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Validity and Reliability of the DeMoulin Self-Concept Developmental Scale for the 36-72 Month Old Children

Rengin Zembat[1], Nalan Kuru Turaşlı[2], Gül çin Güven[3], Türker Sezer[4], Ezgi Akşin[5], Elif Yılmaz[6], Dilan Bayındır[7]

[1, 3, 5, 6, 7]Atatürk Education Faculty, Marmara University, İstanbul, Turkey

[2]Education Faculty, Uludağ University, Bursa, Turkey

[4]Education Faculty, Abant Izzet Baysal University, Bolu, Turkey

Correspondence: Türker Sezer, Education Faculty, Abant Izzet Baysal University, Gölköy Campus, 14280, Bolu, Turkey

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Abstract

The aim of this study is to investigate the reliability and validity of the DeMoulin Self-Concept Developmental Scale for 36-72 month old children. In addition, it has been attempted to examine the effects of age and gender variables on the self-concept of children. The study is in survey method. The sample consists of 810 children who attend preschools in Istanbul, Turkey. Data collection tools used in the research are; the Demographic Form, the DeMoulin Self-Concept Developmental Scale for Children, the Social Competence and Behavior Evaluation Scale-30 and the Emotion Regulation Scale. The results of the item discrimination and criteria validity analyses support the validity of the scale. It could be said that the founded Cronbach's Alpha value of the total scale and subscales and the results of the split half method and test-retest method analyses indicate that the scale is a reliable measurement tool. In addition, it has been found that the age variable affected the self-concept scores, but the gender variable had no effect on it. The research findings are discussed within the framework of the related literature.

Keywords: Self-concept, preschool, validity, reliability, age, gender

1. Introduction

Self-concept as a general term that refers to "being able to deliberately define his own existence apart from the environment and from other people" (Huitt, 2011). This concept is also accepted as a person's perceptions, feelings, and impressions about him/herself (Plucker and Stocking, 2002; Marshall, 1989; Wall, 1986 all cited in Kapıkıran, 2004). Self-concept reflects all the experiences that we have encountered during the whole life and positive or negative values associated with them (DeMoulin, 2000).

Self-concept, which has been accepted as a person's self-interpretation, was one of the most interesting topics throughout the history of humanity. Self is a concept attracting very high interest from philosophers and thinkers first, then from historians and politicians, and from psychologists and educators in the last century. Today, the concept of self is considered as one of the most fundamental topics of humanity (Hattie, 2014).

The concept of self has many implications on the values, beliefs and attitudes of the individual, and on his whole life in terms of personal, physical and social aspects (Arnold and Boggs, 2011). The concept of self, which has such a wide impact range, therefore requires a multi-dimensional explanation (Sallay, 2000). James (1957) considered self as "the objective self and subjective self" (cited in Huitt, 2011); Rogers (1980) as, "actual self and ideal self" (cited in Bukato and Daehler, 1992); Lindenfield (1997), as "inner confidence and outer confidence" (cited in Özbey, 2004); DeMoulin (2000) as "self-efficacy and self-esteem".

The widely accepted view is that self-concept is not an innate property; it is a situation mostly occurs with the age and socio-physical surrounding. In the formation of self-concept, childhood is the crucial period (DeMoulin, 2000). The period starting with the birth of the child and continues until the age of one is accepted as the period where the sense of basic confidence is formed. Up to three year-old, the surrounding people's attitudes will be decisive on the child's self-concept. After three year-old, children continuously ask question and attempt to understand the events occurring around them. The reaction of their surrounding is the second cornerstone of their confidence development (Thompson, Barnsley and Battle, 2004).

In the field of social sciences, the self-concept and the impacts of self-concept on the life of the individual, is an issue that researchers often are working on. The review of the studies conducted on this issue indicated that the self-concept in the childhood period is affected by the relations with the social surrounding formed by the family, friends and teacher (Pallini, Baiocco, Schneider, Madigan and Atkinson, 2014; Spilt, Lier, Leflot, Onghena and Colpin, 2014; Verschueren, Doumen and Buyse, 2012; Vervoort, Bosmans, Doumen, Minnis and Verschueren, 2014), if affects the child's life quality, academic success (Gullo, 2015, Määttä, Järvelä and Perry, 2015) and attitude towards school (Günalp, 2007; Kuru-Turaşlı, 2006). Even though long terms effects of self-concept on the life of the individual have been proven in many researches and it is a highly popular topic in the field of social sciences, the measurement of self-concept on the early ages is quite difficult. There are two main reasons for this difficulty. First, the awareness of self is just begun to emerge in this period. Second, many factors that should be addressed within the concept of self are nested. Moreover, illiteracy of the children, the influence of various factors (such as family, immediate surroundings and teacher) on self-concept, being a highly abstract issue, the difficulties of pre-school children's in defining the facts can be considered among the other factors complicating the measurement process (Kuru-Turaşlı, 2014).

The review of the literature revealed some instruments used in the measurement of children's self-concept. The most known and common of them are the Coopersmith Self Esteem Inventory –CSEI, developed in 1967 and the Piers-Harris Children's Self-Concept Scale, developed in 1984 (Öner, 2009). Both scales consist of the elements considered as having an impact on the child's self-concept (e.g. cognitive competence, physical skills, being popular, parental attitudes, moral values, personality traits, physical characteristics and emotional reactions) and a general conclusion is derived using all these aspects (Van den Bergh and Van Ranst, 1998). Apart from these, there are other measurements tools evaluating self-concept, for example the Preschool and Primary Self-Concept Scale, the Harter Self-Concept Scale (HSCS), the Perceived Competence Scale for Children and the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Stager and Young, 1982 cited in Harter, 1985; Harter and Pike, 1984 cited in Cugmas, 2002). In addition to these, the DeMoulin Self-Concept Developmental Scale (DSCDS) is also used as a measurement tool that provides a systematic and comparative analysis of children's personal self-concept and making diagnosis (DeMoulin, 2000).

The DeMoulin Self-Concept Developmental Scale for 5-6 year-old children was adapted into Turkish by Kuru-Turaşlı (2006, 2014). The scale was prepared considering the characteristics of the children who cannot read and write, children are asked to reflect their reactions towards the statements read to them by coloring various facial expressions. However, the review of the above mentioned measurement tools adapted to Turkish revealed a shortcoming in measuring younger (3-4 year-old) children's self-concept. As mentioned above, most of the tools developed towards measuring self-concept either addresses elementary school level or children with special needs. Therefore, it is believed that our country needs a measurement tool used to assess self-concept of normally developed children of the younger age group. Also, this scale is choosen because it makes children active during the process and this keep children's attention. The child is asked to paint the facial expression that he/she believes best reflects his/her feelings about the item statement that the researcher read to her/him. Also, the duration of the application of the scale lasts for 20 minutes in average. So, it can be said that it does not take too much time for the evaluation of the concept. Furthermore, it is easy to apply. The child and administrator sit facing each other at a table and all required are question sheets and colored pencils. Starting from this need and these reasons, the purpose of this study is adapting the DeMoulin Self-Concept Developmental Scale, which has the potential of assessing self-concept development of normally developed 3-6 year-old children and testing the reliability and validity of the scale.

According to Harter (1983, 1985, 1999), the self-concept of young children are very positive unrealisticly. This is because children have difficulties to distinguish between the actual and desired attirubes and incorporate socail comparisons. The results of Harter's research indicated that the perception of self-esteem of children about themselves increase by cognitive development and age. Many other studies' results support this finding (Bouffard, Markovits, Vezeau, Boisvert, & Dumas, 1998; Eccles, 1993; Eccles, Wigfield, Harold, & Blumenfeld, 1993; Wigfield, & Eccles, 1992; Wigfield, Eccles, Yoon, Harold, Arbreton, Freedman-Doan, & Blumenfeld, 1997). Because of this issue, it has been analysed the effect of the age variable on the self concept as a part of this study. Also, the effect of gender variable on self concept is seen as a topic of many other research (Bosacki, 2007; Eccles, Wigfield, Harold, & Blumenfeld, 1993; Kling, Hyde, Showers, & Buswell, 1999; Preckel, Goetz, Pekrun, & Kleine, 2008; Wilgenbusch & Merrell, 1999). However, DeMoulin (1999) stresses that self concept is not gender specific. So, this is one of the other questions of the research if the self-concept of 36-72 month children differ according to gender or not.

2. Methodology

2.1 Research Design

The study is designed as a quantitative research according to survey method. First, the validity-reliability of the DeMoulin Self-Concept Developmental Scale for 36-72 month-old children was checked and then children's self-concepts were

analyzed according to age and gender.

2.2 Participants

Sample of the study consists of 810 children, selected by random cluster sampling method, from 11 different pre-school institutions, namely 4 independent kindergartens, 5 kindergartens of primary schools and 2 private kindergartens, located at the Anatolian site of Istanbul, Turkey (Kadıkoy, Atasehir, Uskudar, Maltepe), during academic years 2013-2014. 423 children are female (52.4%) whereas 387 of them are male (47.6%); 183 of the children are 36-48 month-old (22.6%), 348 of them are 49-60 month-old (43%), and 279 of them are 61-72 month-old (34.4%).

2.3 Data Collection Tools

Data collection tools used in the research were; the Demographic Form, the DeMoulin Self-Concept Developmental Scale for Children, whose validity-reliability was checked within the study, the Social Competence and Behavior Evaluation Scale-30 and the Emotion Regulation Scale, which were used to check the criteria validity of the scale.

2.3.1 Demographic Form: Demographic Information (Age and Gender) of the Children Participating in the Study Were Obtained through this Form Developed by the Researchers

2.3.2 DeMoulin Self-Concept Developmental Scale for Children**: "**DeMoulin Self-Concept Developmental Scale for Children" is a measuring tool that provides a systematic and comparative analysis of children's personal self-concept and making diagnosis, developed by Dr. Donald DeMoulin in 1995-1998. The scale consists of two sub-dimensions and a total of 30 items, namely "Self-Esteem" (15 items) and "Self-Efficacy" (15 items). In the adaptation of Kuru-Turaşlı (2006, 2014) for 6 year-old children, one item of "Self-Esteem" dimension has been removed. The assessment form was evaluated by giving 3 points to each smiley face, 2 points to each expressionless face and 1 point to each unhappy face.

2.3.3 Social Competence and Behavior Evaluation Scale-30: The Social Competence and Behavior Evaluation Scale-30 (SCBE-30) was developed by LaFreniere and Dumas (1996) and its adaptation to Turkish was performed by Çorapçı, Aksan, Arslan-Yalçın and Yağmurlu (2010). This 6-points likert scale consists of 30 items evaluating the symptoms of children's problem and the quantity of the social skills grouped under three sub-scales, namely "Social Competence", "Anger-Aggression" and "Anxiety-Withdrawal". "Social Competence" subscale measures children's positive features, such as the cooperation and seeking solutions to conflicts when they are within the peer group. "Anger-Aggression" subscale assesses the symptoms of externalizing problems, such as defiance to the adults and acting discordantly and aggressively in peer relationships, whereas "Anxiety Withdrawal" assesses the sad, depressive moods of children and the symptoms of internalizing, such as showing timidity in the group. Cronbach's Alpha internal consistency coefficients of these subscales were found to be .88, .87 and .84 respectively. They have been evaluated by children's teachers.

2.3.4 Emotion Regulation Scale: Emotion Regulation Scale was developed by Shields and Cicchetti (1997) and the Turkish adaptation was performed by Batum and Yağmurlu (2007). This 4-points likert scale consists of 24 items evaluating pre-school and school-age children's emotional reactiveness and the regulation and expression of their emotions of according to the environment, grouped under two sub-dimensions, namely "Emotion Regulation" and "Lability/Negativity". Cronbach's Alpha internal consistency coefficients of the scale were found to be .73 for Emotion Regulation subscale and .75 for Lability/Negativity subscale. They have been evaluated by children's teachers.

2.4 Data Collection Procedure

The data of the research has been collected by applying the scale to the participating children personally by the researchers. Before the application, researchers have met the children and have spent a day with them, have participated in the activities at the classroom. Then, the researcher applied the scale personally in a classroom or room provided by the school administration.

2.5 Data Analysis

The data obtained through the DeMoulin Self-Concept Developmental Scale for Children have been analyzed using appropriate statistics software. The following statistical procedures have been run to check the validity and reliability of the scale.

Validity procedures:

•Criterion validity (Pearson product-moment correlation coefficient)

Reliability procedures:

•Item Analysis (Pearson product-moment correlation coefficient, independent group t-test and item differentiation indexes)

•Continuity Coefficient (test-retest and split-half test)

•Internal Consistency Coefficients (Cronbach α)

In addition descriptive statistics (percentage, frequency, mean and standard deviation) and difference tests (t-test, analysis of variance / ANOVA) were used while analyzing children's self-concept according to age and gender. In the analysis, statistical significant level was taken as 0.05.

3. Findings

This part includes the findings about the validity and reliability of the DeMoulin Self-Concept Developmental Scale for Children along with the findings about the differentiation of children's self-concept according to age and gender.

Table 1. Item-Total Statistics (a)

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
I1	70.960	55.961	.212	.806
I2	71.259	53.171	.396	.798
I3	71.263	53.393	.373	.799
I4	71.513	53.892	.285	.804
I5	71.025	55.081	.275	.803
I6	71.085	54.043	.381	.799
I7	71.138	53.420	.405	.798
I8	71.059	54.058	.381	.799
I9	71.164	53.492	.394	.798
I10	71.161	54.514	.282	.803
I11	71.123	53.579	.415	.798
I12	72.202	55.336	.167	.810
I13	71.144	54.722	.274	.804
I14	71.149	53.670	.398	.798
I15	72.437	56.817	.089	.810
I16	70.900	56.416	.200	.806
I17	70.956	54.795	.389	.800
I18	71.016	53.952	.435	.798
I19	70.998	54.251	.396	.799
I20	71.118	54.737	.267	.804
I21	71.627	54.457	.197	.810
I22	70.996	56.342	.162	.807
I23	71.093	54.362	.327	.801
I24	71.102	53.190	.459	.796
I25	70.933	55.224	.326	.802
I26	71.109	53.735	.409	.798
I27	71.172	53.399	.382	.799
I28	71.109	53.967	.363	.800
I29	71.021	54.750	.332	.801

Table 1 shows the correlation of each item, included in the DeMoulin Self-Concept Developmental Scale for Children with the rest. According to item-total correlation values, it has been found that the lowest value is .089 (Item15), whereas the highest value is .459 (Item24) and it has been concluded that the reliability of the scale would increase if Item15 is removed from the scale.

The analysis of the changes on the mean of the scale in case of removing the item showed that the lowest value of the mean became 70.90 (Item16), whereas the highest value became 72.43 (Item15). According to this finding the mean of the scale decreases if Item16 is removed from the scale whereas it increases if Item15 is removed. Moreover, the analysis of the change on the variances in case of removing the item showed that lowest value became 53.17 (Item2), whereas the highest value became 56.81 (Item15). According to this finding scale's variance decreases if Item2 is removed from the scale, whereas it increases if Item15 is removed. In addition to these findings, the analysis of the change on the reliability coefficient of the scale if the item is removed showed that lowest value became .796 (Item24), whereas the highest value became .810 (Item12, Item15, Item21) and the overall reliability coefficient of the scale (Cronbach's Alpha Value) was .807.

One item (Item15), whose contribution to the scale was found to be low, was removed from the scale and Item-Total Analysis was repeated. The results are displayed in Table 2.

Table 2. Item-Total Statistics (b)

Item No	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
I1	69.653	54.803	.211	.809
I2	69.951	51.994	.400	.801
I3	69.955	52.265	.373	.803
I4	70.206	52.863	.275	.808
I5	69.718	53.889	.279	.807
I6	69.777	52.888	.382	.802
I7	69.830	52.249	.409	.801
I8	69.751	52.919	.381	.803
I9	69.856	52.338	.396	.802
I10	69.854	53.398	.279	.807
I11	69.816	52.422	.417	.801
I12	70.895	54.504	.139	.814
I13	69.837	53.509	.280	.807
I14	69.842	52.499	.401	.802
I16	69.592	55.159	.214	.809
I17	69.649	53.548	.402	.803
I18	69.708	52.803	.436	.801
I19	69.691	53.032	.405	.802
I20	69.811	53.590	.267	.807
I21	70.319	53.444	.186	.814
I22	69.688	55.100	.171	.810
I23	69.786	53.179	.330	.804
I24	69.795	52.042	.461	.799
I25	69.625	53.987	.337	.805
I26	69.802	52.577	.411	.801
I27	69.865	52.240	.384	.802
I28	69.802	52.831	.363	.803
I29	69.713	53.604	.331	.805

Table 2 shows the correlation of each item covered in the DeMoulin Self-Concept Developmental Scale for Children with the other items. According to item-total correlation values, it has been found that the lowest value is .139, whereas the highest value is .461.

The analysis of the change on the mean of the scale in case of removing the item showed that the lowest value became 69.59, whereas the highest value became 70.89. Moreover, the analysis of the change on the variances in case of removing the item showed that lowest value became 51.99, whereas the highest value became 55.10. In addition to these findings, the analysis of the change on the reliability coefficient of the scale in case of removing the item showed that lowest value became .799 by removing Item24, whereas the highest value became.814 by removing Item12 and Item21. The total reliability coefficient of the scale (Cronbach's Alpha Value) was calculated as .810.

Means and standard deviations of the DeMoulin Self-Concept Developmental Scale for Children's item are given in Table 3.

Table 3. Means and Standard Deviations of the Items

Item No	$\bar{x}$	Sd	N
I1	2.784	.548	810
I2	2.485	.741	810
I3	2.481	.742	810
I4	2.230	.819	810
I5	2.718	.620	810
I6	2.659	.634	810
I7	2.606	.691	810
I8	2.685	.631	810
I9	2.580	.697	810
I10	2.582	.714	810
I11	2.621	.656	810
I12	1.542	.808	810
I13	2.600	.691	810
I14	2.595	.666	810
I16	2.844	.456	810
I17	2.787	.511	810
I18	2.728	.580	810
I19	2.745	.583	810
I20	2.625	.701	810

Table 3 continued

I21	2.117	.924	810
I22	2.748	.554	810
I23	2.650	.663	810
I24	2.642	.654	810
I25	2.811	.516	810
I26	2.634	.642	810
I27	2.571	.729	810
I28	2.634	.670	810
I29	2.723	.590	810
$\sum \bar{x}$		72.437	
$\sum S^2$		56.817	
$\sum Ss$		7.537	

Table 3 shows that the item within the DeMoulin Self-Concept Developmental Scale for Children with the highest mean is Item26 with a value of 2.844, whereas the item with the lowest mean is Item12 with 1.542. Regarding the standard deviations of the items, the highest standard deviation is .924 and it belongs to Item21. On the other hand Item16 has the lowest standard deviation, with .456. In addition to these findings, the total mean of the scale was found to be 72.437, the variance is 56.817 and standard deviation is 7.537.

Means, minimum, maximum, ranges and variances of the items of the DeMoulin Self-Concept Developmental Scale for Children were analyzed and are presented in Table 4.

Table 4. Means, Minimum, Maximum, Ranges and Variances of the Items

	$\bar{x}$	Min.	Max.	Range	Max. / Min.	Variance	Number of Items
Item Means	2.587	1.542	2.844	1.302	1.845	.066	28
Item Variances	.444	.208	.855	.647	4.108	.019	28

Table 4 shows that the mean of the DeMoulin Self-Concept Developmental Scale for Children is 2.587, minimum value of the items is 1.542, maximum value of the items is 2.844, its range is 1.302 and its variance is .66. In addition the mean of items' variance is .444, the minimum value of the items' variance is .208, the maximum value of the variance is .855, its range is .647 and its variance is .019.

The additivity of the DeMoulin Self-Concept Developmental Scale for Children was checked via ANOVA with Tukey's Test for Non-additivity and the results are displayed in Table 5.

Table 5. ANOVA with Tukey's Test for Non-additivity

		Sum of Squares	df	Mean Squares	F	p
Between Groups		1641.617	809	2.029		
Within Groups	Difference between items	1452.885	2	53.811	139.799	.000*
	Non-additivity	1.571	1	1.571	4.081	.053

**p<.05*

According to Table 5, the items constituting the DeMoulin Self-Concept Developmental Scale for Children were found to be homogeneous and correlated (F=139.799, p< .05). In addition the scale is found to be additive (F=4.081, p > .05).

The results of split-half test of the DeMoulin Self-Concept Developmental Scale for Children are displayed in table 6.

Table 6. Split-Half Test

Split-Half Test		Cronbach's Alpha	Pearson Correlations	Spearman-Brown Coefficient	Guttman Split-Half Coefficient
First Half of the Scale	Value	.683			
	Number of Items	14(a)			
Second Half of the Scale	Value	.685	.673	.805	.803
	Number of Items	14(b)			
Total Number of Items		28			

According to Table 6, there is a significant relationship between the two half of the DeMoulin Self-Concept Developmental Scale for Children; Pearson correlation coefficient was calculated as .673, Spearman-Brown coefficient as .805 and Guttman Split-Half coefficient as .803. Moreover, Cronbach's Alpha value was found to be .683 for the first half of the scale, whereas it was.685 for the second half.

Gutmann Lambda (Li) coefficients of the DeMoulin Self-Concept Developmental Scale for Children were analyzed and the results are presented in Table 7.

Table 7. Reliability Coefficients According to Guttman Lambda (Li) Method

	Guttman Lambda (Li) Coefficients
1	.781
2	.814
3	.810
4	.803
5	.797
6	.781
Number of Items	28

Table 7 shows that reliability coefficients of the DeMoulin Self-Concept Developmental Scale for Children According to Guttman Lambda (Li) method vary between .781 and .814.

Item differentiation values of the DeMoulin Self-Concept Developmental Scale for Children were analyzed and the results are shown in Table 8.

Table 8. Item Discriminations

Items	Group	N	$\bar{x}$	Sd	t	df	*p*
I1	Lower 27%	219	2.21	.80	-14.570	436	.000*
	Upper 27%	219	3.00	.00			
I2	Lower 27%	219	1.44	.49	-46.100	436	.000*
	Upper 27%	219	3.00	.00			
I3	Lower 27%	219	1.77	.42	-43.207	436	.000*
	Upper 27%	219	3.00	.00			
I4	Lower 27%	219	1.08	.28	-100.358	436	.000*
	Upper 27%	219	3.00	.00			
I5	Lower 27%	219	1.95	.79	-19.320	436	.000*
	Upper 27%	219	3.00	.00			
I6	Lower 27%	219	1.73	.57	-32.416	436	.000*
	Upper 27%	219	3.00	.00			
I7	Lower 27%	219	1.55	.49	-42.889	436	.000*
	Upper 27%	219	3.00	.00			
I8	Lower 27%	219	1.83	.69	-24.702	436	.000*
	Upper 27%	219	3.00	.00			
I9	Lower 27%	219	1.55	.49	-42.982	436	.000*
	Upper 27%	219	3.00	.00			
I10	Lower 27%	219	1.50	.50	-44.096	436	.000*
	Upper 27%	219	3.00	.00			
I11	Lower 27%	219	1.63	.48	-41.838	436	.000*
	Upper 27%	219	3.00	.00			
I12	Lower 27%	219	1.00	.00	-59.542	436	.000*
	Upper 27%	219	2.74	.43			
I13	Lower 27%	219	1.56	.49	-42.801	436	.000*
	Upper 27%	219	3.00	.00			
I14	Lower 27%	219	1.62	.48	-41.930	436	.000*
	Upper 27%	219	3.00	.00			
I16	Lower 27%	219	2.42	.72	-11.697	436	.000*
	Upper 27%	219	3.00	.00			
I17	Lower 27%	219	2.21	.71	-16.150	436	.000*
	Upper 27%	219	3.00	.00			
I18	Lower 27%	219	1.99	.71	-20.834	436	.000*
	Upper 27%	219	3.00	.00			
I19	Lower 27%	219	2.05	.78	-17.740	436	.000*
	Upper 27%	219	3.00	.00			
I20	Lower 27%	219	1.61	.64	-31.555	436	.000*
	Upper 27%	219	3.00	.00			
I21	Lower 27%	219	1.00	.09	-45.190	436	.000*
	Upper 27%	219	2.55	.49			
I22	Lower 27%	219	2.06	.71	-19.409	436	.000*
	Upper 27%	219	3.00	.00			
I23	Lower 27%	219	1.70	.64	-29.880	436	.000*
	Upper 27%	219	3.00	.00			
I24	Lower 27%	219	1.67	.55	-35.620	436	.000*
	Upper 27%	219	3.00	.00			
I25	Lower 27%	219	2.30	.79	-12.989	436	.000*
	Upper 27%	219	3.00	.00			
I26	Lower 27%	219	1.66	.47	-41.761	436	.000*

Table 8 continued

	Upper	27%	219	3.00	.00			
I27	Lower	27%	219	1.47	.50	-45.251	436	.000*
	Upper	27%	219	3.00	.00			
I28	Lower	27%	219	1.64	.57	-34.822	436	.000*
	Upper	27%	219	3.00	.00			
I29	Lower	27%	219	1.97	.72	-20.851	436	.000*
	Upper	27%	219	3.00	.00			

**p<.001*

In order to analyze the discriminations level of the items included in the DeMoulin Self-Concept Developmental Scale for Children, independent t-test were performed between the upper 27% and lower 27% scores of each item and it has been found that there are significant differences for all items between groups (p< .05).

Table 9. Test-Retest Coefficients

		Pearson	Kendall's tau-b	Spearman's rho
		Retest	Retest	Retest
Self-Esteem	r	.595	.433	.562
	p	.000*	.001*	.000*
	n	36	36	36
Self-Efficacy	r	.606	.532	.658
	p	.000*	.000*	.000*
	n	36	36	36
Self Concept Total Score	r	.644	.400	.546
	p	.000*	.001*	.001*
	n	36	36	36

**p<.05*

According to Table 9, there is a significant relationship between test-retest results of the DeMoulin Self-Concept Developmental Scale for Children (p< .05). For self-esteem sub-dimension, Pearson correlation coefficient was calculated as .595, Kendall's tau-b coefficient as .433 and Spearman's rho coefficient as .562; for self-efficacy sub-dimension, Pearson correlation coefficient was calculated as .606, Kendall's tau-b coefficient as .532 and Spearman's rho coefficient as .658; whereas for the overall self-concept scores, Pearson correlation coefficient was calculated as .644, Kendall's tau-b coefficient as .400 and Spearman's rho coefficient as .546.

Table 10. Criterion validity results

		Social Competence and Behavior Evaluation Scale-30			Emotion Regulation Scale	
DeMoulin Self-Concept Developmental Scale		Social Competence	Anger-Aggression	Anxiety-Introversion	Emotion Regulation	Variability-Negation
Self-Esteem	r	.383	-.388	-.120	.299	-.110
	p	.000*	.000*	.277	.006*	.318
	n	84	84	84	84	84
Self-Efficacy	r	.367	-.464	-.205	.360	-.101
	p	.001*	.000*	.062	.001*	.362
	n	84	84	84	84	84
Self Concept Total Score	r	.397	-.447	-.168	.346	-.112
	p	.000*	.000*	.127	.001*	.311
	n	84	84	84	84	84

The analysis of Table 10 showed that there is a positive and significant relationship between "Self-Esteem" subscale of the "DeMoulin Self-Concept Developmental Scale for Children" and "Social Competence" subscale of "Social Competence and Behavior Evaluation Scale-30" (r=.383, p< .05), whereas there is a negative significant relationship between "Self-Esteem" and "Anger-Aggression" subscales (r=-,388, p< .05). Unlike these findings, there is not a significant relationship between "Self-Esteem" and "Anxiety withdrawal" subscales (r=-.120, p> .05).

Regarding the relations between "Self- Efficacy" subscale of the "DeMoulin Self-Concept Developmental Scale for Children" and the "Social Competence and Behavior Evaluation Scale-30", there is a positive and significant relationship between "Self- Efficacy" and "Social Competence" subscales (r=.367, p< .05) whereas there is a negative significant relationship between "Self- Efficacy" and "Anger-Aggression" subscales (r=-,464, p< .05). Unlike these findings, there is not a significant relationship between "Self- Efficacy" and "Anxiety withdrawal" sub-dimensions (r=-.205, p> .05).

It has been found that the overall score of the "DeMoulin Self-Concept Developmental Scale for Children" has a

positive and significant relationship with "Social Competence" subscale of the "Social Competence and Behavior Evaluation Scale-30" (r=.397, p< .05), whereas it has a negative significant relationship with "Anger-Aggression" subscale (r=-,447, p< .05). Unlike these findings, there is not a significant relationship between the total score of Self-Concept and Anxiety Withdrawal subscales (r=-.168, p> .05).

It has been found that there is a positive significant relationship between "Self-Esteem" sub-dimension of "DeMoulin Self-Concept Developmental Scale for Children" and "Emotion Regulation" subscale of "Emotion Regulation Scale" (r=.299, p< .05). Unlike this finding, the relationship between "Self-Esteem" and "Variability-Negation" sub-dimensions is not significant (r=-.110, p> .05).

It has been found that there is a positive significant relationship between "Self- Efficacy" subscale of the "DeMoulin Self-Concept Developmental Scale for Children" and "Emotion Regulation" subscale of "Emotion Regulation Scale" (r=.360, p< .05). Unlike this finding, the relationship between "Self- Efficacy" and "Lability/Negativity" subscales is not significant (r=-.101, p> .05).

It has been found that there is a positive significant relationship between overall score of the "DeMoulin Self-Concept Developmental Scale for Children" and "Emotion Regulation" subscale of "Emotion Regulation Scale" (r=.346, p< .05). Unlike this finding, the relationship between overall score and "Lability/Negativity" subscale is not significant (r=-.112, p> .05).

Table 11. Means and Standard Deviations of Children's Self-Concept Average Scores According to Age

Subscales	Age	N	$\bar{x}$	Sd
Self-Esteem	36-48 month-old	183	34.45	4.67
	49-60 month-old	348	35.52	4.39
	61-72 month-old	279	35.20	3.83
	Total	810	35.17	4.29
Self- Efficacy	36-48 month-old	183	36.25	4.63
	49-60 month-old	348	37.57	3.75
	61-72 month-old	279	37.53	3.58
	Total	810	37.26	3.94
Total Score	36-48 month-old	183	70.71	8.59
	49-60 month-old	348	73.09	7.40
	61-72 month-old	279	72.74	6.77
	Total	810	72.43	7.53

As can be seen in Table 11, the average "Self-Esteem" scores of the children are: 34.45 for 36-48 month-old children, 35.52 for 49-60 month-old children and 35.20 for 61-72 month-old children. "Self- Efficacy" sub-dimension scores of the children are: 36.25 for 36-48 month-old children, 37.57 for 49-60 month-old children and 37.53 for 61-72 month-old children. The total scores are: 70.71 for 36-48 month-old children, 73.09 for 49-60 month-old children and 72.74 for 61-72 month-old children.

Table 12. ANOVA Test Results of Children's Self-Concept Average Scores According to Age

Subscales	Source of the Variance	Sum of Squares	df	Mean Squares	F	*p*
Self-Esteem	Between Groups	135.490	2	67.745	3.703	.025*
	Within Group	14763.657	807	18.294		
	Total	14899.147	809			
Self- Efficacy	Between Groups	240.743	2	120.372	7.853	.000*
	Within Group	12369.189	807	15.327		
	Total	12609.932	809			
Total Score	Between Groups	719.967	2	359.984	6.421	.002*
	Within Group	45245.322	807	56.066		
	Total	45965.289	809			

According to Table 12, it has been found that there are significant differences between "Self-Esteem" (F=3.703) and Self- Efficacy (F=7.853) subscales and total scores (F=6.421) of the "DeMoulin Self-Concept Developmental Scale for Children" according to age (p< .05). In order to determine the groups between which this differences occurred Post hoc multiple comparison analysis were performed and the distribution of the data was checked through Levene statistics. It has been found that the data were not homogenously distributes (p< .05), the results of Tamhane's T2 Test are shown in Table 13.

Table 13. Tamhane's T2 Test Results of Children's Self-Concept Average Scores According to Age

Subscales	(I) Age	(J) Age	Means Difference (I-J)	p
Self-Esteem	36-48 month-old	49-60 month-old	-1.06110	.034*
		61-72 month-old	-.74528	.204
	49-60 month-old	36-48 month-old	1.06110	.034*
		61-72 month-old	.31581	.709
	61-72 month-old	36-48 month-old	.74528	.204
		49-60 month-old	-.31581	.709
Self- Efficacy	36-48 month-old	49-60 month-old	-1.32076	.003*
		61-72 month-old	-1.28080	.005*
	49-60 month-old	36-48 month-old	1.32076	.003*
		61-72 month-old	.03995	.999
	61-72 month-old	36-48 month-old	1.28080	.005*
		49-60 month-old	-.03995	.999
Total Score	36-48 month-old	49-60 month-old	-2.38185	.005*
		61-72 month-old	-2.02609	.023*
	49-60 month-old	36-48 month-old	2.38185	.005*
		61-72 month-old	.35577	.897
	61-72 month-old	36-48 month-old	2.02609	.023*
		49-60 month-old	-.35577	.897

The examination of Table 13 shows that the significant difference occurred in "Self-Esteem" subscale of the "DeMoulin Self-Concept Developmental Scale for Children" is between 36-48 month-old and 49-60 month-old children, in favor of 49-60 month-old children. The significant differences occurred in "Self- Efficacy" subscale are found to be between 36-48 month-old and 49-60 month-old children, in favor of 49-60 month-old children; and between 36-48 month-old and 61-72 month-old children, in favor of 61-72 month-old children. Finally, it has been found that the significant differences occurred in "Self-Concept Total Score" are between 36-48 month-old and 49-60 month-old children, in favor of 49-60 month-old children; and between 36-48 month-old and 61-72 month-old children, in favor of 61-72 month-old children.

Table 14. T-Test Results of Children's Self-Concept Average Scores According to Gender

Subscales	Gender	N	$\bar{x}$	Sd	df	t	*p*
Self-Esteem	Female	423	35.02	4.29	808	-1.026	.305
	Male	387	35.33	4.28			
Self- Efficacy	Female	423	37.13	4.06	808	-1.003	.316
	Male	387	37.41	3.81			
Total Score	Female	423	72.15	7.68	808	-1.109	.268
	Male	387	72.74	7.36			

The results presented in Table 14 shows that gender doesn't create a significant difference on the sub-dimensions and total score of the "DeMoulin Self-Concept Developmental Scale for Children" ($p > .05$).

4. Results and Discussion

Within this study the reliability and validity check of the DeMoulin Self-Concept Developmental Scale for Children, which has been developed by Donald DeMoulin in 1995-1998 and which has been adapted to Turkish by Kuru-Turaşlı (2006) for 6 year-old children was performed for 36-72 month-old children. In addition, self-concept of the children was analyzed according to age and gender variables.

4.1 Results about Validity and Reliability and Discussion

In order to determine the reliability and validity of the DeMoulin Self-Concept Developmental Scale for Children, reliability coefficients were calculated through item analysis, test-retest, internal consistency (Cronbach's Alpha) and split-half test methods. In addition, item analysis and 27% upper-lower comparisons were performed in order to determine item differentiation of the scale. To ensure the validity of the scale, its correlation with "the Social Competence and Behavior Evaluation Scale-30" and "the Emotion Regulation Scale" was checked.

It should be noted that the factor structure of the scale was not analyzed within this study; the original two-factor structure has been kept. Kuru-Turaşlı (2014), explains the two-factor structure as follows: One of two subscales is "self-efficacy" and the other subscale is named as "self-esteem". The "self-efficacy" sucscale is about the child's self-perception of himself or herself as a singular entity, and the "self-esteem" is about the child's perception of himself or herself within a social group. The self-esteem subscale consists of 14, and the self-efficacy subscale consist of 15 items. Becaouse it is a scale adaptation study, the orijinal two-factor structure is accepted and kept.

Item analysis, including item-total, item remainder and item differentiation analysis, have been conducted to check the reliability of the scale. The obtained results were used to examine the additivity of each item and the items with low

corrected item correlation have been removed from the scale. Since low correlation of an item means that the contribution of this item to the scale is low, it is recommended to remove them from the scale (Kalaycı, 2006). Another important procedure to be applied here is to check the impact of the item that will be removed to the reliability of the scale and deciding accordingly (Coakes, 2005; Özdamar, 2013). As a result of the analysis, it has been found that the lowest item-total correlation is .089 (Item15), whereas the highest correlation is .459 (Item24). It has been concluded that the reliability of the scale will increase if Item15 is removed from the scale. Accordingly, this item whose item-total correlation was below .20, was removed from the scale and a 28-item scale was obtained (DeVon, Block, Moyle, Wright, Ernst, Hayden, Lazzara, Savoy and Kostas, Polston, 2007; Şeker and Gençdoğan, 2014).

The total Cronbach's Alpha value of the scale was found to be .810, whereas it was .683 for "self-esteem" subscale and .686 for "self-efficacy" subscale. The review of the literature about Cronbach's Alpha, which is the most commonly used tool as the internal consistency coefficient (Cronbach, 1951 cited in Franzen, 2002; DeVon et al., 2007; Drost, 2011), showed that Cronbach's alpha values of .70 and above have been considered to be sufficient (Büyüköztürk, 2002; DeVellis, 2003) according to the standard expressed by Nunnally (1978 cited in Drost, 2011). In addition, Cronbach's alpha values of .80 and above have been considered to be very good in terms of reliability (Kalaycı, 2006; Kline, 2010 cited in Gençtanırım, 2014; Özdamar, 2013). Considering the obtained Cronbach's Alpha value (.810) it can be said that the scale is highly reliable (Şencan, 2005).

The additivity of the items included in a measurement tool should be checked as well. In addition, it has been underlined that the homogeneity of the items contained in the measurement tool, the questions being associated with each other and the structural adequacy of the model are crucial in determining the reliability of the measurement tool (Kalaycı, 2006; Özdamar, 2013). The results of the analysis showed that the items were homogeneous and correlated with each other, also they are additive.

28 items that form the scale were divided into two to obtain half-scales with 14 items and the relationship between these half-scales has been examined (Cohen and Swerdlik, 1998). Pearson correlation coefficient, Spearman-Brown coefficient and Guttman Split-Half coefficient have been analyzed and it has been found that there is a significant relationship between the half-scales. Moreover, the Cronbach Alpha value was found to be .683 for the first half and .685 for the second half. According to Guttman Lambda (Li) method, reliability coefficients were found to very between .781 and .814, which means that the resulting change in the obtained values was not differentiated much (Coakes, 2005; Gerber and Voelkl, 2005; Kalaycı, 2006; Özdamar, 2013).

Test-retest is one of the mostly used methods to make an assessment about the reliability of the measurement tool over time. Here, the correlation coefficient between two measurement scores performed after a certain time period is evaluated (Cohen and Swerdlik, 1998; Erkuş, 2005; Franzen, 2002; Özgüven, 1999; Rosenthal and Rosnow, 1991 cited in Drost, 2011). The relevant literature sets the appropriate time period for the application of this method as two weeks or one month (Waltz. Strckland and Lenz, 2005 cited in DeVon et al., 2007). Test-retest method was used to statistically test the consistency of the quality measured by the scale in terms of the time. In this context, test-retest results of the scale are as follows: for self-esteem sub-dimension, Pearson correlation coefficient .595, Kendall's tau-b coefficient .433 and Spearman's rho coefficient .562; for self-efficacy sub-dimension, Pearson correlation coefficient .606, Kendall's tau-b coefficient .532 and Spearman's rho coefficient.658; whereas for the total scores, Pearson correlation coefficient .644, Kendall's tau-b coefficient .400 and Spearman's rho coefficient .546. These obtained results were considered to be sufficient to show the reliability of the scale over time (Dede and Yaman, 2008).

In order to determine the validity of the items, the mean scores of upper 27% and lower 27% were compared on item basis (Erkuş, 2014). Using item analysis based on the mean scores of upper-lower groups, the differentiation power of the scale (between those who has high self-concept and low self-concept) can be determined. Thus, independent t-tests were performed between the upper 27% and lower 27% scores of each item in order to check the differentiation level of the scale's items and it has been found that the differentiation of all items is significant. This result can be interpreted as the scales possess the quality of differentiating children's self-concept (Erkuş, 2005; Büyüköztürk, Çokluk & Köklü, 2013; Tezbaşaran, 1996).

The Social Competence and Behavior Evaluation Scale-30 and the Emotion Regulation Scale were used to check the criteria validity of the scale. It has been found that "Self-Esteem" and "Self-Efficacy" subscales and total score of the "DeMoulin Self-Concept Developmental Scale for Children" have positive, significant relationships with "Social Competence" subscale of "Social Competence and Behavior Evaluation Scale-30", whereas they have negative significant relationships with "Anger-Aggression" subscale, and they don't have any significant relationship with "Anxiety Withdrawal" subscale.

In addition, it has been found that "Self-Esteem" and "Self-Efficacy" subscales and total score of the "DeMoulin Self-Concept Developmental Scale for Children" have positive, significant relationships with "Emotion Regulation"

subscale of the "Emotion Regulation Scale", whereas their relationships with "Lability/Negativity" is not significant. With these results, it can be expressed that the "DeMoulin Self-Concept Developmental Scale for Children" fulfills criteria validity (Drost, 2011; Franzen, 2002).

Based on the overall evaluation of obtained results, it has been concluded that the "DeMoulin Self-Concept Developmental Scale for Children" is a valid and reliable measurement tool with this structure. In other words, it can be said that the above mentioned measurement tool can be used to determine self-concept of 36-72 month-old children.

4.2 Results about Age and Gender Variables and Discussion

In the very first researches about the development of self-concept in the literature, it has been emphasized that self-concept development cannot be mentioned for children under the age of eight because they haven't reached the required cognitive and developmental level (Harter, 1983). However, the studies conducted with preschool children by the researches as Bates (1990), Damon and Hart (1988), Lewis and Brooks-Gunn (1979) showed that cognitive and language development of the children, which were developing directly proportional with age and which were effective on expressing their self, was at the level to express their self. Similarly, as a result of this research it has been found that children's self-concept is affected by the age variable and self-concept was increased as the age increased. In the review of the relevant literature, Gray-Little and Hafdahl (2000) have examined the self-concept of the children, adolescents and adults from white and black races and they have concluded that the age variable affected self-concept. In addition, Ojo and Akinsola (2012), who evaluated self-concept development of Nigerian, 7-13 year-old children, have found that self-concept has been differentiating according to age and both researches support the findings of this study. Unlike these findings, Barnett and Hunter (2012) and Önder (2004), have concluded that self-concept wasn't differentiating according to age. These differences on the results may have been emerged due to the developmental characteristics of the participating children.

Another result of the study is children's self-concept was not affected by the gender variable. Alawiye and Alawiye (1988), Dündar (2010), İkiz (2009), Jackson, von Eye, Fitzgerald, Zhao and Witt (2010), Kuru-Turaşlı (2006), Mantzicopoulos (2006), Önder (2004), Şeremet (2006), Yakupoğlu (2011) and Zincirkıran (2008) have also concluded that self-concept of preschool children was not differentiating according to gender and these results support the findings of the study. However, in some studies it has been found that self-concept was significantly differentiating according to gender. For instance, Akşin (2013) and Şanlı (2012) found that self-concept of the boys was higher than girls; whereas Bosacki (2007) and Sarıca (2010) found that self-concept of the girls was higher than boys. The results obtained in these studies may have been emerged due to the individual characteristics of the participants.

In summary, it has been concluded that the "DeMoulin Self-Concept Developmental Scale for Children" is a valid and reliable measurement tool that can be used to determine self-concept of 36-72 month-old children in Turkey. In addition, it has been found that children's self-concept differentiates according to age and children's positive self-concept increases as the age increases. Moreover, it has been found that 36-72 month-old children's self-concept does not differentiate according to gender.

Based on the results of the research, the following recommendations could be submitted. First of all, researches addressing children of the younger age group, evaluating the effect of different variables such as age, gender, socio-economic status, the duration of pre-school education, education levels of the parents, number of brothers and sisters should be conducted using the "DeMoulin Self-Concept Developmental Scale for Children", whose validity and reliability were proven for 36-72 month-old children. Also, the identification of the children with low and negative self-concept using the "DeMoulin Self-Concept Developmental Scale for Children" and implementing early intervention programs designed for these children may support the development of positive self-concept. Furthermore, the development of self-concept should be monitored from the early childhood to the adolescence using longitudinal studies and the variables that may affect self-concept should be identified.

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