

*Full Length Research Paper*

# **A study on the effects of self-regulation skills education program on self-regulation skills of six-year-old children**

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**This study was conducted to investigate the effect of a Self-Regulation Skills Education Program on self-regulation skills of six-year-old children. The nonequivalent control group was used in the study. The study group consists of 40 children. “General Information Form” and “Preschool Self-Regulation Assessment (PSRA)” were used as data collection tools. It was determined as a result of the study that the self-regulation skills posttest mean scores of the children in the experimental group differed significantly from their pretest mean scores. It was also found that the self-regulation posttest mean scores of the children in the experimental group were higher than the posttest mean scores of the children in the control group. The results of the study indicated that the Self-Regulation Skills Education Program promoted the development of self-regulation skills of children.**

**Key Words:** Preschool, self-regulation skills education program, preschool self-regulation assessment (PSRA), self-regulation.

## **INTRODUCTION**

Human beings, as social entities, are in constant interaction and communication with their environment. The concept of self-regulation is a phenomenon that has gained in importance at every stage of individual life and develops and expands when individuals are born into their environment. It is a social process that develops when individuals get to know themselves and their environment and determine their methods of interaction with their environment to attain their objectives (Campbell, 2002). Although self-regulation is a social phenomenon,

studies conducted in this regard have revealed that not only social processes but also cognitive processes are effective in self-regulation (Blair, 2002). Before the implementation of the objectives determined in the cognitive processes dimension, skills are also needed such as thinking on the action, making plans, focusing and maintaining attention on the goal, ignoring irrelevant stimuli and having the ability to wait for a reward. According to Rothbart and Bates (1998), self-regulation skills comprise concepts like adaptation, stopping

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inappropriate behaviors, having control over attention and emotions and regulation of behaviors to this end, and delaying impulsiveness and are significantly influenced by innate differences (cited in Campbell, 2002). While Posner and Rothbart (2000) define self-regulation as regulation of behaviors according to social, cognitive and emotional situations, Derryberry and Reed (1996), (cited in Calkins and Fox, 2002), define it as a process that controls other systemic activities (attention, emotion and behavior), whereas Zimmerman (2000); Baumeister and Vohs (2007) define it as individuals' regulation of their behaviors by controlling their attention, thoughts, emotions, impulses and behaviors. Different views have been expressed with regard to subdimensions of self-regulation, which stems from a difference in conceptual backgrounds. McCabe et al. (2004) specified subdimensions of self-regulation as "inhibition of automatic reactions, motor control, delay of gratification, and maintaining attention". Zimmerman (2000), on the other hand, defined "goal-directed behavior" as a subdimension of self-regulation. While some researchers handle subdimensions of self-regulation in the behavioral, cognitive and emotional domains (Calkins and Fox, 2002; Smith-Donald et al., 2007), Grolnick and Farkas (2002) add motivation to these subdimensions (cited in Polnariev, 2006). These subdimensions constitute a whole consisting of systems intertwined with each other. In the present study, the concept of self-regulation was dealt with in three subdimensions, namely attention, emotion and behavioral regulation within the theoretical framework of the Preschool Self-Regulation Assessment (Findik, 2012). Regulation of attention is part of cognitive functions (Bronson, 2000). Attention is a functional mechanism that has some features such as determining the priority target, deciding, planning and problem solving and is influential in all dimensions of self-regulation. Attention is active and selective. Attention that has focused on a stimulus may ignore other stimuli, or turn to another stimulus by ignoring the goal-directed stimulus on which it has focused (Friedenberg and Silverman, 2012). For attention to focus on a goal-oriented stimulus and shift direction when needed require, to a large extent, higher order cognitive attention skills. These skills are associated with effortful control. Effortful control forms part of the executive attention and involves an awareness of planned behaviours. Emotion regulation is a tool in organizing attention and behaviours, displaying determination and courage in coping with obstacles, solving problems, planning, establishing cause and effect relationships and making the process easier for individuals in interpersonal communication (Cole et al., 2004). Emotion regulation is a dynamic process that arises at every stage of the relationship between individual and environment. It emerges in social relationships in the early childhood period and differs as it develops (Calkins, 2010). Calkins (2010) regards emotion regulation as a process that helps individuals control their

complex and stressful environment. Emotion regulation processes are skills and strategies used to manage, change and develop emotional reactions. It encompasses internal strategies and external aids (Thompson, 1991; cited in Thompson and Calkins, 1996). It has been emphasized that successful emotion regulation affects children's behavioral, academic and social skills (Bronson, 2000; Carlson and Wang, 2007; Denham and Burton, 2003; Gulay and Akman, 2009). Behavior regulation, on the other hand, involves situations such as children's thinking before performing a behavior, planning their behaviors, not acting impulsively, overcoming frustrations, controlling reactions and being patient and ability to wait for a reward (Smith-Donald et al., 2007). Behavior regulation contains cognitive processes like attention, working memory and impulse control. Behavior regulation skills gain in importance when children begin school. Poor behavioral regulation skills in social relationships with peers and teachers may lead to negative results. It has been stated that behavior control processes in childhood years prevent failures in social environments (Eisenberg et al., 2011).

Self-regulation is substantially shaped up in the early period through environmental and biological effects (Torres, 2011). In this context, when the relevant literature is reviewed, one may encounter numerous early intervention programs (Domitrovich and Greenberg, 2000; Sezgin, 2016; Shure, 2001; Torres, 2011; Webster-Stratton et al., 2001). Tominey and McCelland (2011) planned games (circle time) that are simple but become gradually more difficult in order to allow children to put into practice their theoretical self-regulation skills and increase their cognitive capacity. Sezgin (2016) revealed in her study the effect of game-based behavioral self-regulation education program on children's behavioral self-regulation skills. There are also studies proving that Cookie Monster's efforts to control itself had a positive impact on children. The development of children's self-regulation skills need to be supported by additional programs and further education. There is a need for programs combined with activities that will promote children's self-regulation skills and carry preschool teachers beyond the traditional. In this study, The Self-Regulation Skills Education Program focused on supporting children's development of self-regulation skills in early period. The research hypotheses were established with the expectation that the Self-Regulation Skills Education Program affect self-regulation skills of children aged six. Thus, the following hypotheses were tested for accuracy.

- (1) The self-regulation skills posttest mean scores of the children in the experimental group are significantly higher than the self-regulation skills posttest mean scores of the children in the control group.
- (2) The self-regulation skills posttest mean scores of the children who participated in the Self-Regulation Skills

**Table 1.** Symbolic representation of the model used.

Group	Pretest	Intervention	Posttest
G1	O1.1	X	O1.2
G2	O2.1		O2.2

G1: Experimental group, G2: Control group, X: Intervention, O1.1, O1.2: Experimental group pretest and posttest, O2.1, O2.2: Control group pretest and posttest.

Education Program are significantly higher than their pretest mean scores.

(3) There is not a significant difference between the self-regulation pretest mean scores and posttest mean scores of the children in the control group.

## MATERIALS AND METHODS

Present research was carried out based on quasi-experimental design. Quasi-experimental designs are a model of high validity used in educational research studies where it is not probable to control all variables (Cohen et al., 2007). In the present research, non-equivalent pretest - posttest control group design was used. The table below shows the symbolic representation of the model used (Table 1).

### Participants

In the study, a quasi-experimental model with non-equivalent control group was used. The study sample was made up of 40 children from two independent kindergartens selected according to biased sampling method from independent kindergartens of Nigde Provincial Directorate of National Education. Children from these kindergartens were assigned to two groups: experimental group and control group. There were 21 students (10 girls, 11 boys) in the experimental group and 19 students (9 girls and 10 boys) in the control group. In the first stage, children with low self-regulation scores were identified in both schools. Then, using random assignment it was determined which of the groups would be experimental and which would be the control group. During the program, the experimental group children received the Self-Regulation Skills Education Program and the traditional preschool education program (Preschool Education Program developed by Ministry of National Education). No intervention was implemented in the control group; their daily education program (Traditional Preschool Education Program) was administered by their teachers.

### Data collection instruments

#### General information form

General Information Form included questions intended to collect information about the age, gender and educational level of the parents of the children who participated in the study.

#### Presechool self-regulation assessment (PSRA):

Presechool Self-Regulation Scale (PSRS), which was developed by Smith-Donald et al. (2007) and adapted to Turkish by Findik Tanrıbuyurdu (2012), is an assessment tool designed to implement

a performance-based measurement. The scale consists of two major sections, namely an examiner's manual concerning the tasks the children are expected to perform and examiner's assessment form. The first section contains 10 tasks designed to assess children's self-regulation performances. The tasks of Toy Wrap, Snack Delay and Tounge Test are used to determine children's levels of gratification delay. The tasks of Balance Beam, Tower Task and Pencil Tap are implemented to assess children's executive control regarding their ability to follow instructions. The tasks of Tower Clean-up, Toy Sort and Toy Return are tasks used to assess children's social adaptation skills.

The Examiner's Assessment Form, which constitutes the second section of the scale, was developed through an adaptation of Leiter-R Social-Emotional Rating Scale and Problem (Disruptive) Behavior Diagnostic Observation Schedule (DB-DOS) coding system. In this section, children's emotion and attention levels and behaviors were assessed on the basis of examiner-child interaction. 15 of the 28 items in the examiner's assessment form were taken from the attention, impulse control, activity level, socialization level, emotion and energy subdimensions of the Leiter-R social-emotional scoring scale. The remaining 9 items, on the other hand, were selected from among the items that permit assessment in the compliance-noncompliance, intensity and frequency of negative and positive emotions, and presence/absence of physical and verbal violence dimensions of the Disruptive Behavior Diagnostic Observation Schedule coding system. The examiner assessment form is a rubric type assessment tool comprising items scored between 0 and 3. In the validity and reliability study conducted in Turkey, according to the results of the explanatory factor analysis, the scale was found to be composed of two factors, just as the original scale, namely Attention/Impulse Control and Positive Emotion. The Cronbach's Alpha coefficient regarding the reliability of the scale was determined to be ( $\alpha$ ) 0.83. Tests with reliability coefficients of 0.70 and above are considered sufficient for the reliability of test scores (Buyukozturk, 2011).

#### Development of self-regulation skills education program

Self-Regulation Skills Education Program was prepared to improve self-regulation skills of six-year-old preschool children. The steps taken in the process of program development during the study are as follows:

- (i) Determination of self-regulation skills to be developed.
- (ii) Determination of outcomes and indicators concerning the development of self-regulation skills.
- (iii) Planning of which acquirments and indicators will be handled at which sessions.
- (iv) Deciding on effective learning methods deemed appropriate for the self-regulation skills planned to be developed.
- (v) Determination of activities intended to develop attention regulation skills.
- (vi) Determination of activities intended to develop emotion regulation skills.

- (vii) Determination of activities intended to develop behavior regulation skills.
- (viii) Planning of activities for each session.

The program is one that is based on the development of self-regulation skills of preschool children aged six. Programs such as the Second Step, The Incredible Years, Promotion of Alternative Thinking Strategies (PATHS), Tools of the Mind and Kindergarten Readiness Study were utilized during the development of the program. 2013 preschool education program led the way in the planning of educational activities and in forming outcomes and indicators. The program developed involves the activities implemented in the 2013 preschool education program (Music, Action, Game, Drama, Art, Turkish activities). The program was so designed that it could be easily integrated into preschool education programs. It was ensured that learning activities be interactive, attractive and fun, with provided transitions between activities. Educational activities were planned on the basis of outcomes and indicators. The program comprises a 10-week, 30 education sessions prepared in accordance with the specified acquirements and indicators. The purpose of the program was to ensure that the children gain and develop attention, emotion and behavior regulation skills, which are subdimensions of self-regulation. The program is child-centered and was prepared taking into consideration children's different developmental levels and the principles of moving from children's close environment to distant environment, from simple to complex and from concrete to abstract. Activities were planned that would allow the children to practice their newly learned skills. It was also ensured that repeat activities be included in order to increase permanence of learning and practice the intended skills. To this end, revision exercises were planned at the end of each unit. The question-answer and brain storming techniques were used to increase participation in the activities. The outcomes were reinforced by including simple, comprehensible and open-ended questions. Questions were prepared like: "Do you think s/he feels happy? What is the face of a happy person like? What shape does our mouth take when we are happy? What shape does our eyebrows take? What may have caused him/her to feel like that? When did you last feel angry? And do you often feel afraid?". The children's interests and needs, length of attention, life experiences and features of the application environment were taken into consideration in order to allow the children to express themselves and their experiences comfortably during the activities. It was also ensured during the program that families participate in the education program through family letters and homework. Necessary permissions were received from the parents and the institutions prior to the implementation of the program. The education program was made ready to implement after views of 5 experts were taken and changes were made in accordance with the expert views.

The content of the Self-Regulation Skills Education Program comprises activities of movement and concentration, video clips, stories, dramatization, enaction, role playing, game and art. Concrete visual materials such as puppets, slides, pictures, photographs, story books, charts and posters were used in the presentation of the content.

In planning the Self-Regulation Skills Education Program, only name and acting with the group activities were included in the first stage, thereby ensuring that the children would feel confidence in the educator and their friends, act in concert with the group and cooperate. Then, activities were included to ensure the effectiveness of the program and enhance concentration. During the preparation of educational instances, activities such as nursery rhymes, songs and finger game were used so that the children would not experience difficulty and there would be a smooth transition to other activities.

An effort was made to support, through multiple activities, skills of focusing and maintaining attention, ignoring irrelevant stimuli, and

self-talk and instructions in the executive functions section, which is the first unit of SRSA. Executive functions are mechanisms that involve cognitive processes. The cognitive processes dimension aims to support children's self-regulation outcomes by developing their abilities to think about the action before implementing the specified goal, make plans, focus attention on the goal and maintain it, ignore irrelevant stimuli, follow instructions and be able to wait for a reward.

Understanding the impact of our behaviors on people is possible through observation of their reactions. Children's noticing of emotional expressions on the faces of others constitutes the basis of their emotional regulation. Children's learning of facial expressions will accelerate the feeling of controlling their emotions and controlling themselves. To this end, activities involving different emotional states were included in the first session of the unit called recognizing and understanding emotions. Recognizing and defining emotions is considered to be important to solve problem situations in cognitive processes. The content of the program involves activities by which children can relate intellectual and emotional processes. These activities are followed by activities that enable children to listen to their emotions, make sense of them, define different sensations they feel in their bodies and be able to express these sensations. Also, activities were planned whereby children could notice their emotions, make sense of them, and realize that some emotions are relaxing while others are disturbing.

The emotion management unit included activities intended to help children cope with strong feelings such as disappointment and fury, relax, calm down, and control their impulses. The children were made to practice these activities with puppets, thereby enabling them to reflect their emotions and thoughts onto actions and feeling these emotions in their bodies. The activities that were planned were intended to help children adopt and internalize ways to manage their strong emotions. Activities were also included in accordance with the outcomes and indicators that would develop their skills to be able to wait without reacting and control their reactions.

The children were enabled to understand and adopt anger management steps, which is necessary for emotion management. The turtle technique, which involves behaving like a turtle and self-talk, was used to help develop the management skill. The activities were reinforced through enaction practices. The enaction activities were intended to help children express what they visualize in their minds and interpret what is expressed through actions.

Finally, activities that were intended to enhance the children's problem solving skills were included in the program. What lies at the heart of problem solving is intuiting a distress or noticing that there is something wrong going on. Emotions are elements that help understand a problematic situation. The children in the program were enabled to define the problem situation making use of emotion clues. To this end, video shows and activities enriched through games were included. At the same time, an effort was made in the program to enable the children to acquire the steps of problem solving (a poster of problem-solving steps), which are necessary to solve a problem. The prepared education program was intended to enable the children to generate more than one solution to problem situations, evaluate their choices and, thereby gaining the skill to choose the best among the solutions. It was ensured through the activities planned that the children should practice hypothetical problem situations and present the solutions they came up with freely.

### **Implementation of the self-regulation skills education program**

The program was so planned as to last 10 weeks and take place three days a week. Each daily session was planned to last 60 minutes. During the program, the children in the experimental group attended both the self-regulation skills education program and the

**Table 2.** Mann Whitney U test results of the children in the experimental and control groups according to their self-regulation skills pretest scores.

Group	n	Mean Rank	Sum of Ranks	U	p
Experimental	21	19.36	406.50	-0.653	0.514
Control	19	21.76	413.50		

$p > 0.05$ .

preschool education program. The children in the control group, on the other hand, received only the preschool education program. The children were made to wear name tags. Activities involving movement with names were performed in the early days of the program. They were enabled to act in unison with the group and cooperate. The activities in the program were conducted in big and small groups and by ensuring that all the children participated. Activities of each week were planned separately. Each education session began with a revision of the previous session. The children were given the opportunity to express themselves at the end of the activities. The materials to be used in the program were prepared by the educator beforehand so as to control problems that might arise. Some materials were prepared according to the number of participating children. The treatments were conducted by participation of all of the children. Videos were shot and photographs were taken during the treatments. The program treatments were implemented in the classrooms where the children received their regular education. However, the drama hall of the school was used during the large group activities as this was deemed more appropriate. It was ensured that each child was wearing their name tag to prevent any problem from arising during the activities. Activities involving movement with names were implemented in the early days of the program. It was ensured that the children acted in concert with the group and cooperated. "Self-Regulation Skills Education Program" was administered to the experimental group by the researcher between November 7, 2016 and January 14, 2017. In the same environment and conditions where children were pretested, Preschool Self-Regulation Scale was implemented as a post-test between 16 and 20 January 2017.

### Analysis of the data

In the analysis of the data, nonparametric statistics were used. In the situations, which do not have a normal scatter parametric tests can't be used and instead of these tests, non-parametric tests are used. Comparisons between experimental and control groups were administered using Mann Whitney U test. For the pre-test/ post-test score comparisons of experimental and control groups, Wilcoxon Test was used. The analyses were conducted using SPSS and a significance level of 0.05 was sought in comparisons.

### FINDINGS

In the study, the forms belonging to the 40 children were completed by the teachers, analyses were made and the findings were presented in the form of tables. As seen in Table 2, a statistically significant difference could not be found between the self-regulation skills pretest scores of the children in the experimental and control groups ( $U = -0.653$ ,  $p > 0.05$ ). When the mean rank and sum of ranks were taken into consideration, the calculated figure indicates that the children's self-regulation skills pretest

scores prior to the Self-Regulation Skills Education program were similar.

The Mann Whitney U Test results of the scores received from the Preschool Self-Regulation Scale after the treatment by the children in the experimental group who participated in the self-regulation skills education program and those who did not participate in this program are given Table 3. According to this, a significant difference was found at the end of a 10-week intervention between the self-regulation skills of the children who participated in the self-regulation skills education program and the children who did not participate in this program ( $U = -5.419$ ,  $p < 0.05$ ). When the mean rank and sum of ranks were taken into consideration, it was understood that the children who participated in the self-regulation skills education program had higher self-regulation skills scores than the children who did not participate in the program. This finding indicates that the self-regulation skills education program is effective in increasing children's self-regulation skills.

The results of the Wilcoxon Signed Ranks Test regarding whether or not the children's self-regulations skills exhibited a significant difference before and after the intervention are shown in Table 4. The results of the analysis indicate a significant difference between the scores which the children who participated in the study received from the Preschool Self-Regulation Scale before and after the experiment ( $z = -4.021$ ,  $p < 0.05$ ). When the mean rank and sum of ranks of the difference scores are taken into consideration, it is seen that this difference is in favor of positive ranks, that is the posttest score. According to these results, it can be said that the self-regulation skills education program in question had a significant effect on developing the children's self-regulation skills. As seen in Table 5, a statistically significant difference could not be found between self-regulation skills pretest-posttest scores of the children in the control group ( $z = -0.348$ ,  $p > 0.05$ ). When the mean rank and sum of rank of the difference scores were taken into consideration, it was found that no progress was observed in the self-regulation skills of the children in the control group.

### DISCUSSION

The purpose of the study is to investigate the effects of a

**Table 3.** Mann Whitney U test results of the children in the experimental and control groups according to their self-regulation skills posttest scores.

Group	n	Mean rank	Sum of ranks	U	p
Experimental	21	30.00	630.00	-5.419	0.000
Control	19	10.00	190.00		

p>0.05.

**Table 4.** Wilcoxon signed ranks test results of the self-regulation skills pretest-posttest scores of the children in the experimental group.

Posttest-Pretest	n	Mean Rank	Sum of Ranks	z	p
Negative Rank	0	0.00	0.00	-4.021	0.000*
Positive Rank	21	11.00	231.00		
Equal	0				

p>0.05\* On the basis of negative ranks.

**Table 5.** Wilcoxon signed ranks test results of the self-regulation skills pretest-posttest scores of the children in the control group.

Posttest-Pretest	n	Mean Rank	Sum of Ranks	z	p
Negative Rank	6	9.67	58.00	-0.348	0.728
Positive Rank	8	5.88	47.00		
Equal	5				

p>0.05.

Self-Regulation Skills Education Program on the self-regulation skills of six-year-old children. The non-equivalent control group quasi-experimental research design was used in the study. The study group consisted of 40 children attending two independent nursery schools. "General Information Form" and "Preschool Self-Regulation Assessment (PSRA)", which aimed to evaluate the children's self-regulation skill levels, were used in the study.

According to the results of the study, a statistically significant difference was observed between the pretest and posttest scores of the experimental group ( $p < 0.05$ ). When the mean rank and sum of ranks of the difference scores were analysed, it was seen that pre-intervention self-regulation skills of the children in the experimental group exhibited a positive development after the Self-Regulation Skills Education Program. The analysis showed that the mean rank for the experimental group children's self-regulation skills posttest was significantly higher than that of control group children ( $p < 0.05$ ). This finding indicates that the self-regulation skills education program is effective in developing children's self-

regulation skills.

When the relevant literature is reviewed, it is seen that there are various studies with findings supporting these results. Tominey and McClland (2011) planned games (cycle time) that are simple at the beginning but become gradually more difficult in order to enable children to practice their theoretical self-regulation skills and enhance their cognitive capacities. The program was implemented with 65 children twice a week for lengths of 20-30 min for a period of 8 weeks. The researchers and the teachers reported at the end of the process that the children's skills of attention, remembering the instructions and following them, and controlling their behaviours developed. A similar study conducted by Sezgin (2016) investigated the effect of "Game-Based Self-Regulation Education Program" prepared for 48-60-month-old preschool children on the children's self-regulation skills. The findings of the study proved that the program developed was effective. In addition, the study stated the need to plan systematic activities aimed at developing behavioral self-regulation skills in terms of the children's readiness for school and improvement of their academic

skills.

As can be seen, children's self-regulation skills can be developed and supported through education. The self-regulation Skills Education Program developed within the scope of this study includes features that support the self-regulation skills necessary for children to develop attention and emotion control and to regulate their behaviors accordingly.

Studies testing the efficiency of the education emphasize the importance of supporting learning via visual and multiple reminders (Aksoy and Baran, 2010; Aslan, 2008; Domitrovich et al., 1999; Elias and Berk, 2002; Saltali, 2010; Shure, 2001; Tominey and McClland, 2011; Webster-Stratton and Reid, 2010). These features were taken into consideration during the preparation of the program and contents that were effective in children and promoted self-regulation skills were included. In The Self-regulation Skills Education Program, various techniques were used to improve the attention skills of children and to enable them to regulate their emotions and behaviours. The efficiency of the program was proven through movement and concentration, video clips, stories, dramatization, enaction, role playing, game and art activities. It was seen that the video clips used in the study were used in educational activities and had a favorable effect on self-regulation skills (Truglio et al., 2014). A study conducted at Iowa University revealed that the Cookie Monster's effort aimed at self-control had a positive impact on children. The results of the study were associated with children's abilities to behave in accordance with social situations, abide by rules, complete challenging time-consuming tasks and self-regulation (Linebarger, 2014).

Studies conducted in this regard indicate that the self-control skill acquired at an early age is effective in the shaping of children's behaviours and their future (Bierman et al., 2008; Bondurant, 2010). In a study conducted by Mischel (1960), a group of 4-year-old children were asked to wait in a room until their minder returned. The children were told that as a reward, they would receive a few marshmallows or a whole marshmallow. It was seen as a result of the test that 30 % of the children were able to wait. It was found that the school achievements of the children who managed to wait were higher than those of the others and displayed fewer antisocial behaviors at university and after wards (cited in Goleman, 1998). In another study, it was found that adjustment and problem behaviours seen in children were associated with low and high effortful control and these children showed more problem behaviours (Murray and Kochanska, 2002).

Various studies exist emphasizing that self-regulation skills such as planning before acting, focusing and maintaining attention, remembering and following instructions, recognizing and understanding emotions, and being able to control impulses are important in later years in life (Baumeister and Vohs, 2007; Eisenberg et

al., 2001; Zimmerman, 2000). Furthermore, individuals with high levels of self-regulation have a lower risk of drug use, antisocial behavior, abnormal eating habits and obesity (Herman and Polivy, 2011; Posner and Rothbart, 2009). An extensive study conducted by Tangney et al. (2004) found that participants having low levels of self-regulation skills suffered from various unfavorable conditions such as substance addiction, alcohol abuse, eating disorders, violence and similar offensive behaviors, and failure at school and work. In a longitudinal study conducted with male participants aged 3-21, Henry et al. (1999) investigated if there was a connection between crime behaviors and self-regulation. They found that the children's control focus was related to the duration of school attendance and that the children who dropped out early were more likely to be involved in crime in the future. The findings from the present study and a review of the literature reveal that self-regulation, which integrates with the individual's learning, development and participation in social life, can and should be supported by systematic and planned programs in early childhood.

## SUGGESTIONS

The following suggestions can be made on the basis of the results obtained from the study:

- (i) Parental awareness can be raised concerning the issue at hand by preparing public service announcements using mass media.
- (ii) It may be ensured that preservice teachers receive theoretical and practical courses aimed at supporting children's self-regulation skills. These courses should emphasize the importance of acquisition of self-regulation skills, and teach how these skills can be given and supported, and what methods and techniques need to be used to this end.
- (iii) This study was conducted on children demonstrating a typical development pattern. Future studies can be implemented on disadvantaged children.
- (iv) In terms of educational policies, projects can be designed to popularize the Self-Regulation Skills Education Program.
- (v) This program can be popularized by implementing an integrated early childhood education program together with those abroad.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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