



Examining School Readiness of Preschool Children with Different Cognitive Style

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Abstract

In this study school readiness of five-six year old children for primary school according to their cognitive styles. Study group is composed of 227 five-six year old children attending nursery classes or kindergartens at preschool institutions in districts of Konya city center. Kansas Reflection-Impulsivity Scale for Preschoolers Form A (KRISP) was used in order to identify study group children's reflective-impulsive cognitive styles, and Metropolitan Readiness Test, Preschool and Kindergarten Behavior Scale Form A (PKBS) and Peabody Picture-Vocabulary Test were used to determine their school readiness. Discrimination analysis was done to find out how correctly children were classified into groups with reflective-impulsive cognitive styles. Scores that groups got from tests were analyzed using independent samples t-test and SPSS 16.0 package program. In order to examine the effect size Cohen d value was calculated. General result found out at the end of the study is that school readiness of preschool children differs in favor of children with reflective cognitive style.

Keywords

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Introduction

Starting primary school is one of the most important milestone children face at the beginning of their life. Studies underline that primary school is an important phase of children's education life and starting primary school without any problem has an important role in their further school life, successes, and more importantly in their lives (Entwisle & Alexander, 1998; Ramey & Ramey, 2004). Making a smooth start is closely correlated with their readiness to primary school. According to Koçyiğit (2009) school readiness is a concept that involves different aspects; it can change from one child to another, it can be completed at different ages, it also involves maturation of a child with a strong balanced background in all developmental areas and having a performance to present all features that are necessary for learning. Child's readiness to primary school is generally considered within the scope of a chronological age. This situation also requires children who are at the age of primary school to have developmental features or competencies in some areas (Yaban & İpek Yükselen, 2013). When mentioned competencies are examined, it can be claimed that cognitive development, social and emotional development, motor development, desire for learning, and world knowledge level are prerequisites for readiness to primary school (Oktay, 2000). Criteria developed by Panel of National Education Targets about school readiness were given by Kagan (1992, p.12-18) as following:

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Physical and Motor Development: Children should be healthy, well-nourished, and well rested. Their motor development should be improved to hold a pencil straight and in the correct way. Social and Emotional Development: Children should form secure relationship with adults and could be able to play and work with others.

Language Usage: Children should express their emotions and thoughts and comprehend beginning reading skills. Cognition and General Knowledge: Children should know the colors and shapes and should be able to comprehend concepts like hot-cold. Approaches for Learning: Children should have curiosity, creativity, independence, cooperation and patience.

In many countries starting compulsory education overlaps with primary school. Nearly everywhere children who are at the age of compulsory education have to register an educational institution. In Greece, Cyprus, Hungary and Poland final year of preschool education is compulsory for all children, in countries like Lithuania and Luxemburg last two years of preschool education is compulsory. In Denmark preschool education class where six year old children are registered and since 2009 compulsory was combined with primary and elementary education (Grade Retention during Compulsory Education in Europe: Regulations and Statistics, 2011). Age determined by law is a criterion in all countries to start primary education. In Turkey starting primary school age is five (60 months) it is regulated by the Primary School and Education Law number 222 which went into effect on 30th March 2012 and it is stated in National Education Basic Law number 1739 (Ministry of National Education [MEB], 2012). The most common criterion that is used in European countries is that the child is required to have a certain level of development, maturity or readiness. In studies conducted in Turkey, it is stated that chronological age is not an adequate criterion to reach school maturity; and competencies about social-emotional, motor and self-care skills are emphasized (Boz, 2004; Koçyiğit, 2009; Unutkan, 2003).

Although a number of factors that affect readiness to primary school have been mentioned, physical, cognitive, emotional and social factors are commonly discussed in literature. In addition to cognitive skills like reasoning, problem solving, using language in communication, curiosity, enthusiasm for learning, easy adaptation to learning environments, cognitive factors also include cultural values and characteristic features (Dinç, 2013). Among the prominent cognitive factors, intelligence is the most effective factor on child's learning skill. Cognitive styles have been started to be used in order to eliminate the deficiencies and increase the validity of predictions made with intelligence tests that have been used to make predictions about the child's academic and social success (Çakan, 2002).

In a general sense, cognitive style is known as a way of approaching problems (Witkin, Moore, Goodenough & Cox, 1977), more specifically, methods preferred in gaining (perceiving), organizing and using knowledge (Knowles, Holton & Swanson, 1998; Woolfolk, 1998). Cognitive styles are also used to define individual differences in processes of perceiving, collecting and processing of knowledge people use (Franco & Meadows, 2007; Kozhevnikov, 2007). Researchers stated that cognitive styles are one of the most important determiners of individual successes. Different cognitive styles considerably affect individual perspective and management methods of group conflicts and they have a predictive power of general skills of children more than their academic success (Kim, Choi & Park, 2012; Kozhevnikov, 2007).

Researchers have identified a number of cognitive styles (Gander & Gardiner, 2001). One of the most researched cognitive styles are reflective and impulsive cognitive styles. Reflective and impulsive cognitive styles includes definitions of individual differences in problem solving and explain reflective (intellectual) - impulsive features (Fisher, 2009; Gander & Gardiner, 2001; Siegman, 1969). These features include response time and making mistakes while solving problems that have high uncertainty. Tendency of answering fast but making a lot of mistakes is impulsive; making few mistakes by answering slowly is intellectual. Impulsive individuals have a tendency to answer in a hurry. They use very little time to work out and analyze the data or effects that activate them, so they

make a lot of mistakes. They have a tendency to have lack of control over thoughts and behaviors and act in a hurry on demand of impulses or environmental demands despite potential negative results. Moreover, having accidents as a result of careless behavior and being impatient are other features of impulsive cognitive style. Individuals with reflective style have a tendency to think before deciding, do not trust reaction coming from gut, make use of thoughts, weigh the options carefully and follow thought-action order and work right (Ehrman & Leaver, 2003; Pekarsky, 2012; Seçer, Çeliköz & Yaşa, 2008; Seçer, Sarı, Çeliköz & Üre, 2009).

Starting primary school is quite an important milestone for children. The child will face with prerequisites of programmed instruction, feel the necessity to obey these rules and solve various problems alone. Academic experience they will acquire in the first year will have effect on further academic levels. There are a lot of factors that affect school readiness of a child. Cognitive styles can be claimed to be one of these factors. When related literature is examined although there are a lot of studies about factors affecting school readiness, there is no study about cognitive styles factor. In this context, this study is considered to be very important and as it presents the effects of cognitive styles on children's school readiness and provides data for researchers studying in this field.

General aim of this study is to find an answer to the question "Do school readiness of preschool children differ according to cognitive styles they have?" In accordance with this general aim, following sub-aims will be tested; Do Metropolitan Readiness Test score of preschool children (reading readiness, number readiness, and copying, general school readiness) differ according to cognitive styles they have? Do social skills of preschool children (social cooperation, social interaction, and social independence) differ according to cognitive styles they have? Do receptive language skills of preschool children differ according to cognitive styles they have?

Method

Research Design

In this study which is conducted in order to examine whether school readiness of preschool children differ according to their reflective-impulsive cognitive styles, relational survey model-one of general survey models- was used in this model the aim is to present existing situation or situations as they are and give information about the correlation level between two or more relation (Karasar, 2002).

Participants

While forming the study group of the study the chart suggested by Krejcie and Morgan (1970) was utilized. When the number of the universe is certain Krejcie and Morgan (1970) devised formula to calculate the corresponding sample numbers and formed a table. In order to identify the number of the universe, statistics of Konya Provincial Directorate of National Education for 2012-2013 academic years was used. In these statistics, the number of children attending preschool institutions in Konya was 14068. According to this number, minimum 374 students should be included in this study. At first, 398 students were included in the study. These students were classified into four groups; impulsive, reflective, fast-accurate, slow-inaccurate. In order to determine which group each child is included mean of the number of mistakes and the duration of answering were calculated. The ones who made mistakes below the mean score of Kansas Reflection-Impulsivity Scale for Preschoolers Form A were included in Reflective group, the ones who made mistakes above the mean and whose duration of answering was below the mean score were included in the group of Impulsive, the ones who made mistakes above the mean score and had duration of answering above the mean were included in slow-inaccurate and the ones who made mistakes below the mean score and had duration of answering below the mean score were included in fast-accurate group. As school readiness of children with reflective and impulsive cognitive styles would be examined in this study, 227 five-six year old student were included in this study. Descriptive statistics for children who were included in the study like sex, age, how long they attended a preschool institution are given in Table 1.

Table 1. Descriptive Statistics for Children in the Study Group Like Sex, Age, How Long They Attended a Preschool Institution

Cognitive styles		Reflective		Impulsive	
		n	%	n	%
Sex of the child	Male	43	18.9	60	26.4
	Female	56	24.7	68	30
	Total	99	43.6	128	56.4
Age of the child	5 years	52	22.9	72	31.7
	6 years	47	20.7	56	22.7
	Total	99	43.6	128	56.4
How long they attended a preschool institution	1 year and less	58	25.5	87	38.3
	2 years	28	12.3	26	11.4
	3 years and more	13	5.8	15	6.7
	Total	99	43.6	128	56.4

When Table 1 is examined 99 (43.6%) of the children in the study group have reflective cognitive style, 128 (56.4%) of them have impulsive cognitive style. When the features of children with reflective style are examined 43(18.9%) of them are male, 56 (24.7%) of them are female. 52 (22.9%) of these children are five years old, 47 (20.7%) of the are six years old and 58 (25.5%) of them had less than one year, 28 (12.3%) of them had two years, 13 (5.8%) of them had more than three years preschool education. When the features of children with impulsive cognitive style are examined, 60 (26.4%) of them are male, 68 (30%) of them are female. 72 (31.7%) of these children are five years old, 56 (22.7%) of them are six years old and 87 (38.3%) of them had less than one year, 26 (11.4%) of them had two years, 15(6.7%) of them had three years and more preschool education.

Research Instruments

Kansas Reflection-Impulsivity Scale for Preschoolers Form A (KRISP) is used in order to identify study group children's reflective-impulsive cognitive styles, Metropolitan Readiness Test was used to identify their school readiness, Preschool and Kindergarten Behavior Scale Form A (PKBS) to measure their social skills and Peabody Picture-Vocabulary Test was used to measure their language skills. Although Metropolitan Readiness Test is the most commonly used among the tests that measure school readiness, it does not provide any data about social skills that are the most important elements of school readiness. Therefore, Preschool and Kindergarten Behavior Scale Form A (PKBS) was used to identify their social skills. Moreover, in order to assess language skills that are considered very as an important school readiness criteria by many researchers Peabody Picture Vocabulary Test was utilized.

Kansas Reflection-Impulsivity Scale for Preschoolers Form A – KRISP. It was developed by Wright (1971) and composed of 15 shapes. Before ten shapes, there are five sample shapes that give information about how to solve the test. Validity and reliability study of the scale was done by Seçer, Çeliköz, Koçyiğit, Seçer and Kayılı (2010). For its content and face validity experts' opinions were asked, for reliability studies scorer reliability, test re-test and split half reliability were examined. For scorer reliability, 30 children attending preschool education in Konya were assessed by two observers. While evaluating reaction time for Form A, correlation between two observers was found .83 and error number was found .78. As an indicator of reliability test re-test reliability was examined. For this aim, in Konya city center 303 children attending preschool institutions were chosen for the study group and the scale was administered two times in two weeks and Pearson Moments Correlation coefficient was examined between two scores at the end of each administration. Reaction time for Form A was found .89 and error number was found .74. At the end of two administration on the same group, a positive correlation ($p<.01$) between the scores was observed. At the end of the findings, consistency between the two administrations of the scale was found to be acceptable. Split half method was also used to identify the reliability of the test. Correlation coefficient calculated with

Spearman-Brown formula for reaction time was found .85, and error number was found .71 (Seçer, Çeliköz, Koçyiğit, Seçer & Kayılı, 2010).

Metropolitan Readiness Test. It is developed by Hildreth, Griffiths and McGauvran (1965) in order to assess success level of children who are going to start primary school and their features that will enable them to be ready to understand the instructions given to children at first grade. Original form of the test was prepared in English and R Form was adapted into Turkish by Oktay (1980). The test does not expect a verbal answer from the child. Almost all the shapes that constitute the test are pictures of objects that Turkish children are familiar with (Yazıcı, 1999). The test is a 16 page leaflet and composed of 100 items. There are six subtests. The total of these six tests is defined as general readiness. Score got from word meaning (19 items), sentences (14 items), general knowledge (14 items), matching (19 items) subtests identifies reading readiness; score from numbers (24 items) subtest identifies number readiness; total score from word meaning, sentences, general knowledge, matching, numbers and copying (10 items) identifies general readiness level. Each subtest is composed of pictures that can be marked or copied by the child according to the instruction given verbally by the researcher. One point is given for each correct item in the test. In its reliability study, correlations between parallel forms of the test that was administered to 195 first year primary students a few days intervals was calculated and it was found between .53 and .83. Moreover, standard error scores calculated for each subtest were found between 1.35 and 2.02. In validity study of the test, American norms and Istanbul norms were compared; similarities were found between average and standard deviation of children chosen from the most developed districts in Istanbul and average and standard deviations of American children (Öner, 1997).

Preschool and Kindergarten Behavior Scales (PKBS). PKBS is developed by Merrell (1994). Originally the scale is composed of 76 items, in 2010 in order to ensure factor analysis and content validity of the scale experts' ideas were asked and the scale was reassessed by Seçer, Çeliköz, Koçyiğit, Seçer and Kayılı and its final form was created. On the other hand, as it provided similar results with the original form no item was omitted and without changing its originality it was used. Data collection device is composed of two forms to identify social skills and problem behaviors of 3-6 year old preschool children and 76 Likert type question items. While social skills are composed of three sub-dimensions; social cooperation, social interaction, and social independence, problem behaviors are composed of following sub-dimensions; Self-Centered/Explosive, Attention Problems/Overactive, Antisocial/Aggressive, Social Withdrawal, Anxiety/Somatic. 42 of the statements in the scale were for identifying problem behaviors and 34 for identifying social skills. The scale includes processes of assessments of children and identification of their social skills and problem behaviors by the teachers taking into account their experiences about children. In the study, Form A namely Social Skills Test was used. Principal Component Analysis was used to ensure the content validity of the test. Prediction percentage of the total variance for measuring three factors that belong to social skills sub-dimension of the scale was found 74.3% and Cronbach Alpha Reliability Coefficient was found .98. Items' factor loads differ between .55 and .88. Cronbach Alpha Coefficient for the scale's social cooperation sub-dimension is .97, social interaction sub-dimension is .95 and social independence sub-dimension is .95 (Seçer, Çeliköz, Koçyiğit, Seçer & Kayılı, 2010).

Peabody Picture-Vocabulary Test (PPVT). Original form of the test is in English and it is developed by Dunn (1965) and in 1972 adapted into Turkish by Katz et.al. (Katz, Önen, Demir, Uzlukaya & Uludağ, 1974). Peabody Picture-Vocabulary Test measures the development of vocabulary knowledge. It can be administered to 2-12 year old children individually. There is no time limitation in administration of the test but it can be completed in 10-15 minutes. In the test, there are questions that aim to identify vocabulary (concept) development with pictures. There are hundred cards which includes four pictures and a registry form. The PPVT consists of 100 image plates. Each image plate contains 4 pictures and the child is asked to choose and point to one of pictures which best represents the meaning of the word he was told. Each correct answer is given one point. Administration of the test continues until getting six incorrect answers to the last eight questions of

the test. Total number of correct answers gives the raw score of the test. In order to calculate this, the number of incorrect answers is subtracted from the number of the last correct answer. Gathered raw score is converted into receptive language age from the Receptive Language Finding Chart according to place the child lives in village, city, and slum (Kayılı, Koçyiğit & Erbay, 2009). Birth date (dd/mm/yy) is subtracted from the date the test is administered and the chronological age of the child is found.

Procedure and Data Analyses

Kansas Reflection-Impulsivity Scale for Preschoolers Form A and Peabody Picture-Vocabulary Test were administered to children in their schools in an appropriate location of the school individually. Preschool and Kindergarten Behavior Scales (PKBS) Form A was completed by class teachers for each student. Scores gathered from the Kansas Reflection-Impulsivity Scale for Preschoolers Form A were used to identify what kind of cognitive styles children have and it was calculated by considering their average scores from number of error and reaction time. At the end of this calculation children were grouped as reflective, impulsive, fast- accurate and slow- inaccurate. In this study children with impulsive and reflective cognitive styles were examined so children with fast-accurate and slow-inaccurate were not evaluated. As the children having Reflective and Impulsive tempo were analyzed in this study, the children having fast- accurate and slow- inaccurate tempo were excluded from the assessment. So, the study which was started with 398 children was maintained with 227 children. In order to identify how accurately the groups were classified, discrimination analysis was used and eigenvalue for two functions were found .78 and .74. These data can be interpreted as functions were very effective in classifying groups (Çokluk, Şekercioğlu & Büyükoztürk, 2010). While comparing school readiness of children grouped into reflective and impulsive cognitive styles, SPSS 16.0 data analysis program for social sciences was used and for independent groups t-test processes were applied and the significance level of the difference between the average scores was found .01. Cohen d statistic was used while measuring effect size of cognitive styles on scale scores. Cohen d statistic provides an opportunity to interpret how many standard deviation the averages are far away from one another. Cohen d value .2, .5 and .8 without considering their sign are interpreted as low, medium, and large effect size respectively (Cohen, 1992).

Results

The findings of the study which examined whether the school readiness of preschool children differ according to having reflective- impulsive cognitive styles are presented below in tables.

In Table 2 according to preschool children's cognitive styles variable t-test results and Cohen d value identifying effect size in independent groups concerning their school readiness (reading readiness, number readiness, copying and general school readiness) are given.

Table 2. According to Cognitive Styles t-Test Results and Cohen d Value Concerning School Readiness Scores

Metropolitan Readiness Test	Cognitive Styles	n	X	S	sd	t	p	d
Reading Readiness	Impulsive	128	49.57	7.61	225	3.129	.002*	.41
	Reflective	99	52.80	7.87				
Number Readiness	Impulsive	128	16.39	2.62	225	3.593	.000*	.48
	Reflective	99	17.64	2.55				
Copying	Impulsive	128	5.06	1.90	225	3.132	.002*	.41
	Reflective	99	5.83	1.78				
General School Readiness	Impulsive	128	71.03	11.55	225	3.365	.001*	.44
	Reflective	99	76.29	11.84				

*p<.01

When Table 2 is examined it is seen that there is a significant statistical difference in favor of preschool children with reflective cognitive style in their scores from subtests of Metropolitan Readiness Test; reading readiness [t(225)=3.129, p<.01], number readiness [t(225)=3.593, p<.01], copying [t(225)=3.132, p<.01] and general school readiness [t(225)=3.365, p<.01]. Cohen d statistic was used in order to measure the effect size of cognitive styles on preschool children's school readiness. Cohen d value .2, .5 and .8 without considering their sign are interpreted as low, medium, and large effect size respectively (Cohen, 1992). When these values are taken as references, it can be claimed that cognitive styles have a nearly medium size effect on scores gathered from sub-dimension of Metropolitan Readiness Test; reading readiness (.41), number readiness (.48) copying (.41) and general school readiness (.44).

In Table 3 According to cognitive styles variable in preschool children their t-test scores in independent groups concerning social skills (social cooperation, social interaction, social independence and total social skills) and Cohen d values are given.

Table 3. t-Test Results and Cohen d Values for Preschool Children's Social Skills Scores According to Their Cognitive Styles

PKBS	Cognitive Styles	n	X	S	sd	t	p	d
Social Cooperation	Impulsive	128	49.88	5.23	225	5.678	.000*	.77
	Reflective	99	53.38	3.64				
Social Interaction	Impulsive	128	48.72	4.27	225	2.575	.011*	.35
	Reflective	99	50.08	3.42				
Social Independence	Impulsive	128	49.40	4.15	225	2.818	.005*	.38
	Reflective	99	50.78	2.90				
Total Social Skills	Impulsive	128	148.01	12.87	225	4.330	.000*	.59
	Reflective	99	154.25	7.15				

*p<.01

When Table 3 is examined it is seen that there is a statistically significant difference in favour of children with reflective cognitive styles in their scores from sub-dimensions of PKBS Preschool and Kindergarten Behavior Scales Form A; Social Cooperation [$t(225)=5.678, p<.01$], Social Interaction [$t(225)=5.678, p<.01$], Social Independence [$t(225)=2.818, p<.01$] and Total Social Skills [$t(225)=4.330, p<.01$]. Cohen d statistic was used in order to measure the effect size of cognitive styles on preschool children's social skills. At the end of the analysis it can be suggested that cognitive styles has medium effect on Social Cooperation (.77) and Total Social Skills (.59) scores and low effect on Social Interaction (.35) and Social Independence (.38) scores which are sub-dimension of PKBS Preschool and Kindergarten Behavior Scales Form A.

In Table 4 according to cognitive styles variable in preschool children their t-test scores in independent groups and Cohen d value concerning receptive language skills.

Table 4. According to Cognitive Styles t-Test Results and Cohen d Value Concerning Preschool Children's Receptive Language Skills

Peabody Picture-Vocabulary Test	Cognitive Styles	n	X	S	sd	t	p	d
Receptive Language Skills	Impulsive	128	57.66	3.58	225	6.517	.000*	.86
	Reflective	99	61.12	4.41				

* $p<.01$

According to Table 4 it is seen that there is a statistically significant difference in favor of preschool children with reflective style concerning their receptive language scores [$t(225)=6.517, p<.01$] from Peabody Picture-Vocabulary Test. When it is considered with effect size, it can be suggested that according to Cohen d index cognitive styles has a high effect size (.86) on children's receptive language scores in Peabody Picture-Vocabulary Test.

Discussion, Conclusion and Suggestions

In this section, findings gathered from the study are discussed in the same order with the research problems and in the light of the findings gathered from the literature. When the results of preschool children with reflective and impulsive cognitive styles from Metropolitan Readiness Test's, General School Readiness and other sub-dimensions are examined, a significant difference was observed in favor of children with reflective cognitive style. This finding can be interpreted as cognitive style is a result of the possibility of making very few mistakes with slow reaction or high mistake possibility with fast reaction tendency. Hence children who have impulsive cognitive style possibly answer fast and possibility to make mistakes is higher (Bernfeld & Peters, 1986; Egeland & Weinberg, 1976; Rozencwajg & Corroyer, 2005). When it is considered that Metropolitan Readiness Test measures especially cognitive skills in school readiness, it is an expected result that children with impulsive cognitive style are expected to get lower scores than children who have reflective style. Researchers emphasized the importance of reflective cognitive style namely giving decisions by thinking on problem solving and learning, they also stated that intelligence is especially related with concentration and visual organization and children with reflective cognitive style are more successful in above mentioned fields than children with impulsive cognitive style (Brannigan, Ash & Margolis, 1980). Reflective children have a tendency to think before giving a decision and analyze options carefully and find the truth (Ehrman & Leaver, 2003). The finding of this study is in accordance with other findings of the studies in the literature. In a study conducted by Wood (1979) as a predictor of first year children's success cognitive styles, school maturity and their behaviors were examined. Combinations of these factors explain an important part of school success variance. Gullo (1988) presented the effect of cognitive styles on academic and social competencies of children in early childhood period. In the scores of Reading Readiness which is a sub-dimension of Metropolitan Readiness Test, there is a significant difference in favor of children who have reflective cognitive style. Likewise, the correlation between language acquisition and skills about understanding what is read

and cognitive styles have been stated by a number of researchers (Egeland, 1974; Gaskins & Baron, 1985; Gullo, 1988; Meichenbaum, 1977; Razmjoo & Mirzaei, 2009; Wood, 1979). Saphiro (1976) in his study which he examined the correlation between cognitive styles and reading readiness reached similar results. In the study mentioned above, it was observed that first year children with reflective cognitive style had lower scores than children with impulsive cognitive style in vocabulary naming, letter naming, reading comprehension, hand-eye coordination and understanding instructions.

Experts have stated that social skills have an important role in readiness to primary school criteria, especially incompetency in social independence and social cooperation may result in failure in adaptation to school and consequently academic failure (Kayılı & Arı, 2011; Kayılı & Kuşcu, 2012; Koçyiğit, 2009). In the findings of the study it was observed that cognitive styles have effects on children's social skills. In children's scores from sub-dimensions of PKBS Preschool and Kindergarten Behavior Scales; Social Cooperation, Social Interaction, Social Independence and Total Social Skills, there is a significant difference in favor of children with reflective cognitive style. There are a number of studies that presents the correlation between cognitive styles and social skills (Bernfeld & Peters, 1986; Boyer & Strachan; 1990; Eder, 2011; Ehrman & Leaver, 2003; Fisher, 2009; Gullo, 1988; Pekarsky, 2012; Seçer, Çeliköz, Koçyiğit, Seçer & Kayılı, 2010; Seçer, Çeliköz & Yaşa, 2008; Salkind & Wright, 1977). Researchers emphasize that children with impulsive cognitive style, as an element of their behavior system; easily activate impulsive processes (Strack & Deutsch, 2004). Furthermore, Nelson and Shapiro (1987) examined consistent stimulation levels of reflective and impulsive children and at the end of the study it was seen that impulsive children had low level of stimulation level whereas reflective children had high level of stimulation level. According to Pekarsky (2012) impulsive children are less liked by their peers, demonstrate less prosocial behaviors, less cooperative and experience problems extrinsic and intrinsic behaviors. When the results of studies that examine the effects of cognitive styles on social skills (Seçer, Çeliköz, Koçyiğit, Seçer & Kayılı, 2010), similar results are seen under social cooperation and social interaction dimensions. Gullo (1988) examined children with different cognitive styles and compared their social competencies and found that reflective children had higher social competency scores than impulsive children.

Another finding of the study is that there is a statistically significant difference in favor of preschool children with reflective style concerning their receptive language scores from Peabody Picture-Vocabulary Test. In most of the studies about cognitive styles it was observed that children with impulsive cognitive style had lower test scores than children with reflective cognitive style (Boyer & Strachan; 1990; Egeland, 1974; Gaskins & Baron, 1985; Meichenbaum & Goodman, 1969; Salkind & Wright, 1977). It is an expected result that children with impulsive cognitive style have a tendency to answer fast consequently they have a high possibility to make mistakes. Supporting findings can be seen in the study conducted by Meichenbaum and Goodman (1969). In the mentioned study, it was stated that children with impulsive cognitive style got lower scores from Peabody Picture-Vocabulary Test compared to children with reflective cognitive style. Moreover, Razmjoo and Mirzaei (2009) found that children with reflective cognitive style had higher language proficiency scores than children with impulsive cognitive style. In Kagan's (1965) study children with impulsive cognitive style got lower scores from reading readiness test and there was a correlation between test scores and answering time of the test. In a study conducted by Learner and Richman (1984) it was found that cognitive style affected children's pre-reading and reading performances. These results support the finding of this study.

General result reached at the end of research findings: cognitive styles affects children's school readiness and children with impulsive cognitive style got lower test scores than children with reflective cognitive style in tests that measure different school readiness elements. Some suggestions were made in line with the study results to the preschool teachers, school psychologists, counselors and researchers.

Preschool teachers, school psychologists and counselors should consider cognitive styles can be an identifier of a child's academic and social development and they can support children with impulsive cognitive style in finding alternative solutions for problems. Impulsive movements of children with impulsive cognitive style can be prevented by engaging them in activities like chess, checker etc. Children with reflective cognitive style spend a lot of time for problems so they may need extra time especially in tests that require time should be taken into consideration.

When it is thought that children with impulsive cognitive style possibly make more mistakes in standard tests, their school readiness can be measured with qualitative methods. While identifying cognitive styles of children instead of their test scores, the time they spent while answering test items can be taken into consideration.

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