



Examining Self-Regulation Skills According to Teacher-Child Interaction Quality

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Abstract

Aim of this research is to examine children's self-regulation skills according to teacher-child interaction quality. For this purpose; 30 classes, which were determined randomly from central districts of Ankara, were assessed with Classroom Assessment Scoring System. 4 classes were selected according to quality level of teacher-child interaction (2 high, 2 low). Children's self-regulation skills were assessed with Preschool Self-Regulation Assessment tasks in these 4 classrooms. Results of the study show that teacher-child interaction quality level had a significant difference on children's executive functioning scores that is a part of self-regulation. But it had no significant difference on children's social competence and inhibitory control skills.

Keywords

Self-regulation
Teacher-child interaction
PSRA
CLASS
Early childhood education

Makale Hakkında

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Introduction

Efforts have been made to define the concept self-regulation in different ways however no consensus has been reached about what definition would be the most appropriate one. One of the most encountered definitions was suggested by Rothbart and Bates. According to Rothbart and Bates (1998), self-regulation skills include concepts as adaptation, inhibiting misbehaviors, emotion regulation, behavior regulation, attention control and delay of gratification and are affected by individual differences. In addition to the definition by Rothbart and Bates, one of the concepts that intertwine with attention regulation in the cognitive aspect of self-regulation is executive functions. Executive function is the essential part of attention regulation with the sub-dimensions as working memory, directing attention and redirecting attention (Blair and Ursache, 2011). Shields and Cicchetti (1998) and Wills et al., (2006) state that self-regulation is a set of interrelated skills that are composed of emotions, attention and behaviors that allow people to control their behaviors and observe themselves in order to establish the most appropriate relationship with their environment. Besides, self-regulation also involves external variables as social and cultural values (Zeman et al., 2006).

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A high level of self-regulation is directly related with numerous positive developmental gains including social skills (Fabes and Eisenberg, 1992), school readiness and academic achievement (Smith-Donald et al., 2007), resiliency (Luthar, Cicchetti and Becker, 2000). Self-regulation also regulates the effect of adults on children's behaviors (Eisenberg et al., 2001).

Self-regulation skill is a multi-dimensional, individual and transformational process structurally and functionally. This skill includes cognitive, emotional, behavioral and motivational factors (Grolnick & Farkas, 2002). Also, while assessing self-regulation achievement, it is not possible to consider this skill apart from the developmental process. This skill improves through interactions that include various factors; such as, knowledge and experiences gained in the family (genetic factors and care), interactions with teachers, peers, play friends, physical setting and materials (book, toys etc.). Therefore, it is of great importance in terms of the effectiveness of the developmental process of self-regulation in children that the effect of social environment is taken into consideration (Polnariev, 2006).

Based on this point, the present study focuses on the classroom environment, which is one of the social contexts of the child and the quality of teacher-child interactions in the classroom environment. It is thought that the quality of these interactions create a significant difference on children's self-regulation skills. In their study where they examined the relationship between the quality of teacher-child interactions and children's development, Hamre et al., (2012) studied with children from 325 early childhood education center whose ages was approximately 4.17. It was found out in the study that in the classrooms where teacher sensitivity was high, children's early literacy skills and working memory scores were high and teacher-child disagreement was lower. Rimm-Kaufman et al., (2009), put forth that the quality of teacher-child interaction, especially effective classroom management ensured that children develop better behavioral and cognitive self-regulation. It was found out that children in classrooms where there was effective classroom management could focus on activities for longer.

In this respect, the purpose of the study is to examine children's self-regulation skills according to quality of teacher-child interactions. The following research question was tried to be responded in line with this purpose: Is there a significant difference between children's self-regulation scores according to the quality of teacher-child interactions?

Method

Study Design

The study was based on the qualitative methodology, which foresees information exists epistemologically but it can be reached only through objective scientific methods (Hatch, 2002). Qualitative methodology provides researchers with different types of research including experimental, semi-experimental, relational, and causal-comparative and survey research. The present study is a cross-sectional research conducted by using survey method, which is one of the qualitative types of research. Survey research includes the studies where participants' opinions, interests, skills, abilities or attitudes towards a subject or an event are determined (Buyukozturk et al., 2009).

Study Group

The study was conducted in 30 early childhood classrooms of 72-month old children in central districts of the city of Ankara (Mamak, Altındag, Cankaya, Kecioren, Yenimahalle, Etimesgut) selected randomly. Initially, researchers made observations in the classrooms using Classroom Assessment Scoring System (CLASS). Next, two of the thirty classrooms observed where the quality of teacher-child interactions were found to be low and high were determined using purposeful sampling method. Last of all, self-regulations skills of a total of 80 children in these four classrooms were assessed by using Preschool Self-Regulation Assessment.

Data Collecting Tools

Classroom Assessment Scoring System (CLASS Pre-K) is an observational tool developed by Pianta, La Paro and Hamre (2008) and adapted to Turkish by Erturk (2013). It is used to assess the quality of teacher-child interactions in early childhood education and is composed of three dimensions as Emotional Support, Classroom Organization and Instructional Support. Each dimension has main sub-dimensions that can be defined with observable and distinct indicators of classroom interactions occurring between teacher and children or among children. The reliability coefficient for eight sub-dimensions making up the whole scale was found as (α) .93. The internal consistency coefficient was .78 for emotional support dimension; .85 for classroom organization dimension; .92 for instructional support dimension. Classrooms are observed for periods of 30 minutes. Since these periods include activities, they might also include routines or transitions in between activities. After notes are taken on the observation form in light of the indicators regarding sub-dimensions, assessment process commences. While assessing, a score is selected in a continuum of 1 (the lowest) to 7 (the highest) for each sub-dimension. As a result of the assessment, the score of 1 or 2 is considered low quality, a score of 3, 4 or 5 is considered medium quality and a score of 6 or 7 is considered high quality. In the present study, researchers complete two observational periods in 30 classrooms they determined and scored them in terms of quality. Four of these classrooms where the quality of teacher-child interactions were found to be at the extremes of low and high were selected for the next phase of the study.

Preschool Self-Regulation Assessment - PSRA: The scale is composed of two main parts as Examiner's Manual and Examiner's Assessment Form regarding the tasks the child is expected to perform. In the first part, there are 10 tasks compiled to assess children's self-regulation performances. These include Toy Wrap, Toy Wait, Snack Delay, Tongue Task for the purpose of assessing children's level of delay of gratification; Balance Beam, Tower Task and Pencil Tap for the purpose of measuring children's executive functions indicating children's instruction following processes; Tower Cleanup, Toy Sorting and Toy Return for the purpose of assessing children's social adaptation skills. Assessor Report Examiner Rating Scale, which makes up the second part of the scale, gives the examiner the opportunity to assess the child's emotion, attention level and behaviors based on examiner - child interaction. A setting appropriate for examination where the child and examiner can work one on one was provided at the assessment phase. During the assessment, child's performance was recorded on the part devoted for the mentioned task on the scoring sheet of the scale. The assessment took 20 minutes in average for each child. After the assessment was completed and the child left the assessment setting, the examiner assessed the child's performance with Examiner Assessment Form based on data recorded on the coding sheet. Examiner Assessment Form is a rubric type measuring tool that is composed of items used by scoring from 0 to 3. Behavior indicators exist in the items and generally 0 is the lowest and 3 is the highest score. However, this scoring system works in reverse for the items located in the scale for examiner reliability. In Turkish adaptation study, it was determined that the scale showed the same factor structure it has in its original version. Additionally, reliability coefficient in the Attention/Impulse Control sub-dimension was (α) .88; in Positive Emotion sub-dimension it was .80 and it was .83 for the whole scale (Fındık Tanrıbuyurdu and Güler Yıldız, 2014). Researchers in this study applied the tasks in PSRA with 80 children in four classrooms where teacher-child interaction was high and low. The assessment took place for 20 minutes for each child.

Data Analysis

Data analyses were made with SPSS 16 software. In order to determine children's self-regulation skills according to the quality of teacher-child interactions, chi-square independence test and Mann-Whitney U tests were used, which are among the non-parametric tests, appropriate to the structure of data obtained from the tasks in PSRA.

Results

This section includes the findings regarding the effect of teacher-child interaction on children's self-regulation skills.

In order to determine the effect of the quality of teacher-child interaction on children's results on Balance Beam Task, Mann-Whitney U Test was performed. The results are presented in Table 1:

Table 1. Results of Mann-Whitney U Test for Children's Balance Beam Task Scores According to The Quality of Teacher-Child Interaction

Group	N	Rank Average	Rank Total	U	P
Low Quality Classrooms	40	23,35	934,00	114.000	.000
High Quality Classrooms	40	57,65	2306,00		

The value of significance obtained by making the comparison of children's balance beam task results with Mann-Whitney U test according to the quality of teacher-child interaction was found to be .000 (U=114.000; P=.000; P<0,05). This value indicates that there is a significant level of difference between the classrooms. When the rank average values are considered, it is seen that balance beam task results of the children in classrooms where there is a high quality of teacher-child interaction are higher.

In order to determine the effect of the quality of teacher-child interaction on children's results on Pencil Tap Task, Mann-Whitney U Test was performed. The results are presented in Table 2:

Table 2. Results of Mann-Whitney U Test for Children's Pencil Tap Task Scores According to The Quality of Teacher-Child Interaction

Group	N	Rank Average	Rank Total	U	P
Low Quality Classrooms	40	21,44	857,50	37,500	,000
High Quality Classrooms	40	59,56	2382,50		

The value of significance obtained by making the comparison of children's pencil tap task results with Mann-Whitney U test according to the quality of teacher-child interaction was found to be .000 (U=37,500; P=.000; P<0,05). This value indicates that there is a significant level of difference between the classrooms. When the rank average values are considered, it is seen that pencil tap task results of the children in classrooms where there is a high quality of teacher-child interaction are higher.

In order to determine the effect of the quality of teacher-child interaction on children's results on Tower Task, Mann-Whitney U Test was performed. The results are presented in Table 3:

Table 3. Results of Mann-Whitney U Test For Children's Tower Task Scores According to The Quality of Teacher-Child Interaction

Group	N	Rank Average	Rank Total	U	P
Low Quality Classrooms	40	22,60	904,00	84,000	,000
High Quality Classrooms	40	58,40	2336,00		

The value of significance obtained by making the comparison of children's tower task results with Mann-Whitney U test according to the quality of teacher-child interaction was found to be .000 (U=37,500; P=.000; P<0,05). This value indicates that there is a significant level of difference between the classrooms. When the rank average values are considered, it is seen that tower task results of the children in classrooms where there is a high quality of teacher-child interaction are higher.

Whether there is a significant relationship between the quality of teacher child interaction and children's scores from the Tower Cleanup Task was tested by means of Pearson Chi-Square Analysis.

Table 4. Children's Results Obtained from Tower Cleanup Task According to The Quality of Teacher-Child Interaction – Results of Pearson Chi-Square Analysis

		Tower Cleanup Task		Total	
		Adapts	Doesn't Adapt		
Quality of Teacher-Child Interaction	Low	N	2	38	40
		%	5,0	95,0	100,0
	High	N	0	40	40
		%	,0	100,0	100,0
Total	N	2	78	80	
	%	2,5	97,5	100,0	

According to Pearson chi-square test results, there is no significant relationship between the quality of teacher-child interaction and children's scores from tower cleanup task ($\chi^2= 2,051$, $p = 0,152$). Thus, it can be said that the results that children obtained from tower cleanup task don't differ in classrooms of high and low quality teacher-child interactions.

In order to determine the effect of the quality of teacher-child interaction on children's results on Toy Sorting Task, Mann-Whitney U Test was performed. The results are presented in Table 5:

Table 5. Results of Mann-Whitney U Test for Children's Toy Sorting Task Scores According to The Quality of Teacher-Child Interaction

Group	N	Rank Average	Rank Total	U	P
Low Quality Classrooms	40	38,48	1539,00	719,000	,134
High Quality Classrooms	40	42,52	1701,00		

The value of significance obtained by making the comparison of children's toy sorting task results with Mann-Whitney U test according to the quality of teacher-child interaction was found to be .134 ($U=719,000$; $P=.134$; $P<0,05$). This value indicates that there is no significant level of difference between the classrooms Thus, it can be said that children's scores obtained from the toy sorting task don't differ in classrooms where there is a high and low quality of teacher-child interaction.

Whether there is a significant relationship between the quality of teacher-child interaction and children's scores from the Toy Wrap Task was tested by means of Pearson Chi-Square Analysis.

Table 6. Children's Results Obtained from Toy Wrap Task According to The Quality of Teacher-Child Interaction – Results of Pearson Chi-Square Analysis

		Toy Wrap		Total	
		Peeks	Doesn't Peek		
Quality of Teacher-Child Interaction	Low	N	3	37	40
		%	3,8	46,2	50,0
	High	N	3	37	40
		%	3,8	46,2	50,0
Total	N	6	74	80	
	%	7,5	92,5	100,0	

According to Pearson chi-square test results, there is no significant relationship between the quality of teacher-child interaction and children's scores from toy wrap task ($\chi^2= ,000$, $p = 1,000$).

Whether there is a significant relationship between the quality of teacher-child interaction and children's scores from the Toy Wait Task was tested by means of Pearson Chi-Square Analysis (Table 7).

Table 7. Children's Results Obtained from Toy Wait Rap Task According to The Quality of Teacher-Child Interaction – Results of Pearson Chi-Square Analysis

			Toy Wait		Total
			Cannot wait	Waits	
Quality of Teacher-Child Interaction	Low	N	3	37	40
		%	3,8	46,2	50,0
	High	N	2	38	40
		%	2,5	47,5	50,0
Total	N	5	75	80	
	%	6,2	93,8	100,0	

According to Pearson chi-square test results, there is no significant relationship between the quality of teacher-child interaction and children's scores from toy wait task ($\chi^2= ,213$, $p = ,644$).

When the Toy Return, Snack Delay and Tongue Tasks, which assess children's self-regulation skill were examined in classrooms where the quality of teacher-child interaction was high and low, it was seen that data obtained from the children showed no variance. No matter what teacher-child interaction was, it was seen that all of the children gave the toy back to the examiner immediately, waited without touching the snack and could hold the snack on their tongue for the desired amount of time. The examiner recorded on the form that during Tongue Task, all children focused on holding the snack on their tongue without dropping it instead of focusing of not eating it. Thus, it was concluded that this task didn't fully assess the skill of delay of gratification.

Discussion and Conclusion

As a result of the findings regarding the significant difference on children's self-regulation skills according to the quality of teacher-child interactions; it was seen that children's skills with regards to self-regulation tasks were varied with the quality of teacher-child interactions. This differentiation was found significant in children's Balance Beam, Pencil Tap and Tower Task results. Accordingly, it was found out that teacher's having a high level of classroom organization skill besides the instructional and emotional support she offers positively affects children's self-regulation skills indicating instruction following skill (Table 1, Table 2 and Table 3). The significant difference on children's self-regulation skills according to the quality of teacher-child interactions has been revealed through several studies (Hamre et al., 2012; Merritt et al., 2012; Perry et al., 2002; Rimm-Kaufmann et al., 2009; Sammons et al., 2008; Silva et al., 2011). It was found out children who are in positive interactions with their children use problem solving skill, which is examined under the framework of executive functions, more effectively and have more ideas (Ocak, 2010). Williford et al., (2013) examined to what extent children's individual interactions with their teachers' peers and activities are related with their self-regulation skills. Through determining children's self-regulation skill by observing 341 children, direct assessment and teacher reports, it was found out that there is a relationship between children's positive interactions and executive functions. Also, it was put forth that children's active participation in activities and their emotional regulation skills were related. Rimm-Kaufman et al., (2009) revealed that the quality of teacher-child interaction and particularly effective classroom management ensured that children had better behavioral and cognitive self – regulation. Hamre et al., (2012), worked with children with an average age of 4.17 from 325 preschools in their study where they examined the relationship between the quality of teacher-child interaction and children's development. Researchers assessed the self-regulation skill by using the Pencil Tap and Backward Digit Span tasks. In the study, it was seen that children's executive function scores were higher in classrooms where teacher sensitivity was high. When the results of this study was examined, it was seen that high level of quality of teacher-child interactions positively affected children's executive functions, which were handled within the scope of children's self-regulation skills. These results support research findings.

It was found out that there is no significant difference in the results of tasks where social adaptation and delaying gratification skills were assessed with the tasks in PSRA as Tower Cleanup, Toy Sorting, Toy Return, Toy Wrap, Toy Wait, Snack Delay and Tongue Tasks according to the quality of teacher-child interaction (Table 4, Table 5, Table 6, Table 7). During the implementation of these tasks; it was recorded that most of the children considered the completion of tasks as an exam in success-oriented approach and asked the examiner questions as "Can I do it? Is it correct? Teacher, can you tell me if I am right? Findings obtained shows that children acted with the desire to obtain appreciation from the grown-ups, which can be observed in children of this age. Adult appreciation, which initially takes place in children's family life, continues also at school becoming integrated with the teachers. Being accepted by adults in childhood is closely related with psychological adaptation in the following years (Rohner, 2008). Children's efforts of meeting adults' expectations and desire to be continuously approved by an authority can be a result of our cultural structure. Both parents and early childhood educators show an attitude of appreciating higher level skills without considering children's current level of potential and their developmental aspects. This results in children's becoming individuals focused on achievement by continuously modeling the older siblings or friends who are better or higher level skills (Yavuzer, 2000). In addition to these, teacher's educational approach can be mentioned as the reason for children's statements of anxiety throughout the assessment. When education system is established on success and competition, it causes children to develop feelings of incompetency. However; when children's skills and personalities are considered as well as their academic standing, children feel more competent. This can demonstrate that both our cultural structure and education system cause bringing up children with high level of anxiety, which gradually increases in higher grades (Tekindal, Eryas and Tekindal, 2010). It is thought that teachers

generally make children feel that it is important to meet adult expectations. Therefore, children demonstrated an adaptive attitude and could delay pleasure when together with the examiner throughout the assessment no matter what the quality of classroom interactions were.

The relationship between children's social adjustment and teacher-child interaction was revealed in a study by Merritt et al., (2012). Researchers used a model that interprets preschool children's social and self-regulation skills in elementary school in their study where it was aimed at putting forth the relationship between teacher-child interaction and children's social behaviors and self-regulation skills. Findings obtained from 178 children and 36 teachers showed that when teachers showed a high level of emotional support, children's non-conforming behaviors decreased and behavior modifications increased. In their study Bondurant (2010), children who were not successful in literacy skills in elementary grades experienced more problems in conforming and delaying gratification when they were 36 and 53 month old compared to their peers. It was also found out that children's being not successful in math in elementary grades is related with the problems they experienced in delay of gratification skills they showed when they were 36 months old. Suchodolets et al., (2009) found out in their study that children's behavior modification was directly related with their academic performance and classroom behaviors. Perry et al., (2002) conducted a study for the purpose of finding out the strategies teachers use to support children's self-regulation skills in literacy activities and found out that children showed self-regulatory skills in their learning process by performing open-ended activities making decisions that would be effective on their learning, controlling the challenges they experience and making self-assessments. This shows that it is important that teacher give some autonomy to children in the classroom in supporting their self-regulation skills.

As a result, in light of the findings obtained from this study, it was found out that executive function skills, which make up the cognitive aspect of self-regulation skills of children in classrooms with high level of teacher-child interaction is higher than the ones in the classrooms with low teacher-child interactions. On the other hand, the study shows that children's social adaptation and delay of gratification skills do not differ according to the quality of teacher-child interactions in their classrooms.

Based on the result that children's self-regulation skills have a significant difference according to the quality of teacher-child interactions; teachers can be provided with instructional and emotional support that might increase the quality of their interactions with children and trainings regarding classroom organization and sample practices can be shown. Also, teachers can be given trainings with regards to supporting their self-regulation skills and it can be suggested that various practices should be done in the classrooms in this context. Children's social adaptation and delay of gratification skills can be assessed with different measurement tools besides PSRA tasks and the relationship of these skills with the quality of teacher-child interactions can be revealed.

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