Macrothink Institute™

Journal of Educational Issues
ISSN 2377-2263
2022, Vol. 8, No. 2

The Relation Between Preschoolers' Cognitive Distraction Strategies and Problem Behaviors: Social Skills as a Mediator and Delay of Gratification as a Moderator

Cansu Tutkun (Corresponding author)

Department of Preschool Education, Bayburt University, Bayburt, Turkey

Tel: 90-458-333-2033 E-mail: ctutkun06@bayburt.edu.tr

Received: September 26, 2022 Accepted: October 31, 2022
Published: November 15, 2022

doi:10.5296/jei.v8i2.20316 URL: https://doi.org/10.5296/jei.v8i2.20316

Abstract

This study aims to investigate the relation between preschoolers' social skills as a mediator and delay of gratification as a moderator, and their cognitive distraction strategies and problem behaviors. The participants of this study were 100 randomly selected preschoolers aged 3 to 5 years, who were attending a private preschool in Ankara, the capital of Turkey. Data was obtained through Marshmallow Test to evaluate cognitive distraction strategies with regard to delay of gratification, and the Social Skills Improvement System Rating Scales (SSIR-RS) to assess the preschoolers' social skills and problem behaviors. The obtained data was analyzed with correlation analysis and mediator variable analysis. The findings revealed that preschoolers' cognitive distraction strategies, social skills, and problem behaviors are significantly correlated. Besides, as problem behaviors of the preschoolers increased, their use of social skills and cognitive distraction strategies decreased. Furthermore, it was determined that cognitive distraction strategies were a significant predictor of problem behaviors. Finally, it was concluded that social skills had a mediating role in the relationship between preschoolers' cognitive distraction strategies and their problem behaviors. These findings highlight possible interventions to boost children's development by enhancing their social skills and cognitive distraction strategies, as well as reducing problem behaviors.

Keywords: Cognitive distraction strategies, Social skills, Problem behaviors, Preschoolers

1. Introduction

The early years of childhood are filled with many significant milestones. One of them is the

social skills which are crucial in the pre-school period enabling children to communicate positively, collaborate, and express their feelings and thoughts to others in an appropriate way. Such skills also play an important role in the accomplishments of young children both in and out of school (Frey et al., 2011). However, behavioral problems such as aggression, introversion, bullying, hyperactivity/attention deficit, and internalizing disorders influence children negatively (Adetunji et al., 2022). In this sense, exploring children's anger and the mechanisms by which children successfully or unsuccessfully regulate their responses enables the identification of behavioral patterns that reflect potential behavior problems (Blair et al., 2004). The ability to delay gratification is also an important factor for children's success. The longer children can delay their gratification in early years, the more successful they will be in later life (Ayduk et al., 2000; Casey et al., 2011; Mischel, 2016). Cognitive distraction strategies are essential for children to delay gratification. The cognitive strategies that children use in this process help them delay gratification longer (Sethi et al., 2000). Hence, children's ability to distract their attention while waiting for a reward is a useful cognitive strategy. In this regard, understanding different delaying mechanisms and cognitive distraction strategies that children who successfully delay gratification employ are crucial to explaining the foundations of their social skills, adaptation problems, and problem behaviors. Therefore, it is important to determine the premises of preschoolers' delay of gratification and social skills in order to inform the design of the interventions to reduce problem behaviors, along with facilitating children's positive development.

Prior research explored the connections between problem behaviors and delay of gratification (Montroy et al., 2014; Wulfert et al., 2002). Results revealed that problem behaviors frequently result from a lack of social skills (Mandal-Blasio et al., 2009), and impulsive children usually tend to make quick decisions that may cause conflict with others, which eventually leads to problem behaviors (Dempsey & Matson, 2009). Failure to develop these skills, in particular, may cause children to experience both short-term (negative peer interactions) and long-term (inclination to commit a crime, school inadaptation or academic dismissal, mental health problems in adulthood) complications throughout their lives (Dempsey & Matson, 2009; Floether, 2006; Foster & Ritchey, 1979). Taken altogether, social skills may act as a process mechanism that predicts children's problem behaviors. Besides, studying the role of social skills in shaping cognitive distraction strategies and problem behaviors is particularly important in the cultural context of Turkey. This is mainly because 60.6% of preschoolers in Turkey are observed to exhibit at least one or more problem behaviors (Taner-Derman & Başal, 2013), and nearly half of the problem behaviors that emerge in childhood may prevail in adolescence or adulthood. These problem behaviors may even become permanent later in life (Işık, 2021; Taner-Derman & Başal, 2013).

During preschool education, the most crucial role in transforming undesirable behaviors into terminal behaviors belongs to the teacher, the executor of the program (Gangal & Öztürk, 2019; Öngören-Özdemir & Tepeli, 2016). However, within the context of Turkey, it is observed that teachers are inadequate in dealing with problem behaviors. For instance, research has shown that 87.2% of teachers do not have adequate knowledge about problem behaviors and 85.2% of them have difficulty preventing problem behaviors as they lack the

necessary skills (Kandır, 2000). Besides, it has been concluded that preschool teachers do not have content knowledge about problem behaviors or skills in understanding children's behaviors (Kılıç et al., 2021). This study may benefit preschools in Turkey to reduce problem behaviors and provide insights into helping children acquire appropriate skills based on their social skills. It may also be beneficial for children, teachers, parents, and society in general.

1.1 Cognitive Distraction Strategies and Problem Behaviors of Children in the Preschool Period

Cognitive distraction strategies can be defined as goal-oriented self-distraction strategies that children employ to reduce the deterrent effect of delay and relieve stress while waiting for delayed but larger rewards, instead of choosing the instant but smaller ones (Metcalfe & Mischel, 1999; Mischel, 2016; Ravindran et al., 2021; Rodriguez et al., 1989; Sethi et al., 2000). Cognitive distraction strategies can be evaluated by the paradigm of delaying gratification (Lamm et al., 2017; Rodriguez et al., 1989; Sethi et al., 2000; Steelandt et al., 2012). These strategies help to "cool down" the challenging "hot" tasks of delaying gratification and are cognitively managed (Metcalfe & Mischel, 1999; Mischel, 2016; Ravindran et al., 2021; Rodriguez et al., 1989; Sethi et al., 2000).

The human brain has two systems in close interaction, one is "hot" which is the emotional, reflexive, and unconscious aspect while the other one is "cold" referring to a cognitive, reflective, slower, and effortful system (Mischel, 2016). The "hot" system is recognized as emotional (Casey et al., 2011), and the "cold" system as cognitive (Metcalfe & Mischel, 1999). People use "hot" (particularly behaviors such as looking at, touching, and playing with the reward) and "cold" (avoiding the reward, looking at something other than the reward) distracting strategies to delay gratification (Rodriguez et al., 1989). The interaction mechanism between these two systems is the underlying reason for how children deal with candies, and it determines whether their willpower will be effective (Mischel, 2016). Therefore, the children's distraction strategies significantly determine the effective delay in this paradigm (*e.g.*, Lamm et al., 2017; Rodriguez et al., 1989; Steelandt et al., 2012). The experimental results of the previous studies on delay of gratification involving preschoolers revealed that if children are given distracting strategies to reduce the inhibition created by delay, they may wait longer. For example, when children were asked to think about the "cold" aspects of a reward (such as its shape) instead of thinking about its "hot" properties (such as its taste), they waited longer to receive the reward (Mischel, 2016; Rodriguez et al., 1989; Sethi et al., 2000). Besides, the cognitive functions underlying cognitive control (*i.e.*, executive function), effective distraction, self-monitoring, and planning, along with attention strategies are strongly associated with children's impulsiveness (Schlam et al., 2013; Shoda et al., 1990). However, the relation between cognitive distraction strategies and problem behaviors has not been studied much. Ongoing efforts need to be made to determine the extent to which children's cognitive distraction strategies reduce problem behaviors. In fulfillment of this need, the current study examines the relationship between cognitive distraction strategies and problem behaviors.

1.2 Social Skills as a Potential Mediator

Social skills are learned behaviors that support children's positive reactions in their interactions with other people and help them avoid socially unacceptable behaviors. These skills are comprised of socially acceptable behaviors such as sharing, responsibility, cooperation, initiating communication, asking other children for help when necessary, and apologizing or thanking (Elliott & Busse, 1991; Gresham & Elliott, 1990, 2008; McClelland & Morrison, 2003). Additionally, they foster children's academic success and reduce problem behaviors (Lane, 1999; Lane et al., 2004). Inability to employ these is commonly defined as social skills deficit (Hupp et al., 2009). They are also associated with problem behaviors and developmental deficits (Jewell et al., 2009). Hence, in the current study, the social skills of preschoolers were assumed to negatively correlate with problem behaviors.

Children's social skills play a crucial role in avoiding or preventing negative behaviors displayed by their peers (Elliott et al., 2001). Likewise, cognitive distraction strategies help them control their immediate impulses (to reach a higher-valued reward) and keep them busy. In this way, they are more likely to avoid negative behaviors by using cognitive distraction strategies (*e.g.*, talking to themselves, singing, playing with their hands or feet), rather than giving immediate impulsive responses (Mischel, 1974). Moreover, it is noted that self-control skills play a crucial role as children resort to these strategies (Kidd et al., 2013; Metcalfe & Mischel, 1999). According to research, self-control is an important component of social skills (Gresham et al., 2011; Tutkun & Dinçer, 2019). Children who employ cognitive distraction strategies with high self-control are less likely to exhibit problem behaviors, which enable them to perform high-level social skills. Therefore, in this study, the social skills of preschoolers were assumed to be a mediator between cognitive distraction strategies and their problem behaviors.

1.3 Delay of Gratification as a Potential Moderator

The way children use cognitive distraction strategies, and their problem behaviors vary depending on their ability to delay gratification. Delay of gratification, in general, depends on cognitive control, which helps individuals to suppress their responses to irrelevant information as they fulfill tasks towards the desired goal (Eigsti et al., 2006; Schlam et al., 2013). The ability to resist temptation in favor of long-term goals is an essential component of individual, societal, and economical success (Casey et al., 2011). Recent research has confirmed the importance and predictive validity of preschoolers' ability to delay gratification in later stages of life (Casey et al., 2011; Sethi et al., 2000). Research into delay of gratification and cognitive distraction strategies has pointed out that the duration of the delay depends on whether children can distract their attention and use cognitive distraction (cooling down) strategies to detach themselves from the "hot" qualities of the stimulus (Metcalfe & Mischel, 1999). For example, when children were instructed to think about the "hot" aspects of a reward (*e.g.*, its taste), they delayed less; conversely, when they were asked to think of "cold" aspects of a reward (*e.g.*, its shape), they delayed longer. Therefore, it was concluded that the cognitive distraction strategies used by children have a significant impact on their ability to delay gratification (Rodriguez et al., 1989). Additionally, it was found that the

duration of the delay correlated with their cognitive distraction strategies. Thus, waiting periods were associated with cognitive distraction strategies (Yates et al., 1981). Although a body of research has shown that there is a significant relationship between the delay of gratification and cognitive distraction strategies, there is not much research comparing the statistical discrepancies between them and the problem behaviors.

Delay of gratification and problem behaviors are interrelated concepts. For example, one study reported that students who were less able to delay gratification had higher substance (cigarettes, alcohol, and marijuana) addiction, a weaker sense of self, and lower academic performance (Wulfert et al., 2002). Hence, it is sensible to expect that the delay of gratification may have different impacts on cognitive distraction strategies and problem behaviors. This study examines whether the relations between cognitive distraction strategies and problem behaviors vary depending on preschoolers' delay of gratification skills.

1.4 Culture Factor in the Relationship Between Delay of Gratification Cognitive Distraction Strategies, Social Skills, and Problem Behaviors

With regards to cultural and social context, Bandura, within the framework of social-cognitive learning theory conveys that learning occurs in a social context, as a result of the interaction between personal, behavioral, and environmental dynamics (Bandura, 1977, 1989, 1994, 2001). Children's social skills, problem behaviors, delay of gratification skills, and cognitive distraction strategies used in the process are affected by environmental and cultural factors. An increasing amount of research into the topic suggests that cultural context is likely to yield different results (Bembenutty, 2007; Chua & Kang, 2012; Demir et al., 2012; Dinh et al., 2013; Lamm et al., 2017; Sheikhzakaryaie et al., 2012; Wang et al., 2021). Therefore, within the framework of social-cognitive learning, social skills, problem behaviors, delay of gratification skills and cognitive distraction strategies of children from diverse cultures need to be examined.

Social-cognitive learning theory has been regarded as a fulcrum for the areas including socialness, communication, and aggressiveness. Cultural norms and values, as well as the exhibition of such behaviors as socialness, cooperation, adjustment, aggressiveness, and resistance, determine the function and quality of children's social relationships. Culturally led social interaction processes serve as a crucial mediator for the cultural influence on children's social behaviors, relationships, and developmental patterns (Chen & French, 2008). According to Bronfenbrenner's (1986) ecological theory, the social and cultural environment in which children were born has a crucial impact on their behaviors. For instance, both Korean and Cameroonian Nso preschoolers (Lamm et al., 2017) perform better in the delay of gratification than their Malaysian and German peers respectively (Chua & Kang, 2012). However, even though a number of studies were carried out on social skills and problem behaviors in diverse social and cultural settings (*e.g.*, Chen & French, 2008; Demir et al., 2012; Dinh et al., 2013; Sheikhzakaryaie et al., 2012), a limited amount of research examined the delay of gratification and cognitive distraction strategies in non-western contexts (*e.g.*, Chua & Kang, 2012; Lamm et al., 2017). Considering the critical role played by the delay of gratification skills and cognitive distraction strategies in the development of preschool

children and that these skills are affected by cultural factors, it is important to understand, from such a different cultural perspective as Turkey's, the different mechanisms deployed by preschoolers who successfully delay gratification, and to identify the various cognitive distraction strategies they use.

1.5 Current Study

The literature explores the relation between preschoolers' social skills and problem behaviors separately. However, no prior study was documented to test these variables with cognitive distraction strategies. The aim of the current study is to determine the mediating effect of social skills on the relation between preschoolers' cognitive distraction strategies, social skills, and problem behaviors. In a view of this, firstly, whether cognitive distraction strategies, social skills, and problem behaviors are interrelated was tested. Next, the effect of cognitive distraction strategies on problem behaviors was analyzed. Focusing on cognitive distraction strategies reflects an independent self-concept, which attempts to acquire individual control by mentally and behaviorally manipulating the wait condition (Lamm et al., 2017). It is thought that problem behaviors are likely to be minimized if children can control themselves by employing cognitive distraction strategies because in preventing problem behaviors such as aggressiveness, bullying, hyperactivity/attention deficiency (for instance, prior to aggressive behavior like hitting a friend of pushing), these strategies mean controlling anger as it arises and stopping the aggressive behavior (for example, considering the consequences and focusing on another thing). Metcalfe and Mischel (1999) propose a two-system framework to understand the processes activating or weakening self-control and "willpower" in the delay of gratification paradigm. While the cool system is cognitive, emotionally neutral, contemplative, flexible, integrated, consistent, spatiotemporal, slow, episodic, and strategic, which is interrelated to cognitive distraction strategies, the hot system is the basis for emotions, fears, and passions, controlled by impulsive stimuli. It also diminishes self-control. Lamm et al. (2017) associate a successful delay of gratification with mental and behavioral distraction strategies that help to cool the positive impact related to the expected reward. Although the activation of the hot-system triggers the intuitive behavior control that weakens the delay of gratification, it facilitates analytical thinking and self-control by inhibiting positive emotionality. Consequently, cognitive distraction strategies aligned with the cool system are more likely to minimize problem behaviors.

In the current study, the mediating role of preschoolers' social skills was tested while determining the effects of cognitive distraction strategies on their problem behaviors (Figure 1). No study has been reported to analyze the mediating role of social skills in studying the relation between cognitive distraction strategies and problem behaviors. Social skills refer to the ability to organize children's cognition and behaviors into culturally acceptable social and interpersonal goals. The concept also encompasses constant review and modification of social behaviors so that they could be attained easily (Ladd & Mize, 1983). Thus, the theoretical model was formed considering the conviction that as preschoolers' problem behaviors increase, their cognitive distraction strategies and social skills are negatively affected. It is thought that problem behaviors increase when children focus on the hot system, triggering an impulsive response. Hot-system is considerably under the "stimulant control" and

characterized by automatic triggering, conditioned responding, stereotyping, and emotional priority. In contrast, focusing on the cool system enhances cognitive distraction strategies and minimizes problem behaviors by preventing impulsive and instant responses (Ayduk et al., 2000; Lamm et al., 2017; Metcalfe & Mischel, 1999; Mischel & Ayduk, 2002; Rodriguez et al., 1989; Zelazo et al., 2008). It is also assumed that social skills play a mediating role in the process.

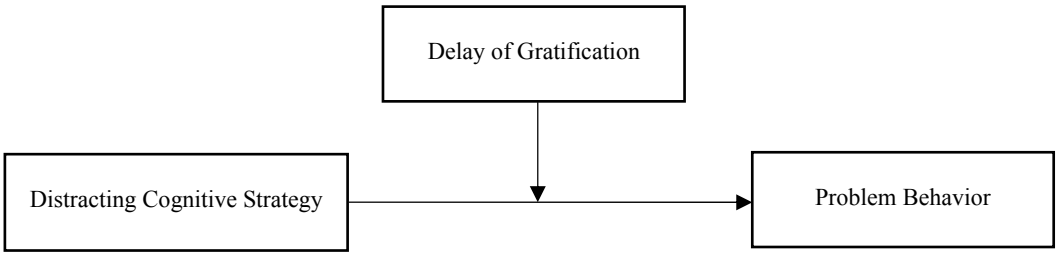

Figure 1. The proposed mediation model

The study also tested the moderating role of delay of gratification in determining the effect of preschoolers' cognitive distraction strategies on their problem behaviors (Figure 2). It is documented that delay of gratification skill, which is regarded as a moderating variable in the literature, and cognitive distraction strategies are interrelated (Lamm et al., 2017; Metcalfe & Mischel, 1999; Mischel, 2016; Ravindran et al., 2021; Rodriguez et al., 1989; Sethi et al., 2000; Steelandt et al., 2012; Yates et al., 1981). However, so far no study has been reported on how the delay of gratification can impact the relation between cognitive distraction strategies and problem behaviors. Thus, in the current study, it is important to examine the moderating role of delay of gratification in order to determine the relationship between cognitive distraction strategies and problem behaviors.

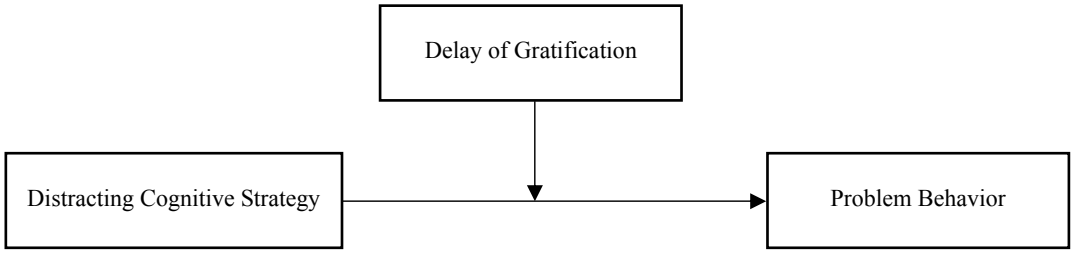

Figure 2. The proposed moderation model

In the light of prior research, the following hypotheses are formulated for the current research:

(1) H_1: There is a significant correlation between preschoolers' cognitive distraction strategies and their social skills and problem behaviors.

(2) H_2: Preschoolers' cognitive distraction strategies have a significant impact on their problem behaviors.

(3) H_3: The mediating role of social skills in the impact of preschoolers' cognitive distraction strategies on their problem behaviors is significant.

(4) H_4: The moderating role played by delaying gratification in the impact of preschoolers' cognitive distraction strategies on their problem behaviors is significant.

2. Method

2.1 Research Design

This study was designed in line with the survey model, a quantitative research design model. The correlational screening research model aims to determine whether there is any correlation between two or more variables and the degree and direction of this correlation if it exists (Fraenkel et al., 2011). Correlational studies are important since they make it possible to predict future situations; however, such studies cannot show cause-effect relationships. Kline (2015), stated that some studies allow inferences to be made regarding possible cause-effect relationships using more sophisticated methods such as the structural equation model (SEM). SEM is a complex analysis method used to identify any causal relationship between variables and to confirm possible causality. SEM is a more effective method compared to others because it can explain the predictive relationships between the variables, test different models, and examine the relationships between the variables within a causality framework (Fraenkel et al., 2011; Kline, 2015). Since this study aims to reveal the mediating role of social skills in the relationship between preschoolers' cognitive distraction strategies and problem behaviors, SEM based on the aforementioned survey model was used.

2.2 Participants

The participants of this study were 100 randomly selected preschoolers aged 3 to 5 years, who were attending a private preschool in Ankara, the capital of Turkey. The parents of the participant children filled out the demographical information form attached to the consent form before the implementation. Accordingly, 48% (n = 48) of the children were girls and 52% (n = 52) were boys. 30% (n = 30) of the children were 3 years old (36-48 months), 33% (n = 33) were 4 years old (49-60 months), and 37% (n = 37) were 5 years old (61-72 months). 49% (n = 49) of the children had one sibling, 5% (n = 5) had two siblings, and 46% (n = 46) did not have a sibling. All the preschool teachers (n = 8) who scored the children's social skills and problem behaviors were female.

2.3 Data Collection Tools

The Marshmallow Test was conducted to assess the children's cognitive distraction strategies for delay of gratification while Social Skills Improvement System Rating Scales (SSIS-RS) were used to collect data regarding the children's social skills and problem behaviors.

2.3.1 Marshmallow Test

The classic Marshmallow tests were developed at Stanford University's Bing Preschool in the 1960s. The Marshmallow test was called "the paradigm of delaying instant gratification in the preschool period for a delayed reward of higher value" (Mischel, 2016). The paradigm of delaying gratification offers preschoolers a developmentally appropriate self-control task (Sethi et al., 2000).

When administering the Marshmallow Test, children were asked to choose between a reward they can receive immediately (for example, a candy) and a delayed reward of higher value (two candies) that requires them to wait up to 20 minutes alone. Children chose their favorite reward from a mix of candies, cookies, pretzels, mints, or similar snacks. Then the children were asked to sit alone at the table and look at one candy they can eat right away and two candies they can eat after they wait. A table bell for them to use to call the researcher at any time to eat the single candy was placed next to the candies. The children can eat the second candy if they did not leave their chair or did not eat the first candy for about 15 minutes (Mischel, 2016; Mischel & Ebbesen, 1970).

2.3.2 Social Skills Improvement System-Rating Scales (SSIS-RS) (Preschoolers aged 3-5 years)

The SSIS‐RS (Gresham & Elliott, 2008) was used to capture data on a wide range of students' social behaviors and academic functioning. This assessment has three forms (Preschoolers aged 3-5 years; Elementary School children aged 5.5-12 years; Junior and senior high school children aged 13-18 years) based on research that documented very similar average frequency levels of social skills within these age clusters. In this study, the form for preschoolers aged 3-5 years and the associated normative scores was used. The SSIS-RS includes two subscales: the social skills subscale and the problem behaviors subscale. The preschool version of SSIS-RS includes parents' and teachers' ratings. In this study, the teachers assessed children's social skills and problem behaviors. The social skills subscale consists of 46 items on 12 subdomains, namely, social skills, communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. The problem behaviors subscale consists of 30 items on five subdomains, namely, externalizing, bullying, hyperactivity/inattention, internalizing, and autism spectrum. The items and scoring of the Social Skills and Problem Behavior subscales use a 4-point frequency scale with Never = 0, Seldom = 1, Often = 2, and Almost Always = 3 as scale anchor points. Examples of the items on the SSIS‐RS are "Follows your directions", "Takes turns in conversations", "Follows classroom rules" and "Acts without thinking" (Frey et al., 2011; Gresham & Elliott,2008).

The internal consistency coefficients of the preschool version of SSIS-RS subdomains were calculated as communication = .84, cooperation = .89, assertion = .83, responsibility = .90, empathy = .86, engagement = .84, self‐control = .86, externalizing = .93, bullying = .74, hyperactivity/inattention = .88, internalizing = .78, and autism spectrum = .84 (Gresham & Elliot, 2008). The internal consistency coefficients of the teacher form of the SSIS-RS for Turkish children aged 3-5 years were between .70 and .86; therefore, the scale was determined as being a reliable tool to measure children's social skills (Tutkun & Dinçer,

2019). In this study, the SSIS-RS teacher form was used for 3-5 years old children in Turkey and the scale was filled in approximately 15-20 minutes.

The researcher and a volunteer research assistant collected the data. Before carrying out the research, oral informed consent was granted from the school, teachers, and parents. First, the SSIS-RS was given to the preschool teachers in order to collect data about the preschoolers' social skills and problem behaviors. The teachers filled out the scales for the children in their classrooms in one week. Next, a document stating the purpose of the research was given to the parents and they signed the consent form so their children could participate in the study. No payment was offered to parents for their children's participation; however, the children enjoyed the candies they received during the Marshmallow Test.

2.3.3 Delay of Gratification Procedure

The Marshmallow Test was used to evaluate delay of gratification (Ayduk et al., 2000; Mischel, 2016; Mischel & Ebbesen, 1970; Mischel et al., 1989). In the room where the test was conducted, there were no additional objects (toys, books, paintings, etc.) that could distract children; there were only a table, a chair, and a camera across the table. This camera was placed in a closed box placed directly in front of the table so as not to distract the children's attention. There was another camera on the ceiling of the room to record video and sound. The children were taken from their classrooms one by one, and they were given the test individually. The researcher and the child played a few games before the test to make them feel comfortable and get them acquainted. The room where the test was conducted was introduced to children as "the Surprise Room" and the researcher told the children "We will play a game in the surprise room." The children were then asked to choose their favorite candy among a variety of candies (various bars, marshmallows, M&Ms). After the child chose their favorite candies, the researcher said to the child "I am placing a 'candy' here. I have some work to do outside. If you don't eat this candy by the time I have finished my work and come back, I'll give you another candy when I get back. But if you don't wait for me and eat this candy, I won't give you a second candy. You should sit in this chair and wait for me to return. If you get up from this chair while waiting for me, you won't get a second candy." To make sure the child has understood the instructions, the researcher reminded the child, saying: "Now let's repeat together, you will not get a second candy 1) If you eat this candy while waiting for me; 2) If you get up from the chair. Now I'm leaving the room to do my work." The researcher then left the room and did not return until 15 minutes had passed, or until the child had eaten the candy, or got up from the chair, or if the child showed any signs of distress. The behavior of the child while waiting was monitored and recorded as audio and video simultaneously in the video room. If the child had waited for 15 minutes and had met the necessary conditions, the researcher came back to the room with a second candy and gave the candy to the child saying "Well, here is your second candy since I've finished my work and you successfully waited." Conversely, if the child got up from the chair, ate the candy, or showed any signs of distress during the 15-minute waiting period, the researcher thanked the child for playing this game and the test was ended.

2.4 Data Analysis

The observation codes during the delay gratification test were prepared using the previous findings (*e.g.*, Mischel & Ebbesen, 1970; Mischel et al., 1989). The period of delay of gratification was calculated as 15 minutes (900 seconds). For behaviors associated with failure to delay gratification, the times to eat the first candy, get up from the chair, call back the researcher, or leave the room were coded to determine exactly how long the child succeeded in delaying gratification. The analysis was terminated as soon as the child showed any behavior associated with failure to delay gratification. The conditions for a successful delay of gratification of a child were waiting for 900 seconds, not getting up from their chair, not calling back the researcher, or not leaving the room. Doing any of these excluded the child from the category of successful gratification delay.

The preschoolers' cognitive distraction strategies were monitored and recorded during the delay gratification test. The strategies coded on the basis of previous studies during the delay gratification test were classified as reward-oriented strategies and cognitive distraction strategies (Lamm et al., 2017; Rodriguez et al., 1989; Steelandt et al., 2012). Behaviors such as touching, looking at, tasting, tearing off small pieces, licking, holding, and playing with the reward were coded as "reward-oriented strategies." Conversely, behaviors such as looking at places other than the reward (ceiling, under the table, etc.), playing with the table or their clothes, trying to sleep, speaking, singing, turning their body or head at least 90° away from the reward, and moving the body or a part of the body rhythmically for at least 3 seconds were coded as "cognitive distraction strategies." The researchers calculated how many times the preschoolers used such strategies. The author conducted all the experimental procedures. The author and the volunteer research assistant watched the recordings made during the tests separately and recorded the strategies used by the children as timecodes and number of instances. The volunteer research assistant was specifically tasked with recording distraction strategies with timecodes (in seconds) and did not participate in any other part of the study. There was a 96% agreement between the timecodes made by the volunteer research assistant and those made by the author. And the median phi coefficient was .89 for reward-oriented strategies and .85 for non-reward-oriented strategies (cognitive distraction strategies).

At the beginning of the data analysis stage, all variables were checked to determine if they have univariate or multivariate normal distribution. In the case of univariate normal distribution, the skewness and kurtosis coefficients of the variables were calculated. Accordingly, the skewness (SV) and kurtosis coefficients (KC) of the variables were found to be SC = .53 and KC = -.92 for cognitive distraction strategies; SC = -.11 and BK = -1.46 for social skill scores; SC = .25 and KC = -1.52 for problem behavior scores. In the case of univariate normal distribution, the skewness and kurtosis coefficients were found to be between -2 and +2 for continuous variables, indicating that the distributions did not deviate excessively from the norm (George, & Mallery, 2010). Therefore, it can be argued that the continuous variables examined in this study met the normal distribution assumption. Mahalanobis distances were calculated for multivariate normal distribution. Pearson and Hartley (1958) stated that Mahalanobis distances for three predictor variables should have an upper limit value of 16.27. The results obtained showed that the Mahalanobis distances for

the three predictor variables were between min. (.63) and max. (14.11) values; therefore, the multivariate normal distribution assumption was met. Descriptive and predictive data analysis methods were used to examine the data. Descriptive analysis provided the overall situation while predictive data analysis was used to make the correlation and mediator variable analyses. The reliability of the data was checked before making these analyses. Later, confirmatory factor analysis (CFA) was carried out to assess the reliability of the scales using Lisrel 8.80 software.

Correlation analysis and mediatory variable analysis were performed to the data since the univariate and multivariate normality conditions were provided. The direction and degree of the relationship between the variables were researched by performing correlation analysis with SPSS 24 program. Mediatory variables were tested with PROCESS macro (Hayes, 2017) after the relationships between the variables were determined. Then, the alternative models were tested with the same macro. PROCESS macro, developed by Hayes (2009) for SPSS, carries out analysis based on Bootstrap sampling. Bootstrap is a resampling method in which data gathered from research sampling is subsampled, and model parameters of each subsample are tested and compared with the results obtained from sampling (Preacher & Hayes, 2008). It is documented with research that confidence intervals related to mediating effects, obtained with the bootstrap method, yield more reliable results than those obtained through single sampling (MacKinnon et al., 2004). Therefore, the bootstrap method has been widely used by researchers (Hayes, 2009; MacKinnon et al., 2004). In the current study, models were tested through the use of the 5000 Bootstrap resampling method and found to be at a 95% confidence interval.

The ideal model was found with the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method in order to determine which model is more ideal between the model and the alternative model. TOPSIS method is one of the multi-objectives decision-making methods that provide the selection of the most ideal choice among the alternatives (Ozdemir, 2014). TOPSIS method selects an alternative which is closest to the ideal solution. The reasoning of the TOPSIS the chosen alternative the shortest distance from the ideal solution and the farthest from the negative ideal solution (Hwang & Yoon, 1981). TOPSIS method is frequently used in deciding the ideal choice among various objects by using certain criteria (Boran et al., 2009). TOPSIS is a simple and easy method since it does not include complex algorithms and mathematical models. The interpretation of the results is easy in the TOPSIS method since the obtained results are evaluated according to their closeness to +1 (Hwang & Yoon, 1981). In the application of the TOPSIS method, the Sobel test, effect size value, a1, D, and b2 values were used respectively as criteria.

3. Results

3.1 The Correlations Between Children's Cognitive Distraction Strategies, Social Skills, and Problem Behaviors

A strong, positive, and significant correlation was observed between children's cognitive distraction strategies and their social skills scores (Table 1). Furthermore, a strong, negative, and significant correlation between the children's problem behaviors and their cognitive

distraction strategies (r = -.78, p < .01) and social skill scores (r = -.98, p < .01) was found out. Accordingly, it can be reported that significant correlations exist amongst all variables.

Table 1. Coefficients of the correlations between variables

		Simple correlation			Descriptive statistics		
		1	2	3	*n*	$\overline{X}$	*S*
1	DCS	-			100	29.8	29.09
2	SS	.79**	-		100	83.5	42.39
3	PB	-.78**	-.98**	-	100	28.25	23.90

Note. *: $p < .05$, **: $p < .01$; DCS: Distracting Cognitive Strategy; PB: problem behaviors. SS: social skills.

3.2 The Impact of Cognitive Distraction Strategies on Problem Behaviors

It was determined that preschoolers' cognitive distraction strategies had a significant impact on their problem behaviors (β = -.64, 95% CI [-.7428, -.5360], t = -12.27, p < .001). In other words, cognitive distraction strategies were found to be a significant predictor of problem behaviors (Figure 3). Thus, the second hypothesis of this study was confirmed.

Figure 3. The total impact of cognitive distraction strategies on problem behaviors

3.3 The Mediating Role of Social Skills in the Relationship Between Cognitive Distraction Strategies and Problem Behaviors

Preschoolers' cognitive distraction strategies were found to have a significant impact on their social skills which was determined as the mediator variable (β = .1.16, 95% CI [.984, 1.337], t = -13.04, $p < .001$). Likewise, preschoolers' social skills had a significant impact on their problem behaviors (β = -.54, 95% CI [-.5890, -.5048], t = -25.78, $p < .001$). Moreover, the indirect effect of children's cognitive distraction strategies on their problem behaviors mediated by social skills was also significant (β = -.63, 95% CI = [-.7436, -.5399], SE = .05). On the other hand, when social skills as the mediator variable was controlled, the findings revealed that preschoolers' cognitive distraction strategies had no significant impact on their problem behaviors (β = -.00, 95% CI [-.0659, .0568], t = -.15, $p > .05$). Thus, the mediating role of social skills in the impact of cognitive distraction strategies on problem behaviors was

found to be significant and social skills played a full mediating role (Table 2). The fully standardized indirect effect size on children's problem behaviors (K^2 = -.77) was found to be significant and strong. Figure 4 shows the confirmed mediating model. These findings eventually confirmed the third hypothesis.

Table 2. The mediating role of SS in the impact of CDS on PB

	Outcome variables			
	→ M (SS)		→ Y (PB)	
Predictor variables	*β*	*SE*	*β*	*SE*
Constant	48.90***	3.69	74.05***	1.29
X (CDS)	1.16***	.08	-.00	.03
M (SS)			-.54***	.02
R^2	.63		.94	
F	170.18***		917.84***	
Bootstrap	CDS → SSIS → PB			
Indirect effect	K^2 = -.77 *β* = -.63 SE = .05, 95% CI [-.7436, -.5399]			

Note. *: $p < .05$; **: $p < .01$; ***: $p < .001$; n = 100; CI: lower and upper lengths of the bootstrap confidence interval. SE: Standard Error. K^2: Fully standardized effect size. SSIS: social skills improvement system. CDS: cognitive distraction strategies. PB: problem behaviors. SS: social skills Bootstrap resampling = 5000. Non-standardized β-coefficients were reported.

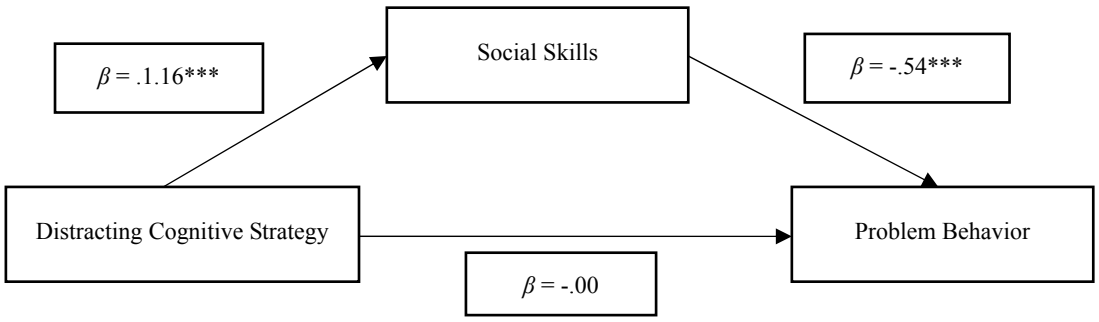

Figure 4. The mediating role of social skills in the impact of cognitive distraction strategies on problem behaviors

Note. *: $p < .05$; **: $p < .01$; ***: $p < .001$.

3.4 The Moderating Role of Delay of Gratification in the Impact of Cognitive Distraction Strategies on Problem Behaviors

In order to test the fourth hypothesis, the significance of the moderating role of delay of gratification in the impact of cognitive distraction strategies on problem behaviors was investigated. The findings indicated that delay of gratification did not play a moderating role in the relationship between cognitive distraction strategies and problem behaviors (β = -.01, 95% CI [-.4785, .4497], t = -.06, p > .01).

4. Discussion

This study investigated the relationship between preschoolers' cognitive distraction strategies, their social skills, and problem behaviors and the mediating role of social skills in this relationship. The findings revealed a significant relationship between preschoolers' cognitive distraction strategies, their social skills, and problem behaviors. Furthermore, the results suggested that as preschoolers' problem behaviors increased, their use of social skills and cognitive distraction strategies decreased. This relationship can be interpreted in at least two different ways: First, it can be argued that lack of social skills and cognitive distraction strategies in children indicates potential behavior problems. Alternatively, lack of social skills and cognitive distraction strategies in children is a symptom of problem behaviors. In this respect, the current study highlighted potential areas for intervention to reduce problem behaviors among preschoolers in Turkey and enhance their susceptibility to cognitive distraction strategies.

The findings showed that cognitive distraction strategies were a significant predictor of problem behaviors. It is believed that the underlying reason for these findings is that cognitive distraction strategies are triggered by the "cold" and problem behaviors are by the "hot" system. In delay of gratification, cognitive distraction strategies allow children to think "coolly" in a mindful manner before taking the reward instantly. In problem behaviors, on the other hand, an impulsive response is automatically triggered since the "hot" system focuses on the reward (Mischel, 2016). This situation causes children to make sudden and quick decisions to obtain the reward instead of distracting themselves with other things. This suggests that problem behaviors reduce children's ability to resist temptations and control their impulses. Previous studies showed that children's use of cognitive distraction strategies during a waiting task was associated with less externalized problem behaviors (Cole et al., 2017). Furthermore, results of a study examining problem behaviors among high-school students demonstrated that students who chose a smaller and immediate reward over a delayed reward of higher value had more behavioral problems and lack of self-regulation compared to those who delayed their gratification. These students (who chose a smaller more immediate reward) showed more interest in smoking, alcohol, and marijuana had a weaker concept of the self and demonstrated lower academic performance (Wulfert et al., 2002). Based on the above-mentioned findings, it can be argued that training children at an early stage to help them change their thoughts about temptations by using cognitive distraction strategies can help them to act more cognitively instead of acting impulsively. In this regard, children who learn to act upon a cognitive approach are more likely to respond to stimuli

coming from their social environment.

Remarkably, in this study, it was found out that the mediating role of social skills in the relationship between preschoolers' cognitive distraction strategies and their problem behaviors was significant. As indicated by the present findings, social skills may play an important mediating role in the relationship between cognitive distraction strategies and children's problem behaviors in successful delay of gratification. It was reported that the preschoolers' ability to delay immediate gratification for a delayed reward of higher value played a strong role in the development of social-emotional and cognitive competence in later periods (Sethi et al., 2000). It is believed that in cases of delaying gratification, social skills play an important role in children's ability to focus their attention cognitively on different things, resist the temptation to obtain a reward, and control themselves. Children with social skills can exhibit socially acceptable behaviors and control themselves better in a conflict situation by considering long-term outcomes (by resisting deceptions). Previous studies reported significant relationships between the delay of gratification, externalizing problem behaviors, social skills, and academic skills. In addition, it was also concluded that social skills partially mediated the relationship between maternal sensitivity and skills linked to school readiness (Razza & Raymond, 2012). Furthermore, results of longitudinal studies showed that children's use of distraction strategies during a waiting task was associated with better social cooperation (Gilliom et al., 2002) and that four-year-old children with a lower ability to delay gratification will have more difficulty suppressing their responses to prosocial cues in adulthood (Casey et al., 2011). On the other hand, children who were able to delay gratification in the Marshmallow test were found to have significantly better academic achievement, fewer problem behaviors, and better social skills in adolescence compared with those who were unable to delay gratification (Michaelson & Munakata, 2020). Social skills facilitate healthy development throughout life and positive adjustment whereas lacking social skills leads to problem behaviors. Therefore, the development of social skills is a prominent objective of universal preventive interventions in early childhood. Within this context, the current study provides invaluable insights into honing children's social skills. Primarily, the findings of this research indicate that it is possible to reduce problem behaviors of children by enhancing their cognitive distraction strategies and social skills. Thus, it may provide educational benefits to design instructional activities regarding children exhibiting problem behaviors, experiencing adaptation problems, and having difficulty controlling their impulsiveness. Besides, the current research may also help to improve children's social skills, inform them of the best cognitive strategies and boost their academic success. Specifically, in the context of Turkey, it may be beneficial for teachers to help them reduce problem behaviors in their classrooms. Teachers may receive training to deal with problem behaviors. To this end, interventional projects targeting teachers' professional development could be designed.

Surprisingly, the findings of this study showed that delay of gratification did not have a moderating effect in the relationship between cognitive distraction strategies and problem behaviors. Hence, children who can divert their attention to things other than reward-related stimuli can wait longer compared with those who direct their attention to reward-related

stimuli (Eigsti et al., 2006). It can be thought that the use of effective cognitive distraction strategies that can distract one's attention from the temptations of the reward is an important prerequisite for the successful delay of gratification (Lamm et al., 2017). In a previous study, children who could effectively distract their attention during the delay period waited longer compared with children who spent the delay period paying attention to the "hot" elements of the situation (Rodriguez et al., 1989). In addition, it was found that 18-month-old toddlers who used cognitive distraction strategies during a short separation from their mothers were able to delay instant gratification longer for higher-valued rewards and used more effective cognitive distraction strategies at age five (Sethi et al., 2000). In this context, cognitive distraction strategies play a mediating role in delay-of-gratification behaviors (Rodriguez et al., 1989). However, the findings of the current study indicated that delay of gratification did not play a moderating role in the relationship between cognitive distraction strategies and problem behaviors. This finding was unexpected in the Turkish cultural context, and it needs to be confirmed and justified through empirical studies.

5. Limitations

This study has some limitations. First, the low number of participants in the analysis is a key limitation. Therefore, care should be taken when generalizing the results to other populations. Nevertheless, the findings may provide useful information for future research on this topic. On the other hand, the significant relationships identified in this relatively limited study group indicate that stronger relationships can be observed in a more heterogeneous sample. The second limitation is that since the current data were, by their nature, correlational, the direction of the effects obtained cannot be determined precisely. For example, both cognitive distraction strategies and the ability to delay gratification can be part of a higher-level self-regulation skill. Furthermore, this study did not consider variables related to the children or environmental factors such as the children's age, gender, and parental attitudes. More extensive research can be conducted on how such variables affect children's ability to delay gratification, cognitive distraction strategies, social skills, and problem behaviors.

6. Conclusion

The evidence obtained in this study showed that cognitive distraction strategies were related to social skills and problem behaviors in that as children's problem behaviors increased, the use of social skills and cognitive distraction strategies decreased. The study found that cognitive distraction strategies significantly predicted problem behaviors and that social skills played a mediating role in the relationship between cognitive distraction strategies and problem behaviors. These findings explain how cognitive distraction strategies and social skills contribute to early success in different fields and contribute to the literature regarding the relationship between cognitive distraction strategies, social skills, and problem behaviors. Therefore, preschool teachers should integrate activities that facilitate cognitive distraction strategies, delay of gratification, and social skills into different learning activities to improve children's skills in various areas and raise their awareness. It is believed that acquiring these skills help children escape the pressure and control of the temptations they are trying to resist and prevent unwanted problem behaviors. Therefore, parents should also conduct activities

aiming to increase their children's knowledge and awareness in this field.

References

Adetunji, A. A., Aliu, A. H., & Salami, T. A. (2022). Psychometric characteristic of social competence and behaviour evaluation (SCBE-30) in a sample of Nigerian preschoolers. *Randwick International of Social Science Journal, 3*(1), 116-126. https://doi.org/10.47175/rissj.v3i1.381

Ayduk, O., Mendoza-Denton, R., Mischel, W., Downey, G., Peake, P. K., & Rodriguez, M. (2000). Regulating the interpersonal self: Strategic self-regulation for coping with rejection sensitivity. *Journal of Personality and Social Psychology, 79*(5), 776-792. https://doi.org/10.1037/0022-3514.79.5.776

Bandura, A (1989). Social cognitive theory. In R. Vasta (Ed.), *Annals of child development*. *Six theories of child development* (Vol. 6, pp. 1-60). JAI Press.

Bandura, A. (1977). *Social Learning Theory*. Prentice Hall.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). Academic Press.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*(1), 1-26. https://doi.org/10.1146/annurev.psych.52.1.1

Bembenutty, H. (2007). Self-regulation of learning and academic delay of gratification: Gender and ethnic differences among college students. *Journal of Advanced Academics*, *18*(4), 586-616. https://doi.org/10.4219/jaa-2007-553

Blair, K. A., Denham, S. A., Kochanoff, A., & Whipple, B. (2004). Playing it cool: Temperament, emotion regulation, and social behavior in preschoolers. *Journal of School Psychology, 42*(6), 419-443. https://doi.org/10.1016/j.jsp.2004.10.002

Boran, F. E., Genç, S., Kurt, M., & Akay, D. (2009). A multi-criteria intuitionistic fuzzy group decision making for supplier selection with TOPSIS method. *Expert Systems with Applications, 36*(8), 11363-11368. https://doi.org/10.1016/j.eswa.2009.03.039

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*(6), 723-742. https://doi.org/10.1037/0012-1649.22.6.723

Casey, B. J., Somerville, L. H., Gotlib, I. H., Ayduk, O., Franklin, N. T., Askren, M. K., … Shoda, Y. (2011). Behavioral and neural correlates of delay of gratification 40 years later. *Proceedings of the National Academy of Sciences, 108*(36), 14998-15003. https://doi.org/10.1073/pnas.1108561108

Chen, X., & French, D. C. (2008). Children's social competence in cultural context. *Annual Review of Psychology, 59*(1), 591-616. https://doi.org/10.1146/annurev.psych.59.103006.093606

Chua, L. K., & Kang, M. J. (2012). The effects of academic self-concept and maternal parenting behaviors on children's academic delay of gratification: A comparison study of Koreans and Malaysians. *International Journal of Human Ecology, 13*(2), 1-13. https://doi.org/10.6115/ijhe.2012.13.2.1

Cole, P. M., Bendezú, J. J., Nilam, R., & Chow, S. (2017). Dynamical systems modeling of early childhood self-regulation. *Emotion, 17*(4), 684-699. https://doi.org/10.1037/emo0000268

Demir, M., Jaafar, J., Bilyk, N., & Mohd Ariff, M. R. (2012). Social skills, friendship and happiness: A cross-cultural investigation. *The Journal of Social Psychology, 152*(3), 379-385. https://doi.org/10.1080/00224545.2011.591451

Dempsey, T., & Matson, J. L. (2009). General methods of treatment. In J. L. Matson (Ed.), *Social behavior and skills in children* (pp. 76-95). Springer. https://doi.org/10.1007/978-1-4419-0234-4_5

Dinh, K. T., Weinstein, T. L., Tein, J.-Y., & Roosa, M. W. (2013). A mediation model of the relationship of cultural variables to internalizing and externalizing problem behavior among Cambodian American youth. *Asian American Journal of Psychology, 4*(3), 176-184. https://doi.org/10.1037/a0030165

Eigsti, I.-M., Zayas, V., Mischel, W., Shoda, Y., Ayduk, O., Dadlani, M. B., … Casey, B. J. (2006). Predicting cognitive control from preschool to late adolescence and young adulthood. *Psychological Science, 17*(6), 478-484. https://doi.org/10.1111/j.1467-9280.2006.01732.x

Elliott, S. N., & Busse, R. T. (1991). Social skills assessment and intervention with children and adolescents: Guidelines for assessment and training procedures. *School Psychology International, 12*(1-2), 63-83. https://doi.org/10.1177/0143034391121006

Elliott, S. N., Malecki, C. K., & Demaray, M. K. (2001). New directions in social skills assessment and intervention for elementary and middle school students. *Exceptionality, 9*(1-2), 19-32. https://doi.org/10.1080/09362835.2001.9666989

Floether, C. S. (2006). *The impact of intergenerational care settings on social skills building in preschool-aged children* (Order No. 3216043). Available from ProQuest Dissertations & Theses Global. Retrieved from https://search-proquestcom.nnu.idm.oclc.org/docview/304910610?accountid=36492

Foster, S. L., & Ritchey, W. L. (1979). Issues in the assessment of social competence in children. *Journal of Applied Behavior Analysis, 12*(4), 625-638. https://doi.org/10.1901/jaba.1979.12-625

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2011). *How to design and evaluate research in education*. McGraw-Hill Humanities/Social Sciences/Languages.

Frey, J. R., Elliott, S. N., & Gresham, F. M. (2011). Preschoolers' social skills: Advances in assessment for ınterventıon using social behavior ratings. *School Mental Health, 3*(4), 179-190. https://doi.org/10.1007/s12310-011-9060-y

Gangal, M., & Öztürk, Y. (2019). Okul öncesi öğretmenlerinin sınıflarında istenmeyen davranışlar ve başa çıkma yolları. *Eğitimde Nitel Araştırmalar Dergisi, 7*(3), 1100-1118.

George, D., & Mallery, M. (2011). *SPSS for windows step by step: A simple study guide and reference* (17.0 update, 10th ed.). Pearson.

Gilliom, M., Shaw, D. S., Beck, J. E., Schonberg, M. A., & Lukon, J. L. (2002). Anger regulation in disadvantaged preschool boys: Strategies, antecedents, and the development of self-control. *Developmental Psychology, 38*, 222-235. https://doi.org/10.1037/0012-1649.38.2.222

Gresham, F. M., & Elliott, S. N. (1990). *Social skills rating system: Manual*. American Guidance Service. https://doi.org/10.1037/t10269-000

Gresham, F. M., & Elliott, S. N. (2008). *Social skills improvement system: Rating scales*. Pearson.

Gresham, F. M., Elliott, S. N., Vance, M. J., & Cook, C. R. (2011). Comparability of the Social Skills Rating System to the Social Skills Improvement System: Content and psychometric comparisons across elementary and secondary age levels. *School Psychology Quarterly, 26*(1), 27-44. https://doi.org/10.1037/a0022662

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*(4), 408-420. https://doi.org/10.1080/03637750903310360

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford.

Hupp, S. D. A., LeBlanc, M., Jewell, J. D., & Warnes, E. (2009). History and overview. In J. L. Matson (Ed.), *Social behavior and skills in children* (pp. 1-21). Springer. https://doi.org/10.1007/978-1-4419-0234-4_1

Hwang, C. L., & Yoon, K. (1981). *Multiple attibute decision methods and applications*. Springer. https://doi.org/10.1007/978-3-642-48318-9_4

Işık, E. (2021). Erken çocuklukta görülen davranış problemlerinin çeşitli değişkenler açısından incelenmesi. *Uludağ Üniversitesi Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, 22(40), 183-226. https://doi.org/10.21550/sosbilder.854768

Jewell, J. D., Jordan, S. S., Hupp, S. D. A., & Everett, G. E. (2009). Etiology and relationships to developmental disabilities and psychopathology. In J. L. Matson (Ed.), *Social behavior and skills in children* (pp. 39-59). Springer. https://doi.org/10.1007/978-1-4419-0234-4_3

Kandır, A. (2000). Öğretmenlerin beş-altı yaş çocuklarında görülen davranış problemlerine ilişkin bilgi ve tutumları. *Mesleki Eğitim Dergisi, 2*(1), 42-50.

Kılıç, M., Kalkan, S., & Avcı, C. (2021). Okul öncesi öğretmenlerinin çocuklardaki problem davranışı belirleme ve davranışa müdahale stratejileri. *Yaşadıkça Eğitim, 35*(1), 38-52.

https://doi.org/10.33308/26674874.2021351239

Kidd, C., Palmeri, H., & Aslin, R. N. (2013). Rational snacking: Young children's decision-making on the marshmallow task is moderated by beliefs about environmental reliability. *Cognition, 126*(1), 109-114. https://doi.org/10.1016/j.cognition.2012.08.004

Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford.

Ladd, G. W., & Mize, J. (1983). A cognitive-social learning model of social-skill training. *Psychological Review, 90*(2), 127-157. https://doi.org/10.1037/0033-295X.90.2.127

Lamm, B., Keller, H., Teiser, J., Gudi, H., Yovsi, R. D., Freitag, C., … Lohaus, A. (2017). Waiting for the Second Treat: Developing Culture-Specific Modes of Self-Regulation. *Child Development, 89*(3), 261-277. https://doi.org/10.1111/cdev.12847

Lamm, B., Keller, H., Teiser, J., Gudi, H., Yovsi, R. D., Freitag, C., … Lohaus, A. (2017). Waiting for the second treat: Developing culture-specific modes of self-regulation. *Child Development, 89*(3), 261-277. https://doi.org/10.1111/cdev.12847

Lane, K. L. (1999). Young students at risk for antisocial behavior: The utility of academic and social skills interventions. *Journal of Emotional and Behavioral Disorders, 7*(4), 211-223. https://doi.org/10.1177/106342669900700403

Lane, K. L., Givner, C. C., & Pierson, M. R. (2004). Teacher expectations of student behavior: Social skills necessary for success in elementary school classrooms. *The Journal of Special Education, 38*(2), 104-110. https://doi.org/10.1177/00224669040380020401

MacKinnon, D. P., Lockwood C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research, 39*(1), 99-128. https://doi.org/10.1207/s15327906mbr3901_4

Mandal-Blasio, R., Sheridan, K., Schreiner, G., & Ladner, T. (2009). Challenging behaviors. In J. L. Matson (Ed.), *Social behavior and skills in children* (pp. 96-116). Springer. https://doi.org/10.1007/978-1-4419-0234-4_6

McClelland, M. M., & Morrison, F. J. (2003). The emergence of learning-related social skills in preschool children. *Early Childhood Research Quarterly, 18*(2), 206-224. https://doi.org/10.1016/s0885-2006(03)00026-7

Metcalfe, J., & Mischel, W. (1999). A hot/cool-system analysis of delay of gratification: Dynamics of willpower. *Psychological Review, 106*(1), 3-19. https://doi.org/10.1037/0033-295x.106.1.3

Michaelson, L. E., & Munakata, Y. (2020). Same data set, different conclusions: Preschool delay of gratification predicts later behavioral outcomes in a preregistered study. *Psychological Science, 31*(2), 193-201. https://doi.org/10.1177/0956797619896270

Mischel, W. (1974). Processes in delay of gratification. *Advances in Experimental Social Psychology, 7*, 249-292. https://doi.org/10.1016/s0065-2601(08)60039-8

Mischel, W. (2016). *Marshmallow Testi: Otokontrolde ustalaşmak*. Pegasus.

Mischel, W., & Ayduk, O. (2002). Self-regulation in a cognitive--affective personality system: attentional control in the Service of the Self. *Self and Identity, 1*(2), 113-120. https://doi.org/10.1080/152988602317319285

Mischel, W., & Ebbesen, E. B. (1970). Attention in delay of gratification. *Journal of Personality and Social Psychology, 16*(2), 329-337. https://doi.org/10.1037/h0029815

Mischel, W., Shoda, Y., & Rodriguez, M. (1989). Delay of gratification in children. *Science, 244*(4907), 933-938. https://doi.org/10.1126/science.2658056

Montroy, J. J., Bowles, R. P., Skibbe, L. E., & Foster, T. D. (2014). Social skills and problem behaviors as mediators of the relationship between behavioral self-regulation and academic achievement. *Early Childhood Research Quarterly, 29*(3), 298-309. https://doi.org/10.1016/j.ecresq.2014.03.002

Ozdemir, M. (2014). TOPSIS. In B. F. Yıldırım, & E. Onder (Eds.). *Operasyonel, yönetsel ve stratejik problemlerin çözümünde çok kriterli karar verme yöntemleri* (pp. 130-139). Dora.

Öngören-Özdemir, S., & Tepeli, K. (2016). Okul öncesi öğretmenlerinin saldırgan davranışlarla baş etme stratejilerinin incelenmesi. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi, 17*(2), 51-70.

Pearson, E. S., & Hartley, H. O. (1958). Test for heterogeneity of variance among normally distributed observations. In E. S. Pearson & H. O. Hartley (Eds.) *Biometrika tables for statisticians* (pp. 57-61). Cambridge University.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891. https://doi.org/10.3758/BRM.40.3.879

Ravindran, N., Genaro, B. G., & Cole, P. M. (2021). Parental structuring in response to toddler negative emotion predicts children's later use of distraction as a self‐regulation strategy for waiting. *Child Development, 92*(5), 1969-1983. https://doi.org/10.1111/cdev.13563

Razza, R. A., & Raymond, K. (2012). Associations among maternal behavior, delay of gratification, and school readiness across the early childhood years. *Social Development, 22*(1), 180-196. https://doi.org/10.1111/j.1467-9507.2012.00665.x

Rodriguez, M. L., Mischel, W., & Shoda, Y. (1989). Cognitive person variables in the delay of gratification of older children at risk. *Journal of Personality and Social Psychology, 57*(2), 358-367. https://doi.org/10.1037/0022-3514.57.2.358

Schlam, T. R., Wilson, N. L., Shoda, Y., Mischel, W., & Ayduk, O. (2013). Preschoolers' delay of gratification predicts their body mass 30 years later. *The Journal of Pediatrics, 162*(1), 90-93. https://doi.org/10.1016/j.jpeds.2012.06.049

Sethi, A., Mischel, W., Aber, J. L., Shoda, Y., & Rodriguez, M. L. (2000). The role of

strategic attention deployment in development of self-regulation: Predicting preschoolers' delay of gratification from mother-toddler interactions. *Developmental Psychology, 36*(6), 767-777. https://doi.org/10.1037/0012-1649.36.6.767

Sheikhzakaryaie, N., Nikpour, S., Ameri, Z., & Haghani, H. (2012). Gender differences in social skills of Iranian preschool children. *Archives Des Sciences, 65*(7), 382-391.

Shoda, Y., Mischel, W., & Peake, P. K. (1990). Predicting adolescent cognitive and self-regulatory competencies from preschool delay of gratification: Identifying diagnostic conditions. *Developmental Psychology, 26*(6), 978-986. https://doi.org/10.1037/0012-1649.26.6.978

Steelandt, S., Thierry, B., Broihanne, M.-H., & Dufour, V. (2012). The ability of children to delay gratification in an exchange task. *Cognition, 122*(3), 416-425. https://doi.org/10.1016/j.cognition.2011.11.0

Taner-Derman, M., & Başal, H. A. (2013). Okulöncesi çocuklarında gözlenen davranış problemleri ile ailelerinin anne-baba tutumları arasındaki ilişki. *Amasya Üniversitesi Eğitim Fakültesi Dergisi [Amasya Education Journal], 2*(1), 115-144.

Tutkun, C., & Dinçer, Ç. (2019). Sosyal beceri geliştirme sistemi- derecelendirme ölçeği (3-5 yaş okul öncesi versiyonu) öğretmen formu: Geçerlik ve güvenirlik çalışması. *Bayburt Eğitim Fakültesi Dergisi, 14*(28), 301-323. https://doi.org/10.35675/befdergi.467864

Wang, X., Yu, Y., Zhu, R., & Ji, Z. (2021). Linking maternal gatekeeping to child outcomes in dual-earner families in China: The mediating role of father involvement. *Early Child Development and Care, 191*(2), 187-197. https://doi.org/10.1080/03004430.2019.1611568

Wulfert, E., Block, J. A., Santa Ana, E., Rodriguez, M. L., & Colsman, M. (2002). Delay of gratification: Impulsive choices and problem behaviors in early and late adolescence. *Journal of Personality, 70*(4), 533-552. https://doi.org/10.1111/1467-6494.05013

Yates, G. C., Lippett, R. M. K., & Yates, S. M. (1981). The effects of age, positive affect induction, and instructions on children's delay of gratification. *Journal of Experimental Child Psychology, 32*(1), 169-180. https://doi.org/10.1016/0022-0965(81)90101-6

Zelazo, P. D., Carlson, S. M., & Kesek, A. (2008). The development of executive function in childhood. In C. A. Nelson & M. Luciana (Eds.), *Developmental cognitive neuroscience. Handbook of developmental cognitive neuroscience* (pp. 553-574). MIT Press.

Copyright Disclaimer