regulation levels about mastery goal orientation

	Disagreement Percentage	Undecided Percentage	Agreement Percentage	Mean
While doing my Science homework, I want to learn as much as possible.	8.4	15.3	3.6	4.01
I do my Science homework because it helps me develop my sense of responsibility	11.1	18.1	70.8	3.84
While doing my Science homework it is important for me to consolidate the skills I learned in the class.	9.8	5.6	84.7	4.10
It is important for me to learn new things from my Science homework.	8.4	9.7	81.9	4.5
I do my Science homework because it improves my study discipline.	9.7	25.0	68.1	3.76

The gifted students were not orientated well in terms of performance goals on science homework ($M=3.25$; $SD= 1.06$). Students do not give importance to the appreciation of teacher, peer, and parent (see table 4.4).

Table 4.4 The students' science homework self-regulation levels about performance goal orientation

	Disagreement Percentage	Undecided Percentage	Agreement Percentage	Mean
I want to do well my Science homework, because it is important for me to get adults' (teacher, parents, etc.) approval.	19.4	25.0	65.3	3.79
While doing my Science homework, I want to develop my study skills.	12.5	12.5	73.6	3.96
I want my classmates to think that I am doing well on my Science homework.	43.0	18.1	38.8	2.93
I want to do well on my Science homework because it is important for me that others think I am smart.	37.5	23.6	37.5	3.06

The gifted students did not avoid doing science homework ($M=2.84$; $SD= 0.82$). About 62.5% of the students disagreed on doing science homework without much effort and 58.3% of the students disagreed on completing science homework with as little effort as possible. Only a few of the students (18.1%) did not want to do science homework. Table 4.5 shows descriptive statistics about work avoidance goal orientation.

Table 4.5 The students' science homework self-regulation levels about work avoidance goal orientation

	Disagreement Percentage	Undecided Percentage	Agreement Percentage	Mean
I want to do Science homework without much effort.	62.5	19.4	18.0	2.40

I want to complete Science homework with as little effort as possible.	58.4	20.8	20.8	3.06
I wish I did not have to do Science homework.	51.4	29.2	18.1	2.50
I want to do Science homework as easily as possible so that I won't have to study very hard.	25.0	33.3	41.7	3.36
I just want to do what I am supposed to do on my Science homework and get it done.	23.6	18.1	58.3	3.49

4.1.4 The Gifted Students' Homework Self-Regulations Levels About Procrastination

The gifted students did not tend to postpone doing science homework ($M=2.13$; $SD=0.94$). The students devote enough time to complete the homework on time. Students also do not make excuses for not finishing homework. A few of the students (11.1%) postpone starting science homework as they do not like to do. Some students (23.6%) were unsure about postponing doing science homework which they do not like to do (see Table 4.6).

Table 4.6 Students' homework self-regulation levels about procrastination

	Disagreement Percentage	Undecided Percentage	Agreement Percentage	Mean
Even if I make a plan for my Science homework, I don't follow it.	68.1	15.3	16.6	2.12
I keep putting off improving my Science homework habits.	66.7	18.1	15.3	2.12

I don't put time into Science homework	79.2	9.7	11.2	1.84
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Table 4.6 (Continued)

which I find boring.

I don't start my Science homework even though I know its importance.	69.5	13.9	16.6	2.12
--	------	------	------	------

Even though I promise myself I'll do my Science homework, I drag my feet.	66.7	12.5	20.8	2.22
---	------	------	------	------

I don't complete my Science homework in time even when it is important.	77.8	11.1	11.1	1.83
---	------	------	------	------

I postpone starting Science homework which I don't like to do.	58.3	23.6	18.1	2.19
--	------	------	------	------

I needlessly delay doing my Science homework, even when it's important.	62.5	22.2	15.3	2.15
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Even though I hate myself when I can't start in my Science homework, it doesn't get me going.	62.5	20.8	16.6	2.26
---	------	------	------	------

I believe that when Science homework is too difficult, I delay it.	59.8	18.1	22.3	2.26
--	------	------	------	------

When there is a deadline for Science homework submission, I wait till the last minute.	52.8	22.2	23.6	2.45
--	------	------	------	------

I find a pretext for not doing Science	75.0	11.1	13.9	1.94
--	------	------	------	------

homework.

4.1.5 The Gifted Students' Homework Self-Regulation Levels About Deep Learning Strategies

The gifted students reported that they use deep learning strategies frequently ($M=3.79$ $SD= 0.81$). While doing science homework, the students review the material which they did not understand well, get information from different sources, and ask questions to themselves for ensuring whether they are on the right lines or not. Most of the students (84.7%) tried to do their science homework by making connections between the concepts they learned from the lectures and the readings. On the other hand, some students (33.3%) was unsure about the item : ‘When doing my Science homework, I try to think what I am supposed to learn from it.’ (see Table 4.7).

Table 4.7 Students' homework self-regulation levels about deep learning strategies

	Disagreement Percentage	Undecided Percentage	Agreement Percentage	Mean
When reading for my Science homework, I try to relate the material to what I already know.	9.7	11.1	79.2	4.04
I ask myself questions to make sure, if I am on the right track on my Science homework or not.	26.4	23.6	50.0	3.28
When doing my Science homework, I try to think what I am supposed to learn from it.	12.7	33.3	52.8	3.62
When doing my Science homework, I go over the point I don't understand.	13.8	13.9	72.2	3.85

I try to do my Science homework by making connections between them concepts I learned from the lectures and the readings.	5.6	9.7	84.7	4.18
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Table 4.7 (Continued)

When doing my Science homework, I search for information from different sources such as lectures, discussions, and readings.	14.9	6.9	79.2	3.99
I question whether the information is true or not while doing Science homework.	22.2	23.6	54.2	3.54

4.1.6 Gifted Students' Homework Self-Regulation Levels About Management Strategies

The gifted students reported that they use homework management strategies such as preparing materials needed for doing science homework, doing science homework in the most appropriate time, and not considering other things (TV, unrelated materials) while doing science homework ($M=3.64$ $SD= 0.93$). About 73.6 % of the students agreed to the item that is 'Before starting my science homework, I locate the materials which I need for my homework'. 63.9 % of the students try to do their science homework at a time when they can concentrate on it, such as after a meal, before getting sleepy, etc. However, students (27.8%) did not find ways to make science homework interesting. Table 4.8 presents statistics about homework management strategies.

Table 4.8 Students' homework self-regulation levels about management strategies

	Disagreement Percentage	Undecided Percentage	Agreement Percentage	Mean
While doing my Science homework, I fully concentrate	9.7	33.3	55.5	3.76

on it.				
I change my surroundings so that it is easy to concentrate on my homework, such as turning off the TV, removing things from the table, etc.	22.2	19.4	56.9	3.47
Table 4.8 (Continued)				
I don't play around with other things while doing my Science homework.	18.1	34.7	45.9	3.52
I keep up with Science homework.	12.5	25.0	62.5	3.87
I motivate myself by telling myself that I can complete my Science homework successfully.	26.4	25.0	47.2	3.28
Before starting my Science homework, I locate the materials I need for my homework.	12.5	11.1	73.6	4.35
When doing my Science homework, I tell myself to pay attention to the homework.	18.1	26.4	55.6	3.50
I find ways to make Science homework more interesting.	27.8	20.8	50.0	3.29
I try to do my Science homework at a time when I can concentrate on it, such as after a meal, before getting sleepy, etc.	18.1	16.7	63.9	3.72

Briefly, students thought that they get feedback well from their teacher (M=4.09). They thought that their homework which is given in science in high quality (M=3.98),

so it increases their understandings. In term of mastery goal orientation, students were orientated well ($M=3.95$), while they were not orientated well in terms of performance goal orientation ($M=3.25$). The students also were not orientated well in terms of work avoidance goal orientation ($M=2.84$). The students were not inclined to postpone doing science homework ($M=2.13$). The students reviewed the material to understand well, got information from different sources, so they used deep learning strategies frequently ($M=3.79$). Finally, the students used homework management strategies ($M=3.64$). In general, the students' views on science homework were positive.

4.2 Inferential Statistics

To answer research question 2 (Are there any significant differences in homework self-regulation levels of the gifted students with respect to gender, grade level and education level of parents?) One Way Analysis of Variance (ANOVA) was used to answer research question 2. ANOVA is used if mean differences need to be evaluated between two or more treatments or population. It provides to combine different factors within one study, so researchers are flexible to answer scientific questions for their study by a single design. Observations are made in two directions which are within the groups and between the groups because several groups or instruments are studied (Gravetter & Walnau, 2013). In this study, one group was observed within three factors, thus ANOVA test was run.

4.2.1 Assumptions of ANOVA

Assumptions related to ANOVA are stated below.

- 1- The observations are statistically independent.
- 2- The data is randomly sampled from the population of interest and measured at the interval level.
- 3- The populations from which the samples are taken are normally distributed.
- 4- The samples are obtained from populations of equal variances (Pallant, 2007).

To test normality Skewness which is a measure of asymmetry and Kurtosis which is a pawedness of a distribution values were used by testing with SPSS. For normal distribution, these values should be between -2 and +2 (George & Mallery, 2010). It was seen in Tables 4.9 - 4.12 that some variables are not normally distributed in terms

of gender, class level, and parents' education variability. The violation of this assumption does not cause major problems with large sample size of more than 30 (Pallant, 2007). In this study, the sample size is 72 and so ANOVA test could be run.

Table 4.9 Normality for gender

	Gender	Skewness	Kurtosis
Homework Quality	Male	-1.45	1.66
	Female	-1.43	1.28
Feedback	Male	-1.79	4.18
	Female	1.95	4.12
Management Strategy	Male	0.91	3.80
	Female	-0.63	0.45
Deep Learning	Male	-1.07	1.11
	Female	-0.70	0.79
Goal Orientation	Male	-0.35	0.40
	Female	-0.05	0.79
Procrastination	Male	0.63	-0.32
	Female	0.77	-0.16

Skewness values are in between -1.45 and +1.95 and Kurtosis values are in between -0.32 and 4.18 for gender.

Table 4.10 Normality for grade level

Self-regulation Skill	Grade Level	Skewness	Kurtosis
Homework Quality	5	-1.40	1.51
	6	-1.70	2.15
	7	-1.41	0.89
	8	-1.85	3.74
Feedback	5	-1.61	5.68
	6	-2.38	7.00
	7	-1.83	3.25

	8	-1,91	4.42
	5	-0.16	-0.70
	6	-1.74	3.25
Management Strategy	7	0.83	2.67
	8	-1.90	4.35

Table 4.10 (Continued)

	5	-0.30	-0.66
Deep Learning	6	-0.58	-0.16
	7	-1.41	-0.89
	8	-1.85	3.74
	5	-0.07	0.30
Goal Orientation	6	-0.64	0.86
	7	0.31	1.35
	8	-0,22	1.28
	5	1.04	0.87
Procrastination	6	-1.70	2.15
	7	-1.41	0.89
	8	-1.85	3.74

For grade level, Skewness values are in between -2.38 and +1.04 and Kurtosis values are in between -0.70 and 7.00.

Table 4.11 Normality for mother education

	Mother Education	Skewness	Kurtosis
	High school	-0.60	-1.66
	University	-1.64	2.57
Homework Quality	Postgraduate	-1.38	-0.88
	High school	0.61	0.63
Feedback	University	-2.03	5.24
	Postgraduate	-1.43	1.51
	High school	0.65	-1.66
Management	University	-0.24	0.78
Strategy	Postgraduate	0.52	1.70

Deep Learning	High school	-0.12	-0.62
	University	-0.70	0.55
	Postgraduate	-1.02	0.64
Goal Orientation	High school	-0.73	1.83
	University	-0.14	1.04
Table 4.11 (Continued)			
	Postgraduate	-0.08	-0.08
Procrastination	High school	-0.44	-1.34
	University	0.70	-0.15
	Postgraduate	0.58	-0.82

For education level of mothers, Skewness values are in between -2.03 and +0.70 and Kurtosis values are in between -1.66 and 2.57.

Table 4.12 Normality for father education

	Father Education	Skewness	Kurtosis
Homework Quality	High school	-0.75	-1.64
	University	-1.30	1.27
	Postgraduate	-1.72	2.59
Feedback	High school	-1.58	3.31
	University	-1.50	3.91
	Postgraduate	-1.76	2.56
Management Strategy	High school	-1.94	3.82
	University	1.31	4.42
	Postgraduate	-0.74	0.25
Deep Learning	High school	-0.09	-2.55
	University	-0.61	0.25
	Postgraduate	-1.53	2.58

Goal Orientation	High school	-1.58	3.05
	University	-0.02	1.11
	Postgraduate	0.14	-0.91
Procrastination	High school	0.75	-0.52
	University	0.39	-0.86
	Postgraduate	0.50	-1.07

For education level of fathers, Skewness values are in between -1.94 and +1.31 and Kurtosis values are in between -2.55 and 3.82.

To test the homogeneity of variances Levene's test was applied. The test was not significant for all groups of the gender of the students, grade level, and education level of the parents, so it was proved that variability of scores for each of the groups is similar. Table 4.13 represents results of Levene's test.

Table 4.13 Levene's test

	Gender Sig.	Grade Sig.	Mother's education Sig.	Father's education Sig.
Deep Learning	0.12	0.54	0.12	0.53
Procrastination	0.48	0.76	0.31	0.01
Management Strategy	0.82	0.14	0.04	0.80
Feedback	0.64	0.42	0.16	0.10
Homework Quality	0.69	0.79	0.82	0.09
Mastery Goal Orientation	0.08	0.23	0.38	0.44
Performance Goal Orientation	0.43	0.97	0.31	0.04
Work Avoidance Goal Orientation	0.72	0.96	0.30	0.67

4.2.2 Inferential Statistics of ANOVA

ANOVA results of variation between boys and girls on self-regulation use of science homework were shown in Table 4.14. As it is seen in Table 4.14 there is no

significant difference in terms of gender between students' self-regulation use in terms of deep learning strategies, procrastination, management strategies, perception of feedback, performance goal orientation, mastery goal orientation, and work-avoidance goal orientation.

Table 4.14 ANOVA Results for gender

		Sum of Squares	df	Mean Square	F	Sig.
Deep Learning	Between Groups	0.13	1	0.13	0.19	0.66
	Within Groups	46.69	70	0.67		
	Total	46.82	71			
Procrastination	Between Groups	1.06	1	1.06	1.19	0.28
	Within Groups	62.36	70	0.89		
	Total	63.42	71			
Management strategy	Between Groups	0.12	1	0.12	0.18	0.67
	Within Groups	48.62	70	0.69		
	Total	48.75	71			
Homework Quality	Between Groups	0.26	1	0.26	0.26	0.61
	Within Groups	68.53	69	0.99		
	Total	68.79	70			
Feedback	Between Groups	0.08	1	0.08	0.11	0.74
	Within Groups	54.79	69	0.79		
	Total	54.87	70			
Performance Goal Orientation	Between Groups	0.46	1	0.46	0.41	0.52

Work Avoidance Goal Orientation	Within Groups	79.31	70	1.13		
	Total	79.77	71			
	Between Groups	0.04	1	0.04	0.06	0.81
	Within Groups	48.04	70	0.69		
	Total	48.08	71			

Table 4.14 (Continued)

Mastery Goal Orientation	Between Groups	0.29	1	0.29	0.36	0.55
	Within Groups	56.51	70	0.81		
	Total	56.80	71			

When the difference between grades was examined, there was a significant difference between grade levels in terms of performance goal orientation. According to LSD post-hoc test results, the significant difference was between 5th and 7th grade students in terms of performance goal orientation. Table 4.15 presents ANOVA results of variation between the grade levels on views of science homework. However, no significant differences between grades in mastery goal orientation, work-avoidance goal orientation, homework procrastination, using deep learning strategies, views on feedback, using management strategies, views on homework quality were found.

Table 4.15 ANOVA Results for grade level

		Sum of Squares	df	Mean Square	F	Sig.
Management Strategy	Between Groups	4.37	3	1.46	2.23	0.09
	Within Groups	44.38	68	0.65		
	Total	48.75	71			

Deep Learning	Between Groups	1.08	3	0.36	0.54	0.66
	Within Groups	45.74	68	0.67		
	Total	46.82	71			
Procrastination	Between Groups	1.94	3	0.65	0.71	0.54
	Within Groups	61.47	68	0.90		

Table 4.15 (Continued)

	Total	63.42	71			
Feedback	Between Groups	0.45	3	0.15	0.18	1.91
	Within Groups	54.43	67	0.81		
	Total	54.88	70			
Homework Quality	Between Groups	1.89	3	0.63	0.63	0.59
	Within Groups	66.90	67	0.99		
	Total	68.79	70			
Mastery Goal Orientation	Between Groups	4.21	3	1.40	1.81	0.15
	Within Groups	52.59	68	0.77		
	Total	56.80	71			
Performance Goal Orientation	Between Groups	10.01	3	3.34	3.25	0.03
	Within Groups	69.76	68	1.03		
	Total	79.78	71			
Work Avoidance Goal Orientation	Between Groups	1.19	3	0.39	0.57	0.63
	Within Groups	46.89	68	0.69		
	Total	48.08	71			

Regarding educational level of their mother, as it was seen in Table 4.16, there was no significant difference among gifted students' tendency of homework procrastination, perception of homework quality, feedback on homework, work-avoidance goal orientation, performance goal orientation, mastery goal orientation, use of deep learning skills, and use of management strategies.

Table 4.16 ANOVA Results for educational level of the mother

		Sum of Squares	df	Mean Square	F	Sig.
Deep Learning	Between Groups	1.67	3	0.56	0.84	0.48
	Within Groups	45.15	68	0.66		
	Total	46.82	71			
Procrastination	Between Groups	2.73	3	0.91	1.02	0.39
	Within Groups	60.68	68	0.89		
	Total	63.42	71			
Management strategy	Between Groups	2.05	3	0.68	0.99	0.40
	Within Groups	46.70	68	0.69		
	Total	48.75	71			
Feedback	Between Groups	0.31	3	0.10	0.13	0.94
	Within Groups	54.57	67	0.81		
	Total	54.87	70			
Homework Quality	Between Groups	2.36	3	0.79	0.79	0.50
	Within Groups	66.43	67	0.99		
	Total					

	Total	68.79	70			
Mastery Goal Orientation	Between Groups	3.68	3	1.23	1.57	0.20
	Within Groups	53.12	68	0.78		
	Total	56.80	71			
Performance Goal Orientation	Between Groups	0.30	3	0.10	0.09	0.97

Table 4.16 (Continued)

	Within Groups	79.48	68	1.17		
	Total	79.78	71			
Work Avoidance Goal Orientation	Between Groups	3.41	3	1.14	1.73	0.17
	Within Groups	44.67	68	0.66		
	Total	48.08	71			

When the variation of the gifted students' on science homework with regard to educational level of father was examined, it is concluded that there is no significant difference among gifted students' use of deep learning strategies, tendency of homework procrastination, mastery goal orientation, performance goal orientation, work-avoidance goal orientation, perception of homework quality, use of management strategies, and feedback on homework, depending on educational level of their father. Table 4.17 represents the variation among the gifted students' homework views with respect to education level of their parents.

Table 4.17 ANOVA Results for the education level of father

	Sum of Squares	df	Mean Square	F	Sig.
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Deep Learning	Between Groups	1.69	3	0.56	0.85	0.47
	Within Groups	45.13	68	0.66		
	Total	46.82	71			
Procrastination	Between Groups	3.45	3	1.15	1.30	0.28
	Within Groups	59.97	68	0.88		
	Total	63.42	71			

Table 4.17 (Continued)

	Within Groups	47.99	68	0.71		
	Total	48.75	71			
Feedback	Between Groups	4.55	3	1.52	2.02	0.12
	Within Groups	50.33	67	0.75		
	Total	54.88	70			
Homework Quality	Between Groups	3.71	3	1.24	1.27	0.29
	Within Groups	65.08	67	9.71		
	Total	68.79	70			
Mastery Goal Orientation	Between Groups	0.33	3	0.11	0.13	0.94
	Within Groups	56.48	68	0.83		
	Total	56.80	71			
Performance Goal Orientation	Between Groups	2.55	3	0.85	0.75	0.53
	Within Groups	77.23	68	1.14		
	Total	79.78	71			

Work Avoidance Goal Orientation	Between Groups	2.47	3	0.82	1.23	0.30
	Within Groups	45.61	68	0.67		
	Total	48.08	71			

In conclusion, the results showed that the gifted students use self-regulation strategies while doing science homework. They used deep learning and management strategies, perceived feedback as positive, find science homework as high quality, did not have a tendency to procrastinate homework, and had goal orientations while completing homework. When the difference between gender and parent's education in use of self-regulation strategies was examined, it was found that there is no difference. However, the difference was found between grade levels on students' self-regulation use. The difference was between 5th and 7th grade gifted students

CHAPTER 5

DISCUSSION

In this chapter, the results of the study are discussed in the light of related literature and recommendations for future research are given.

5.1 Discussion

The first research question of the study was about homework self-regulation use levels of gifted students. To find the answer of the question descriptive statistics was used. Regarding goal orientation use of gifted students on homework it was found that gifted students do not have a specific performance goal. Students did not give importance to the appreciation of teacher, peer, and parent. The gifted students in the study of Bouffard-Bouchard, Parent, and Larivee (1993) specified that gifted students only try to do their best. Trying to do best for homework was because of gifted students' high level of motivation to complete homework. Thus, having no performance goal means that students try to do their task whatever it is difficult or not. The present study also showed that gifted students use mastery goal orientation strategies and it was seen that gifted students use these strategies while doing homework. Students tried to learn

many things as soon as possible while doing science homework. Students did their science homework because it developed their work discipline and sense of responsibility. When mastery goal orientation of gifted students was examined, the gifted students use a greater number of strategies than that of regular students and their learning goal orientation was positively related with self-regulated learning (Malpass, O'Neil & Hocevar, 2015). Mastery goal orientation was related with learning. When the students wanted to improve their learning, they used mastery goal orientation strategies such as putting effort in learning activities, seeking out challenging situations that promote learning, and persisting to overcome possible setback (Dupeyrat & Marine, 2004). In another study about goal orientation use, Scruggs and Mastropieri (1985) compared gifted and non-gifted students by word memory test. According to their results, the gifted students use more strategies than their regular peers and able to transfer these strategies to new situations. The present study also explored work-avoidance goal orientations of the gifted students. According to results, the gifted students did not avoid doing science homework. Most of the students disagreed on doing science homework without much effort and completing science homework with as little effort as possible. The study of Elliot and Church (1997) showed that work-avoidance goal orientation was related with fear of failure.

One of the self-regulation skills is procrastination and procrastination tendency of gifted students was searched while doing homework in the present study. It was seen that gifted students do not tend to procrastinate to do their homework. They devote enough time to complete homework and do not make any excuses for finishing homework. There is limited study exploring gifted students' procrastination levels. A study of Islak (2011) with gifted and talented college students explored gender difference on procrastination. She found no gender difference between gifted students' procrastination. In the literature, studies with non-gifted students show that students often make excuses for not completing homework in general (Bembenutty, 2011; Olafson, 2007). They engage in other activities and when the last time of homework comes, they do not show effort enough to complete homework. As a result, these students have stress, anxiety, negative rumination (Bembenutty, 2011). Moreover,

procrastination causes academic failure (Rotenstein, Davis & Tatum, 2009). Procrastination is not only poor time management skills, it involves affective, behavioral and cognitive factors (Ferrari et al., 1995; Solomon & Rothblum, 1984). The cognitive factor is locus of control of reinforcement. The locus of control on students' procrastination is not related to the difficulty level of the assignment (Janssen & Corton, 2010).

Feedback for homework which is one of the self-regulation skills was examined in the present study. It was reported by the gifted students in the present study that feedback is given in science homework and their homework is evaluated in a short time and provides them to see their mistakes. They also reported that they are informed about the correct and incorrect parts of their homework. When the effects of feedback were examined, in general, its positive effects on school performance were seen (Cardelle & Corno, 1981; Cole & Todd, 2003). In a study of Cardelle and Corno (1981), feedback as written comments were given to non-gifted students in Spanish class and it was seen that feedback positively affect students' Spanish performance. Specific feedback was given also in the study and it allowed students to focus errors and not be distracted by too much re-examination of work done well. One of the effective schools' characteristics was identified as frequent feedback on homework because feedback builds trustworthiness (Kulhavy & Stuck, 1989). Teachers were aware of the importance of feedback that increases learning (Heller, 1988).

The quality of homework was explored in the present study and the gifted students found their science homework in high quality. They reported that science homework helps them to understand science topic mentioned in the classroom, to improve their knowledge and abilities, and to understand missing parts of the subject matter. They also reported that science homework is well prepared, varies in difficulty, and makes them think about science topics. The impact of homework quality on homework behavior was investigated by Trautwein et al. (2006) with 8th grade students. A positive impact was found at students' efforts to complete homework. In another study of Rosario et al. (2018), it was found that homework quality and homework practice and purposes are related to each other. When students relate homework assignments with

purposes such as the work done in class perceive the homework in high quality. Students think that their homework is chosen well by their teacher, the homework is interesting, related to class material, and useful to understand the material covered in class. When homework is less related to the class content, students perceive it as low quality and make less effort to complete homework (Bembechat, 2019).

Deep learning that is the ability to apply the concept of a context to a new situation and including elaboration and organization strategies was another search topic of the present study (Diamond, Koernig & Iqbal, 2008). The gifted students in the present study reported that they use deep learning strategies while doing science homework such as reviewing the material which they did not understand well, getting information from different sources, and asking questions to themselves for ensuring whether they are on the right lines or not. It was seen in the literature that the use of deep learning strategies increases academic success (Pinritich, 1999; Robins at al., 2004). The study of Stegers-Jager, Cohen-Schotanus and Themmen (2012) with college students showed that if deep learning strategies are combined with good resource management and participation, they increase their academic success. The study of Taş, Sungur and Öztekin (2014) confirms this result. They studied with middle school students to find the relationship between deep-learning strategy use during homework and academic achievement. It was found that students who collect information from different sources like lectures, discussions, and readings related the material for homework to what extent they learn and question trustworthiness of the information they reached increased their academic achievement.

While doing homework students use some strategies such as planning time, providing intrinsic motivation, and managing time (Ramdass & Zimmerman, 2011). In the present study, the gifted students mentioned that they use homework management strategies such as preparing materials needed for doing science homework, doing science homework in the most appropriate time, and not considering other things (e.g., TV, unrelated materials) while doing science homework. The studies showed that homework management strategy is positively predicted by mastery and performance goal orientation while negatively predicted by work-avoidance goal orientation (Taş &

Kurt, 2019). In the study of Xu and Du (2015) with middle school students, it was found that homework management strategy use is also positively related with learning strategies, homework utility value, homework completion, and homework effort.

When gender difference was examined between gifted students, in terms of homework, deep learning strategies, procrastination, management strategies, feedback and goal orientation, there were no significant differences between gifted boys and girls in the present study. It may be due to same effort for education is given to both boys and girls by teachers and parents. However, Hong et al. (2011) found a difference between gifted boys and girls on negligence and attitudes for homework self-regulation. Gifted boys were more tardiness and lack of interest in homework than gifted girls, but their levels of self-regulation were near to each other. This may be due to people's perception of gender equity in education. In a study of Bembenutty (2019), a gender difference was found that is girls have more positive attitudes than boys and have greater effort to complete homework (Bembenutty, 2011). Moreover, as a gender difference, it was found by Makel et al. (2011) that girls join more academic activities such as homework than boys in out of school time. In a similar study of Taş (2013) with non-gifted middle school students in science class, gender difference was found. The study showed that girls were more mastery and performance goal oriented than boys. For work avoidance goal orientation, it was seen that boys espoused to work avoidance goals than girls. This result showed that boys gave little effort as possible to complete homework. Moreover, boys had more tendency to procrastinate homework than girls. Girls' use of deep learning and management strategies was higher than boys. This result explained by a previous research of Patrick et al. (2006) that girls used more learning strategies than boys.

According to results of the present study, it is found that there was is a significant difference between grade levels in terms of performance goal orientation. After post-hoc tests, it was seen that the difference in class level is between 5th and 7th grades. In other variables including, work-avoidance goal orientation, homework procrastination, using deep learning strategies, views on feedback, using management strategies, views on homework quality, no grade level difference was found. Similar result was found in

Karademir and Deveci's (2019) study. Their study was with middle school non-gifted students in Math context. Based on grade level there was not significant difference on self-regulation strategy use. These results were not in accordance with Zimmerman and Martinez-Pons' (1990) study. In their study, Zimmerman and Martinez-Pons conducted study with 90 gifted students from 5th, 8th, and 11th grades and found that self-regulation skills differ at different grade levels. It was also seen that self-regulation skills use increases from 5th to 11th grade. However, in the study of Cleary and Chens (2009), it was seen that self-regulation strategy use of students use decreased by age. They studied with non-gifted middle school students and it was seen that frequency of use of self-regulation strategies decreased while grade level increases. These decreasing were explained by developmental researchers such that students exhibit declines in their self-directedness and intrinsic desire to engage in learning during the early middle school years (Fredericks & Eccles, 2002). Moreover, it was correlated with teachers' support given to students decreases with increasing grade levels (Shields, 2010).

The other search area of the present study was whether there is a difference on gifted students' self-regulation levels in terms of parent education. No significant difference was found based on parent education in the present study. It may be due to having similar education level of parents. Similarly, in a study of Xu and Corno (2011), parent education level was not related to students' self-regulation use. Their study was with non-gifted middle school students on five features of homework self-regulation which are setting an appropriate work environment, managing the time spent, controlling attention, motivation, and potentially interfering emotions. Only parent involvement in homework affected two strategies of self-regulation which are arranging the environment and monitoring and controlling emotion. However, in other studies (Orange & Hodges, 2015; Tetering et al., 2018) it was found that education level of parents affected students' self-regulation levels and had a positive effect on students' self-regulation level especially on goal setting, managing time, and learning how to organize by themselves. The study was conducted with high school students in USA. These skills were gained better when their parents were graduated from college (Orange & Hodges, 2015). This positive effect may be due to the tendency to create a more

intellectually stimulating environment that is a place purged from distractions, managed study materials, ready for help of parents for their children of well-educated parents. The stimulating environment provides development of cognitive development of students and so academic achievement by affecting the complexity of language used, the books read, the availability of playing materials (Ganzach, 2000).

In conclusion, the present study examined the gifted students' homework self-regulation levels. It was found that six self-regulation strategies that are management strategy, deep learning strategy, feedback, procrastination, homework quality, and goal orientation were used by the gifted students while doing science homework. Moreover, the present study explored the difference between grade level, gender, and parent education. There was no significant difference between students in terms of gender and parent education in use of homework self-regulation. However, a difference was found in terms of grade levels.

5.2 Recommendations

The present study has some limitations that should be acknowledged. First, the data were collected through surveys. To get information in detailed, interviews also could be used conducted. Moreover, classroom observation can be beneficial for better understanding of teachers' homework practices, like discussions hold in the class on homework. The data of the present study were collected at one time-point that is cross-sectional. Longitudinal studies can be conducted to explore students' homework self-regulation over time.

The sample size was in this study was limited because there is one school which educates only gifted students. In the succeeding studies, the sample size could be increased to generalize results more accurately.

For future research, it is suggested to study with both middle and high school students to be able to compare. In the literature, studies with high school students are very limited and there are no grade level comparison studies.

5.3 Implications

The present study investigated gifted students' science homework self-regulation such as goal orientations in homework, tendency to procrastinate homework, and usage

of management and deep learning strategies based on gender, grade level and parent education. Students' perceptions of homework quality and feedback provided on homework significantly predicted students' goal orientations in homework, homework procrastination, homework strategy use, and science achievement (Taş, 2013). Thus, the present study has some implications for teachers while giving homework for gifted students. Because teachers have already prepared high qualified homework and give feedback, these implications can be used in teacher education programs for pre-service teachers. When teachers give high quality homework, and feedback after homework, students are more likely to complete homework, structure homework environment, manage time, reduce distractions, and regulate their motivation and emotions during homework, and less likely to postpone their homework. To prepare high qualified homework, teachers can design homework at different difficulty levels. Moreover, homework should lead students to think on science concepts, help students improve understanding of the science material, and contribute to skill development. For feedback, teachers should give feedback regularly evaluate homework in a short time and inform students about their performance on homework.

In the literature, it was seen that use of self-regulation strategies while doing homework has a positive effect on students' academic success. Students who aim to increase their learning, use self-regulation strategies especially mastery goal orientation and show higher performance (Taş, 2013). Thus, teachers can enhance students' use of self-regulation strategies in high levels of mastery goals and low levels of work-avoidance goals, with less procrastination tendency on homework. To provide this, teachers may design a homework which is interesting and relevant for students. They may mention the importance of understanding the material, making effort, persisting on the task, and self-improvement. As a result of these implications teacher education programs should provide education about how to prepare high quality homework, how to provide more effective homework feedback to their students, and how to support their students' homework strategy use.

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APPENDICES

APPENDIX A

STUDENT HOMEWORK SCALE

	Kesinlikle Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılmıyorum
1.Fen Bilimleri ödevlerimi yaparken, yeni şeyler öğrenmek benim için önemlidir.	1	2	3	4	5
2.Fen Bilimleri ödevlerimi yaparken, derste öğrendiğim becerileri pekiştirmek benim için önemlidir.	1	2	3	4	5
3.Fen Bilimleri ödevlerini olabildiğince kolay yoldan yapmak isterim, böylece çok çalışmak zorunda kalmam.	1	2	3	4	5
4.Fen Bilimleri ödevlerimi iyi yapmak isterim çünkü büyüklerimin (öğretmen, anne-baba, vb.) takdirini kazanmak benim için önemlidir.	1	2	3	4	5
5. Fen Bilimleri ödevlerimi yaparken mümkün	1	2	3	4	5

olduğınca çok şey öğrenmek isterim.					
6.Fen Bilimleri dersinde arkadaşlarımla ödevlerimi iyi yaptığımı düşünmelerini isterim.	1	2	3	4	5
7.Fen Bilimleri ödevlerinde sadece benden istenen kadarını yapıp teslim ederim.	1	2	3	4	5
8.Fen Bilimleri ödevlerimi yaparım çünkü ödev yapmak çalışma disiplini geliştirir.	1	2	3	4	5
9.Fen Bilimleri ödevlerini çok çaba göstermeden yapıp kurtulmak isterim.	1	2	3	4	5
10.Fen Bilimleri ödevlerimi yaparım çünkü ödev yapmak sorumluluk duygumu geliştirmeme yardımcı olur.	1	2	3	4	5
11.Fen Bilimleri ödevlerini mümkün olduğunca az çaba göstererek tamamlamak isterim.	1	2	3	4	5
12.Fen Bilimleri ödevlerimi iyi yapmak isterim çünkü çevremdekilerin benim zeki olduğumu düşünmeleri benim için önemlidir.	1	2	3	4	5
13.Fen Bilimleri ödevlerimi yaparken çalışma becerilerimi geliştirmek isterim.	1	2	3	4	5
14.Fen Bilimleri ödevlerini yapmak zorunda olmamayı isterdim.	1	2	3	4	5
15.Fen Bilimleri ödevini yaparken anlamadığım kısımların üzerinden tekrar giderim.	1	2	3	4	5
16.Fen Bilimleri ödevini yaparken, farklı kaynaklardan (derste anlatılanlar, tartışılanlar ve okumalar gibi) edindiğim bilgileri bir araya getiririm.	1	2	3	4	5
17.Fen Bilimleri ödevlerini, ders sırasında öğrendiklerim ve okuduklarım arasında bağlantılar kurarak yapmaya çalışırım.	1	2	3	4	5
18.Fen Bilimleri ödevlerimi yaparken ödevimden ne öğrenmem gerektiğini düşünürüm.	1	2	3	4	5
19.Fen Bilimleri ödeviyle ilgili bir şeyler okurken, o anda okuduklarımla daha önceki bilgilerim arasında bağlantı kurarım.	1	2	3	4	5
20.Fen Bilimleri ödevini yaparken ulaştığım bilgilerin ne kadar güvenilir olduğunu sorgularım.	1	2	3	4	5

APPENDIX B

STUDENT DEMOGRAPHIC INFORMATION SCALE

Aşağıdaki soruları yanıtlarken sizin için uygun olan seçeneği işaretleyiniz.

1.Cinsiyetiniz: ☐ Kadın ☐ Erkek

2.Yaşınız: _____

3.Sınıfınız: ☐ 5 ☐ 6 ☐ 7 ☐ 8

4.Fen Bilimleri ev ödevine bir haftada ayırdığınız zaman:

☐ 1 saat

☐ 2 saat

☐ 3 saat

☐ 3 saatten fazla

5.Evinizde ödevlerinizi yapabileceğiniz uygun bir odanız var mı?

☐ Evet ☐ Hayır

6.Ödevlerinizi yaparken yararlanabileceğiniz internetiniz var mı?

☐ Evet ☐ Hayır

7. Ödevlerinizi yaparken hangi kaynakları kullanıyorsunuz?

☐ İnternet ☐ Fen Bilimleri Dersi Kitabı ☐ Diğer (lütfen yazınız): _____

8. Anneniz çalışıyor mu?

☐ Çalışıyor ☐ Çalışmıyor ☐ Düzenli bir işi yok ☐ Emekli

☐ Diğer (lütfen yazınız): _____

9. Babanız çalışıyor mu?

☐ Çalışıyor ☐ Çalışmıyor ☐ Düzenli bir işi yok ☐ Emekli

☐ Diğer (lütfen yazınız): _____

10. Annenizin Eğitim Durumu

- ☐ Hiç okula gitmemiş
- ☐ İlkokul
- ☐ Ortaokul
- ☐ Lise
- ☐ Üniversite
- ☐ Yüksek lisans (Mastır/Doktora)

11. Babanızın Eğitim Durumu

- ☐ Hiç okula gitmemiş
- ☐ İlkokul
- ☐ Ortaokul
- ☐ Lise
- ☐ Üniversite
- ☐ Yüksek lisans (Mastır/Doktora)

APPENDIX C

TURKISH SUMMARY / TRKE ZET

Giriř

Ev devi yzyıllardan beri tartıřılan bir konudur nk ev devlerinin ğrenme iin gerekli olup olmadıęı henz kanıtlanmamıřtır. Ev devi, sınıf ğrenimini geliřtirir ve ev-okul iliřkisini destekler (Baran, 2019). Ev devi ile ilgili alıřmalar, devin en nemli etkisinin zaman ynetimi ile ilgili olduęunu gsterir. ğrenciler dev yaparken daha ok zaman harcadıęında, bařarıları da artar nk ocuklar daha fazla dev tamamlamıř olur ve daha iyi bir performans sergiler. devin tamamlanmasında, ğrencilerin sorumluluk duygusunu geliřtirmesi aısından zaman ynetimi ok nemlidir. Bunun yanında, ev devlerinin miktarı da ok nemlidir nk doęrudan ğrencilerin isel motivasyonunu etkiler. Eęer ğrenciler dev yapmaya daha ok zaman ayırırlarsa daha ok isel motive olurlar. te yandan dev miktarı ok olursa ğrencilerin okula karřı negatif tutum ve endiřeleri oluřabilir (Estevez, 2018).

Ev devlerinin tamamlanması iin ğrencilerin motivasyon ve z amalar oluřturmaları nemlidir (Pajares, 2002). Motivasyon dev tamamlamayı olumlu ynde etkiler. Beklenti deęer teorisine gre dev motivasyonu deęer ve beklenti olmak zere

iki unsur içerir. Beklenti, kişilerin gelecekteki bir görev ile ilgili nasıl performans gösterecekleri ile ilgili inançları içerir. Değer ise kişilerin aktivitelerde yer almalarının sebeplerinin yansımalarıdır (Eccles & Wigfield, 2002). Motive olabilmek için akademik hedefler belirlemek gerekir (Pinritch, 2004). Öğrencilerin akademik hedefleri; öğrenme, yeterlik ve işten kaçınma olmak üzere üç çeşittir. Çalışmalar motivasyonun öğrenmeyi artırmasının, ödevi etkili yönetme ile ilgili olduğunu gösterir (Siegle & McCoach, 2005; Valle et al., 2016). Öğrencilerin ödevi bakış açısı yalnızca ödev çıktılarını değil aynı zamanda ödev kalitesini de etkilemektedir. Eğer öğrenciler ödevi tamamlamak için derin bir yaklaşım benimserse öğrenciler ödev ile ilgili çalışmalarını önceki bilgileri ile ilişkilendirir ve sınıfta öğrenilen konuları takip ederler. Bu yüzden öğrencilerin öz-düzenleme strateji kullanımı araştırması önemlidir ve sıradaki bölümde bu konu tartışılmaktadır.

Öz-düzenleme öğrencilerin akademik hedeflere ulaşmak için duygu, düşünce, davranış ve çevresini organize ve kontrol ettikleri aktif bir süreçtir (Boekaerts & Corno, 2005). Öz-düzenleme becerisine sahip bir öğrenci olmak için öğrenciler hedef belirler, strateji kullanır, performanslarını kontrol eder ve öğrenme çıktılarını yansıtır. Öz-düzenleme yapabilmek için öğrenciler bilişsel, motivasyonel, üst bilişsel olmak üzere üç çeşit psikolojik işleyişe sahip olmalıdır (Trautwein & Köller, 2003). Öğrenmek için bilgi ve becerileri kazanmak öz-düzenleme stratejileri olarak bilinir. Zimmerman ve Martinez-Pons'a (1988) göre on dört akademik öz-düzenleme stratejisi vardır. Bunlar; öz değerlendirme, organize etme ve aktarma, hedef belirleme ve planlama, bilgi araştırma, kayıt tutma, çevresel yapılanma, öz sonuçlar, hatırlama, öğretmen, yetişkin ve akran yardımı, araştırma, testleri gözden geçirme, notları gözden geçirme ve metinleri gözden geçirmedir.

Öz-düzenleme; davranış, bilişsellik ve çevre ile güdümlü bazı modeller içerir (Puustinen & Pulkkinen, 2001). Öz-düzenleme modelleri; sosyal-bilişsel döngüsel içerikler (Zimmerman 2000), bilgi işleme yaklaşımları (Hadwin & Winne, 2001), ve Boekaert'in (1992) uyarlanabilir öğrenme modellerini içerir. Tüm modellerin yapıcı varsayım, kontrol varsayımı için potansiyel, hedef kriteri ya da standart varsayım gibi ortak temel varsayımı vardır. Yapıcı varsayım öğrencilerin aktif olduğunu ve kendi

öğrenmelerini gerçekleştirdiklerini benimser. Öğrencilerin aktif olması bilgiyi doğrudan öğretmen, ebeveyn veya diğerlerinden almaması kendi öğrenmelerini oluşturmaları demektir. Kontrol potansiyeli varsayımı öğrencilerin kendi biliş, motivasyon, davranış ve bazı çevresel özelliklerini düzenleme potansiyelidir. Hedef kriteri ya da standart varsayım öğrencilerin öğrenmelerini artırmak için hedef ve standartlar koyabileceğini, bu hedeflere yönelik öğrenme sürecini yönetebileceğini ve kendi biliş, motivasyon ve davranışlarını kontrol edebileceğini benimser (Miller, Galanter, & Pribram, 1960). Bir diğer varsayım ise öz-düzenleme aktiviteleridir; öğrencilerin yalnızca kültürel, demografik, ya da kişilik karakterleri değil sınıf düzenlemesi de öğrenmelerini etkiler (Pinritch, 2000). Bu çalışma öz-düzenleme aktiviteleri ve hedef kriteri varsayımı ile yürütülmüştür.

Öğrencilerin öz-düzenleme stratejisi kullanmaları cinsiyet arasında farklılık gösterir. Martin'in (2004) çalışmasında; okul çalışması planlama, etkili ders çalışma kontrolü ve zorluklara başa çıkma gibi öz-düzenleme stratejilerinin kızlarda daha fazla kullanıldığı gözlemlenmiştir. Bu çalışma üstün yetenekli olmayan Avusturyalı lise öğrencileri ile yapılmıştır. Kız öğrencilerde kaygı seviyesinin de daha yüksek olduğu gözlemlenmiştir. Bu farklılıklar kız ve erkek öğrencilerdeki motivasyon seviyeleri ile ilişkilendirilmiştir. Xu ve Wu' nun (2013) çalışmasında, ödevde öz-düzenleme strateji kullanımının kızlarda erkeklerden daha yüksek olduğu bulunmuştur. Xu ve Wu, üstün yetenekli olmayan ortaokul Çinli öğrenciler ile ödevle ilgili tüm konularda çalışmışlardır. Kız ve erkek öğrenciler arasındaki farklılık, kız öğrencilerin sosyal uyum için daha özgüvenli, becerikli ve iddialı olmaları ile ilişkilendirilmiştir. Ayrıca Zimmerman ve Martinez-Pons'un (1990) çalışmasında matematik dersinde İtalyan, üstün yetenekli, ortaokul ve lise öğrencilerinin sınıf ve ev durumları, sınıf dışında yazma ödevlerini tamamlarken testleri hazırlarken ve yaparken ve az motive olduklarında kullandıkları öz-düzenleme stratejileri araştırıldı. Çalışmada kız öğrencilerin daha fazla hedef planladıkları ve kullandıklarına rastlandı. Bunun nedeni kız öğrencilerin erkek öğrencilerden sözel yeterlilikte daha düşük olması ile ilişkilendirildi. Çalışmadan çıkarılan sonuç, kız öğrencilerin erkek öğrencilerden daha fazla öz-düzenleme stratejisi kullandıkları fakat erkeklerden daha az yeterli olduklarıdır.

Xu and Corno (2006) Amerikalı öğrencilerin ödev yönetimlerini beş doğrultuda incelediler. Bu doğrultular; çevreyi düzenleme, zamanı yönetme, dikkatini verme, motivasyon yönetimi ve duygu kontrolüdür. Bu doğrultularda, kız öğrencilerin daha fazla uygun zamanda çalışma, ödev esnasında öz motivasyon geliştirme, duyguları yönetme gibi ödev yönetimi stratejileri kullandıkları görülmüştür. Bu bulgu Harris ve diğerleri tarafından da desteklenmiştir. Harris ve diğerleri üstün yetenekli olmayan lise öğrencileri ile çalışmışlar ve röportaj ile öğrencilerden bilgi toplamışlardır. Çalışmanın sonucunda kız öğrencilerin erkek öğrencilere göre daha fazla ödev yönetimi stratejisi kullandıkları bulunmuştur. Erkek öğrenciler ödevi son dakikada yaptıklarını çünkü öz disiplin ile ilgili sorunları olduğunu vurgulamıştır. Ayrıca bu farklılığın sebebi çalışmanın yürütüldüğü İngiltere’deki eğitim sistemindeki eşitsizlik olarak bulunmuştur. Öğretmenler öz disiplini olan kız öğrencileri daha fazla desteklemektedir.

Sınıf düzeyleri incelendiğinde öz-düzenlemede farklılıklar olduğu görülmüştür. Cleary ve Chen (2019) üstün yetenekli olmayan 6 ve 7. sınıf öğrencileri ile çalışmıştır. Çalışma İngiltere’de matematik alanında öz-düzenleme stratejilerini araştırmaktadır. Çalışmada matematik dersinin seçilmesinin nedeni, bu dersin içeriğinin karmaşık olması ve miktar olarak çeşitli olmasıdır. 7. sınıf öğrencilerinin 6. sınıf öğrencilerine göre daha az öz-düzenleme stratejisi kullandığı görülmüştür. Bunun sebebi gelişim araştırmacıları tarafından yaş arttıkça öğrencilerin öz yönelimlerinin ve öğrenme için içsel isteklerinin azalması olarak yorumlanmıştır. Türkiye’de Karademir ve Deveci (2019) tarafından yapılan benzer bir çalışmada bu bulgu desteklenmiştir.

Cinsiyet ve sınıf düzeyine ek olarak ebeveynlerin eğitim düzeyi de öz-düzenleme strateji kullanımını etkilemektedir. Genel olarak yüksek eğitim seviyesine sahip ailelerin çocukları düşük eğitim düzeyindeki ailelerin çocuklarına göre daha fazla öz-düzenleme stratejisi kullanır (McClelland et al., 2000).

Üstün yetenekli dendiğinde akla pek çok tanım gelir. Üstün yetenekli öğrenciler yüksek düşünsel, sanatsal ve liderlik yeteneğine sahiptir (Philips, 2019). Ulusal Çocuk Birliği’ne göre üstün yetenekli olmak bir ya da birkaç alanda yüksek düzeyde yetenek ve beceriye sahip olmaktır. Bu alanlar; matematik, fen, müzik, dil, spor, dans, çizim gibi herhangi bir etkinlik alanı olabilir. Farklı bir teoriye göre üstün yeteneklilik özel ilgi

alanı ve genel ilgi alanı olmak üzere iki teoriden oluşur (Schindler & Rott, 2017): Genel ilgi teorisine göre üstün yeteneklilik zekâ ile ilgilidir ve IQ seviyesi 130 ve üzeri olan kişiler ya da yaşıtlarına göre zekâ seviyesinde % 2'ye giren kişiler üstün yeteneklidir. Öte yandan özel ilgi teorisine göre bireyler farklı alanlarda uzmanlaşarak farklılık gösterirler (Sternberg, 2001). Bu teoriler arasında bağlantılar, farklılıklar ve benzerlikler nadiren araştırılmaktadır (Kaufman, & Sternberg, 2011). Bazı araştırmacılar özel ilgi teorisin genel ilgi teorisin altında incelenmesi gerektiğini düşünürken bazı araştırmacılar buna katılmaz. Renzulli'ye (1986) göre üstün yeteneklilik insan özelliklerinde üç kümeye sahiptir. Bunlar; yaratıcılık, genel yeteneklerde ortalamanın üzerinde olma ve görev bağlılığıdır. Bu üç küme arasında bir etkileşim vardır. Öğrencilerin eğitimsel özelliklerine bakıldığında mükemmeliyetçilik, çok başarılı olma, yüksek zekaya sahip olma gibi bazı basmakalıp özellikler bulunmuştur. Bu doğru olsa bile her durumda geçerli değildir. Öğretmenler, öğrencelerin özellik ve davranışlarının farkında olmalıdır. Neihart ve Betts'e (2004) göre altı çeşit üstün yetenekli öğrenci profili vardır. Bunlar; başarılı olma, güvenli ve zorlayıcı etkinlikler seçme, yaratıcı olma, depresif veya agresif olma gibi risk altında olma, kendine güvenen ve hırslı olma ve baskı hissederek ve zorlukları reddederek kötü hisseden olmadır.

Üstün yetenekli öğrencilerin akranlarından farklı olması ve öğrenme stillerinin farklı olmasından dolayı müfredatın düzenlenmesi gerekmektedir. Müfredat, üstün yetenekli öğrencilerin ihtiyaçlarını karşılamak için özelleştirilmelidir. Özelleştirilmiş programlar, öğrencilere özel deneyim yaşamaları için olanak sağlar. Ayrıca üstün yetenekli öğrenciler hızlandırılmış müfredata ihtiyaç duyarlar çünkü bu öğrencilerin bilişsel gelişimleri hızlıdır. Eğer üstün yetenekli öğrencilere hızlandırılmış müfredat uygulanmazsa öğrenciler sıkılır ve gerçek öğrenme sağlayamazlar (Rogers, 2007).

Okul içeriklerinden farklı olarak okul dışı etkinlikler de akademik başarı için önemlidir. Makel ve diğerleri (2011) okul dışı yapılan etkinlikleri araştırdılar. Bu aktiviteler ev ödevi, akademik kulüpler gibi akademik ilişkili ve TV izleme, atletizm, sanat, kelime kulüpleri gibi akademik ilişkili olmayan olmak üzere iki çeşittir. Üstün yetenekli öğrenciler genellikle akademik ilişkili etkinliklerle zaman harcarlar. Aynı

çalışmada, cinsiyet farklılığı da araştırılmış olup sonuçlara göre kız öğrencilerin erkek öğrencilere göre daha fazla akademik ilişkili etkinliklere katıldığı görülmüştür.

Bu çalışmanın amacı, üstün yetenekli öğrencilerin derin öğrenme ve yönetim stratejileri, erteleme eğilimi, hedef oryantasyonu, geri bildirim gibi öz-düzenleme yeteneklerini araştırmaktır.

Bu çalışmadaki araştırma soruları aşağıdaki gibidir.

1-Üstün yetenekli öğrencilerin ev ödevi öz-düzenleme düzeyleri nedir?

a-Üstün yetenekli öğrencilerin, ev ödevlerinde derin öğrenme stratejileri kullanım düzeyi nedir?

b-Üstün yetenekli öğrencilerin, ev ödevlerinde yönetim stratejisi kullanım düzeyi nedir?

c-Üstün yetenekli öğrencilerin, ev ödevlerinde hedef oryantasyonu stratejileri kullanım düzeyi nedir?

d-Üstün yetenekli öğrencilerin, ev ödevlerinde erteleme eğilim düzeyi nedir?

e-Üstün yetenekli öğrencilerin, ev ödevlerinde geri bildirim kullanım düzeyi nedir?

f-Üstün yetenekli öğrencilerin, ev ödevlerinde ödev kalitesi algısı nedir?

2-Üstün yetenekli öğrenciler arasında öz-düzenleme düzeylerinde cinsiyet, sınıf düzeyi ve ebeveyn eğitim seviyesine göre farklılıklar var mıdır?

Bu araştırma sorularına göre aşağıdaki hipotez kurulmuştur.

Üstün yetenekli öğrenciler arasında öz-düzenleme düzeylerinde cinsiyet, sınıf düzeyi ve ebeveyn eğitim seviyesine göre farklılıklar yoktur.

Üstün yetenekli öğrencilerin eğitimi tek bir strateji ile sınırlı değildir (Sternberg, Grigorenko & Jarvin, 2011). Müfredatın ve çevrenin revize edilmesi gereklidir. Müfredatı revize etmek için konular sınıf atlama, iki yılı bir yıla sıkıştırma gibi yöntemler kullanılabilir. Müfredatı revize etmenin dışında ev ödevleri de yeniden düzenlenmelidir.

Türkiye’de üstün yetenekli öğrencilerin eğitimdeki ihtiyaçlarını karşılamak için yapılması gereken çok şey vardır. İlk olarak, nitelikli kamu eğitim politikası geliştirmek gerekir. Bunun dışında öğrencilerin tanımlanması önemlidir çünkü adil

yapılmamaktadır. Sosyoekonomik düzeyi düşük olan öğrenciler tanımlanma şansı daha az bulurlar. Bu durum öğrenmedeki eşitsizliklerden kaynaklanmaktadır (Crabtree et al., 2019). Bir diğer problem ise Millî Eğitim Bakanlığı pek çok karar almış olup, sınıf için stratejik bir planlama henüz oluşturmamıştır. Bu konuda çalışmalar vardır fakat bu çalışmaların gerçek yaşama uygulaması yapılmamaktadır. Sonuç olarak teorik tanımlar ve gerçek yaşamdaki yansımaları arasındaki tutarsızlığın giderilmesi gerekmektedir. Aynı problem ev ödevi çalışmaları için de geçerlidir yani ev ödevi çalışmaları ve gerçek yaşamda uygulanması arasında tutarsızlıklar vardır (Güçyeter et al., 2017).

Üstün yetenekli eğitiminde eğitim aktiviteleri, kişisel özellikler, rehberlik, eğitim programları, tanımlama gibi konularda çalışmalar varken bu alandaki bilimsel çalışmalar ve politika hakkında çok az çalışma vardır (Sak et al., 2015). Üstün yetenekli eğitiminde Türkiye'deki çalışmalar da sınırlıdır.

Literatürde üstün yetenekli ve üstün yetenekli olmayan öğrenciler öz-düzenleme kullanımı açısından karşılaştırıldı. Üstün yetenekli öğrencilerin üstün yetenekli olmayan öğrencilerden daha fazla öz-düzenleme stratejisi kullandığı bulunmuştur. Üstün yetenekli öğrenciler bağımsızdır ve bireysel çalışmaya daha yatkındır. Bu öğrenciler çalışmalarının öğretmen tarafından daha az kontrol edilmesini tercih ederler sonuç olarak öz izleme eğilimindedirler. Bu şekilde öğrenciler kendi çalışmalarını kontrol ederler ve görev ve hatalarının farkındadırlar (Risemberg & Zimmerman, 1992). Öte yandan bazı üstün yetenekli öğrenciler uygun bir hedef koymada başarısız olur veya etkili olmayan bir strateji kullanırlar (Pressley et al., 1987). Bu çalışmalar gibi üstün yeteneklilerin öz-düzenleme kullanımı ile ilgili pek çok çalışma öz-düzenleme ile ilgili genel bir bakış açısı sunar. Üstün yetenekli öğrencilerin ödev esnasında öz-düzenleme stratejisi kullanımı ile ilgili az çalışma vardır (Malpass, O'Neil & Hocevar, 2010). Bu çalışma, üstün yetenekli ortaokul öğrencilerinin fen ödevinde öz-düzenleme stratejisi kullanımı hakkında bilgi almayı hedeflemektedir ve literatür için önemlidir. Çalışma sonuçları fen bilimleri dersi öğretmenlerinin üstün yetenekli öğrencilere nitelikli ödev hazırlamalarında ve etkili geri bildirim vermelerinde önemli ipuçları verecektir.

Literatür Taraması

Alan yazında ev ödevleri ve öğrencinin başarısı arasındaki ilişkiyi araştıran pek çok çalışma bulunmaktadır. Örneğin Fan ve diğerleri (2016), 1986 ve 2015 yılları arasında yapılan bu çalışmaların bir sentezini yaparak matematik ve fen alanlarında ev ödevi ve başarı arasındaki ilişkiyi araştırmıştır. Asya ve Amerika’da yapılan 2328 çalışmayı araştırarak ev ödevi ve başarı arasında pozitif bir ilişki bulmuşlardır. Benzer olarak Cooper ve diğerleri (2006) 1987 ve 2003 yılları arasında Amerika’da yapılan çalışmaları araştırarak ev ödevi ve başarı arasındaki ilişkiyi araştıran 50 çalışma bulmuşlardır. Meta analizi ile öğrenci başarısı ve ödev tamamlama için geçen süre arasında anlamlı bir ilişki buldular.

Akademik başarının yanında ev ödevinin ayrıca öğrenciler üzerinde öz-düzenleme gibi akademik olmayan etkileri de vardır. Öz-düzenleme, bilginin üst bilişsel ve bilişsel yönlerini, öğrenme stillerini, epistemolojik inançları ve öğrenme için motivasyonu içerir. Öz-düzenleme ayrıca hedef belirlemeyi, hedeflere göre davranmayı, strateji ve planları kontrol etmeyi ve başarmak için faaliyetleri belirlemeyi içerir (Zimmerman, 2000). Bir çalışmada Taş (2013), fen ödevinde öz-düzenleme becerilerinin öğrencinin fen başarısını arttırdığını bulmuştur.

Üstün yetenekli öğrencileri eğitmek için motivasyon dikkate alınmalıdır. Öğrenciler zorluklarla baş etmek için yeni stratejiler, başkalarından yardım alma ve öğretmenleri tarafından sabır görmeye ihtiyaç duyarlar (Dweck, 2012). Üstün yetenekli öğrencilerin motivasyonu için pek çok teori vardır. Motivasyon teorileri genellikle bilişsel perspektif ve beklenti değer çerçevesinden ortaya çıkar. Üstün yetenekli öğrenciler genellikle ödevlerde iyi performans sergiler ve değerleri verilen ödevlere bağlıdır. Siegle ve McCoach (2005) beklenti değer teorisi ile ilişkili bir model geliştirmişlerdir. Bu modelin dört bileşeni vardır; hedef değeri, öz yeterlik, çevresel algı ve öz-düzenlemedir. Patrick, Gentry ve Owen (2006) üstün yetenekli öğrencilerin başarı beklentisi oluşturmaları ve görevlere değer vermesi için belli düzeydeki zorluklarla başa çıkmaları gerektiğini tavsiye etmişlerdir.

Üstün yetenekli öğrencilerin fikir ve tercihleri üstün yetenekli olmayan akranlarından farklıdır. Coleman (2002) ödev hakkında üstün yetenekli öğrencilerle çalışırken öğrencilerin ödevi beş farklı şekilde kategorize ettiğini fark etmiştir. Bu

kategoriler; yazma, okuma, proje, dönem ödevi ve angaryadır. Fisher ve Frey (2012) 48 İngiliz öğrenci ile okuldaki eğitim sistemi ile ilgili çalışma yapmışlardır. Röportaj yaparak, öğrencilere hangi ödev türünü tercih ettiklerini sormuşlardır. Öğrenciler, uygulama yapmalarına olanak sağlayan tanıdık ödevleri tercih ettiklerini belirtmişlerdir. Öğrenciler ayrıca ödevlerin gereksiz olmamasını, sadece önemli bilgileri içermesini tavsiye etmişlerdir.

Ödev dikkate alındığında, akademik başarı ve ev ödevi arasındaki ilişkiyi araştıran çalışmalar az olduğu fark edilmiştir. Johnsen (2002) öğrencilerin akademik başarıları ve Üstün yetenekli öğrencilerin eğitimi (Quest programı) ile ev ödevi ve ödev tamamlama arasındaki ilişkiyi araştırmıştır. Quest programı yalnızca akademik gelişmeyi değil sosyal-duygusal gelişime de odaklanmıştır. Bu çalışmada sosyal-duygusal faktörlerin öğrencinin akademik başarısını ve ödev tamamlamasını etkilediği görülmüştür.

Öğrencilerin ödev tamamlamasında öz-düzenleme stratejisi kullanımı da önemlidir. Öz-düzenleme becerilerinin gelişimi cinsiyet, yaş, ebeveyn eğitim düzeyi, yaşanılan yer gibi pek çok faktörden etkilenir. Öz-düzenleme becerilerinde cinsiyet farkı genellikle kız öğrencilerde daha fazla olduğu yönündedir (Montry et al., 2016). Aggur ve Gürşimşek (2019) benzer bulguyu Türkiye’de anaokulu öğrencileri ile yapmış oldukları çalışmada bulmuşlardır. Ayrıca Adıgüzel ve Orhan (2017) Türkiye’de İngilizce bölümündeki üniversite öğrencileri ile benzer çalışma yapmış olup kız öğrencilerin daha fazla öz-düzenleme stratejisi kullandığını bulmuşlardır. Bunun sebebi kız öğrencilerin kendi yeteneklerinin daha fazla farkında olması olarak değerlendirilmiştir. Sınıf düzeyine bakıldığında öğrencilerin öz-düzenleme stratejisi kullanımının 5. sınıf öğrencilerde daha fazla olduğu görülmüştür (Ilgaz, 2011). Bunun sebebi 5. sınıf öğrencilerinin ilkokuldan yeni mezun olup öz-düzenleme yeteneklerini ilkokuldan getirdiği olarak düşünülmüştür. Yaş arttıkça öğrencilerdeki öz-düzenleme becerileri azalmaktadır (Ilgaz, 2011). Yaşça daha büyük öğrenciler daha az emek harcar, daha az ödev yaparlar. Bu bulgu Hong ve diğerlerinin (2000) Çinli öğrenciler ile yaptığı çalışmada desteklenmiştir. Yaş arttıkça öz-düzenleme becerilerinin azalmasının bir başka sebebi ise yaş ilerledikçe gerçekleşen psikolojik değişikliklerdir (Kızılkapan, 2017).

Öz-düzenleme becerileri ve ödev aktiviteleri arasında pozitif bir ilişki olduğu gözlemlenmiştir (Bembenutty, 2011). Ödev tamamlama öğrencilerin öz-düzenleme davranışlarını ve motivasyon inançlarını etkilemektedir (Bembenutty, 2009). Ev ödevi; hedef koyma, zaman yönetimi, çevre ve dikkat yönetimi gibi öz-düzenleme süreçlerini destekler. Üniversite düzeyinde ödev vermenin öğrenme için öz yeterliği geliştirdiği ve akademik başarı için öğrencilerin sorumluluk geliştirdiği bulunmuştur (Ramdass & Zimmerman, 2011). Ebeveyn eğitim düzeyi de öz-düzenleme becerilerini etkileyen önemli bir faktördür. Ailelerin akademik sürece katılımı, öğrencilerin öz-düzenleme davranışı geliştirmesini sağlar (Crosnoe, 2001). Üniversite mezunu olan ebeveynlerin çocuklarına zaman yönetimi, uygun çalışma şekli bulma gibi öz-düzenleme davranışı geliştirmelerine yardımcı olabilirler (Gregory & Huang, 2013).

Sonuç olarak hem ev ödevi hem üstün yetenekli öğrencileri araştırmak için önemli konulardır çünkü üstün yetenekli öğrencilerin eğitimde aynı zamanda ev ödevinde özel gereksinimleri vardır. Ödevin etkili tamamlanması için ev ödevinde öz-düzenleme stratejisi kullanımı önemlidir.

Yöntem

Bu çalışmada nicel araştırma yöntemi kullanılmıştır. Nicel çalışma teorileri test etme, değişken ve bu değişkenleri etkileyen arasındaki ilişkiyi ölçmeye odaklanır (Couchman & Dawson, 1995). Nicel çalışmaların deney, anket, korelasyon gibi pek çok çeşidi vardır Sukamolson, 1996). Bu çalışmada anket yöntemi kullanılmıştır.

Popülasyon ve Örneklem

Çalışmanın popülasyonu, Türkiye’deki üstün yetenekliler okulunda eğitim gören üstün yetenekli öğrencilerdir. Bu popülasyondan seçilen örneklem ise Ankara’da üstün yetenekli öğrencilere eğitim veren özel bir okulun 72 ortaokul öğrencisidir.

Veri Toplama Araçları

Bu çalışmada öğrencilerin cinsiyet, yaş, sınıf düzeyi, ebeveynlerin çalışma durumu ve eğitim seviyesi gibi demografik bilgileri içeren bir anket ve öğrencilerin ödevde öz-düzenleme stratejisi kullanım seviyesini ölçen bir anket kullanılmıştır. Öğrenci Ödev Anketi Taş (2013) tarafından geliştirilmiş olup 5’li Likert tipinde 56 maddesi bulunmaktadır. Bu anketin; yeterlik hedef oryantasyonu, performans hedef

oryantasyonu, ödevden kaçınma oryantasyonu, derin öğrenme stratejileri, yönetim stratejileri, ödev erteleme, ödev kalitesi ve ödev geri bildirimi olmak üzere sekiz alt boyutu vardır. Anketin Cronbach güvenirliği .60 ve .93 değerleri arasındadır. Bu değerler .60'tan yüksek olduğu için kabul edilebilir değerlerdir (Tavakol & Dennick, 2011).

Data Analizi

Bu çalışmadaki veriler SPSS 2.0 programı ile analiz edilmiştir. Analiz yapılmadan önce, eksik değerler ve testin varsayımları değerlendirilmiştir. Daha sonra öğrencilerin öz-düzenleme stratejisi kullanım seviyelerini ölçmek için betimsel analiz yapıldı. Son olarak, öğrencilerin öz-düzenleme stratejisi kullanımında cinsiyet, sınıf düzeyi, ebeveyn eğitim durumuna göre farklı olup olmadığını bulmak için Tek Yönlü Varyans analizi yapılmıştır.

Sonuçlar ve Tartışma

Öğrencilerin ödevde öz-düzenleme stratejisi kullanımında geri bildirimin ortalama değerinin en yüksek olduğu görülmüştür. İyi hazırlanan ödev anlamına gelen ödev kalitesinin ortalama değeri ve yeterlik hedef oryantasyonu ortalama değeri geri bildirimden sonra gelmektedir. Daha sonra derin öğrenme strateji kullanımı ortalama değeri, yönetim becerileri kullanımı ortalama değeri, performans hedef oryantasyonu ortalama değeri, ödevden kaçınma hedef oryantasyonu ortalama değeri, ödevi erteleme eğilimi değeri gelmektedir. Bu bulgulara göre öğrenciler ödev yaparken öz-düzenleme stratejilerini kullanmaktadır.

Öğrencilerin cinsiyet, sınıf düzeyi ve ebeveyn eğitim düzeyine göre, ödevde öz-düzenleme stratejisi kullanım düzeylerinin farklı olup olmadığını bulabilmek için Tek Yönlü Varyans Analizi yapılmıştır. Cinsiyet göz önüne alındığında kız ve erkek öğrenciler arasında öz-düzenleme stratejisi kullanmada farklılık olmadığı gözlemlenmiştir. Ebeveyn eğitim düzeyine bakıldığında da farklı eğitim düzeyindeki ebeveynlerin çocuklarının, öz-düzenleme stratejisi kullanım düzeylerinin farklı olmadığı görülmüştür. Sınıf düzeyinde ise 5 ve 7. sınıf öğrencileri arasında performans hedef oryantasyonu düzeyinde anlamlı bir farklılık bulunmuştur.

Çalışmadaki birinci araştırma sorusu üstün yetenekli öğrencilerin ödevde öz-düzenleme kullanım düzeylerin ne olduğudur. Bu sorunun cevabı için betimsel analiz yapılmıştır. Öğrencilerin performans hedef oryantasyonuna bakıldığında belirli bir performans hedefleri olmadığı gözlemlenmiştir. Öğrenciler öğretmen, akran ve ebeveynlerinin kendilerini takdir etmesini önemsememektedir. Bouffard-Bouchard, Parent ve Larivee (1993), çalışmasında üstün yetenekli öğrencilerin yapabileceklerinin en iyisini yapmaya çalıştığını vurgulamıştır. Öğrenciler en iyisini yapmaya çalışır çünkü ödevi tamamlamak için yüksek motivasyonları vardır. Üstün yetenekli öğrencilerin yeterlik hedef oryantasyonu incelendiğinde bu çalışmadaki öğrencilerin yeterlik hedef oryantasyonu stratejilerini kullandığı görülmüştür. Performans hedef oryantasyonu hedef ile ilişkilidir. Öğrenciler öğrenmelerini artırmak istediğinde bu oryantasyona yönelik stratejiler kullanır. Bu stratejilere öğrenme etkinliklerinde çaba sarf etmek, öğrenme sırasındaki zorlayıcı durumlar ile başa çıkmak, muhtemel zorluklarla baş etmeye direnmek örnek olarak verilebilir (Dupeyrat & Marine, 2004). Ödevden kaçınma oryantasyonuna bakıldığında üstün yetenekli öğrencilerin ödev yapmaktan kaçınmadıkları görülmüştür. Ödev yapmayı erteleme eğilimi incelendiğinde çalışmadaki üstün yetenekli öğrencilerin ödev yapmayı erteleme eğilimlerinin olmadığı görülmüştür. Öğrenciler ödevi tamamlamak için yeterli zaman ayırmakta ve ödevi bitirmemek için bahane bulmamaktadırlar. Alan yazına bakıldığında ödev yapmayı ertelemenin akademik başarısızlığa neden olduğu görülmüştür (Rotenstein, Davis & Tatum, 2009). Çalışmada ödevde geri bildirim araştırılmış olup öğrenciler fen ödevinde geri bildirim aldıklarını ve ödevlerinin kısa süre içinde değerlendirildiğini vurgulamışlardır. Geri bildirimin etkisine bakıldığında genellikle okul performansına olumlu etkisi olduğu görülmüştür (Cardelle & Corno, 1981; Cole & Todd, 2003). Ödev kalitesi incelendiğinde çalışmadaki üstün yetenekli öğrenciler fen ödevlerini kaliteli olarak değerlendirmiştir. Bu öğrenciler fen ödevinin konuları anlamalarına yardımcı olduğunu, bilgi ve yeteneklerinin arttığını, konudaki anlamadıkları yerleri anlamalarını sağladığını belirtmişlerdir. Ödev kalitesinin ödev davranışı üzerindeki etkisi Trautwein ve diğerleri (2006) tarafından araştırılmıştır. Çalışma 8. sınıf öğrencileri ile yürütülmüş olup, sonucunda ödev kalitesinin öğrencilerin ödev tamamlama çabası üzerinde etkisi

olduğu görülmüştür. Çalışmadaki üstün yetenekli öğrencilerin ödev yaparken derin öğrenme stratejilerini de kullandıkları görülmüştür. Öğrenciler anlamadıkları konuları tekrar ederek farklı kaynaklardan bilgi alarak, doğru yapıp yapmadıklarını kendilerine sorarak, derin öğrenme stratejileri kullanırlar. Literatürde derin öğrenme strateji kullanımının akademik başarıyı arttırdığı görülmüştür (Pinritch, 1999; Robins at al., 2004). Ödev yaparken öğrenciler aynı zamanda zamanı planlamak, içsel motivasyonu arttırmak, zamanı yönetmek gibi farklı yönetim stratejileri kullanırlar (Ramdass & Zimmerman, 2011). Bu çalışmadaki üstün yetenekli öğrenciler ödev yapmadan önce gerekli malzemeleri hazırlayarak, ödevi en uygun zamanda yaparak, ödevle alakasız şeyleri dikkate almayarak yönetim stratejileri kullanmışlardır. Çalışmalar yönetim stratejilerinin yeterlik ve performans oryantasyonunu olumlu yönde etkilediğini göstermiştir (Taş & Kurt, 2019).

Çalışmadaki bir diğer araştırma sorusu cinsiyet farkının öğrencilerin öz-düzenleme strateji kullanım düzeyini etkileyip etkilememesidir. Kız ve erkek öğrenciler arasında öz-düzenleme stratejisi kullanımında bir farklılık gözlemlenmemiştir. Bunun sebebi ebeveyn ve öğretmenleri tarafından eğitimde hem kız hem erkek öğrencilere eşit çaba sarf edilmesi olabilir. Fakat Hong ve diğerlerinin (2019) çalışmasında üstün yetenekli kız ve erkek öğrenciler arasında bir fark bulunmuş olup üstün yetenekli erkek öğrencilerin daha ödev yapmada daha isteksiz olduğu görülmüştür. Sınıf düzeyine bakıldığında ise 5 ve 7. Sınıf öğrencileri arasında performans hedef oryantasyonunda bir fark olduğu bulunmuştur. Çalışmadaki diğer değişkenlerde böyle bir fark bulunmamıştır. Benzer bir çalışmada Karademir ve Deveci (2019) üstün yetenekli olmayan ortaokul öğrencileri ile matematik dersinde öz-düzenleme stratejisi kullanımında sınıf düzeyine farkını araştırmışlardır ve bir farklılık bulmamışlardır. Fakat Zimmerman ve Martinez-Pons (1990) 5, 8 ve 11. sınıf üstün zekâlı öğrenciler ile yaptıkları çalışmada farklı sınıf düzeylerinde farklılık gözlemişlerdir. Öz-düzenleme stratejisi kullanımının 5’den 11. sınıfa doğru arttığı gözlemlenmiştir. Benzer bir çalışmada ise Cleary ve Chen (2019) öz-düzenleme stratejisinin kullanımının yaş ile azaldığını ortaya koymuşlardır. Bu düşüşün sebebi gelişim araştırmacıları tarafından öğrenme için içsel motivasyonun yaş arttıkça azalması olarak yorumlanmıştır (Fredericks & Eccles,

2002). Son olarak alıřmada ebeveyn eđitim seviyesinin z-dzenleme stratejisi kullanım dzeyi zerine etkisi arařtırılmıř olup bu alanda da farklılık gzlemlenmemiřtir. Bunun sebebi alıřmadaki ebeveynlerin eđitim dzeyinin birbirine yakın olması olabilir. Benzer bir alıřmada Xu ve Corno (2011) ebeveyn eđitim seviyesinin z-dzenleme stratejisi kullanımını etkilemediđini ortaya koymuřtur.

Bu alanda gelecekte yapılacak olan alıřmalarda nicel verilerin yanısıra nitel verilerin de toplanmasında fayda vardır. Bylece đrencilerin z-dzenleme strateji kullanımları daha iyi gzlemlenmiř olur ve daha derin bilgi elde edilir. Bu alıřmadaki rneklem sayısı sınırlı olduđu iin ileriki alıřmalarda daha byk bir rneklem kullanılabilir. Son olarak ileriki alıřmalarda lise đrencileri ile de arařtırma yapılabilir. Bylece lise ve ortaokul đrencileri arasında z-dzenleme stratejisi kullanımında kıyaslama yapılabilir.

APPENDIX D

TEZ İZİN FORMU / THESIS PERMISSION FORM

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Bölümü / Department : İlköğretim Fen ve Matematik Alanları Eğitimi / Elementary Science and Math Education

TEZİN ADI / TITLE OF THE THESIS (İngilizce / English) : ÜSTÜN YETENEKLİ ÖĞRENCİLERİN FEN BİLİMLERİ EV ÖDEVİ ÖZ-DÜZENLEME BECERİLERİNİN ARAŞTIRILMASI / EXPLORING GIFTED STUDENTS' SCIENCE HOMEWORK SELF-REGULATION LEVELS

TEZİN TÜRÜ / DEGREE: Yüksek Lisans / Master

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APPENDIX E

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Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Prof.Dr. Jale ÇAKIROĞLU;

Danışmanlığını yaptığınız yüksek lisans öğrencisi Nurdan BERBER'in "Üstün Zekalı Ortaokul Öğrencilerinin Fen Bilimleri Ev Ödevleri ile İlgili Görüşleri" başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay **2016-EGT-145** protokol numarası ile **24.10.2016-30.03.2017** tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımızla sunarız.

Prof. Dr. Canan SÜMER

İnsan Araştırmaları Etik Kurulu Başkanı

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İAEK Üyesi

Prof. Dr. Ayhan Gürbüz DEMİR

İAEK Üyesi

Yrd. Doç. Dr. Emre SELÇUK

İAEK Üyesi

APPENDIX F

PERMISSION FOR QUESTIONNAIRE



T.C.
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EĞİTİM FAKÜLTESİ DEKANLIĞINA

Ankara Valiliği Milli Eğitim Müdürlüğü'nden alınan, İlköğretim Anabilim Dalı İlköğretim Fen ve Matematik Eğitimi Programı Yüksek Lisans Programı öğrencisi Nurdan Berber'e ait yazı ilgisi nedeni ile ilişikte sunulmuştur.

Bilgilerinize arz ederim.

Saygılarımla.

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