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INVESTIGATION WITH REGARD TO SCHOOL MATURITY OF HUMAN FIGURE DRAWINGS OF CHILDREN WHOSE 48-60 MONTHLY

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ABSTRACT

Problem Statement: A child who will start elementary school need to reach a certain level of readiness primarily for learning and for the child's adaptation to school and school success. It need to be determining because of readiness is affected by many variables. Especially mental and hand-eye coordination skills may be decisive in this period for children.

Purpose of Study: In this context, in terms of being an activity that giving important clues of human figure drawings in mental and hand eye coordination skills, the relationship between children's drawings and children's readiness for primary education were evaluated in the study.
Methods: The sample group of the study consist of a total of 48-60 monthly 56 children including 28 girls and 28 boys whose studying in 3 kindergarten connected with Düzce Directorate of National Education. 'Personal Information Form' created by researchers as the data collection tool and prepared by Hildert and colleagues (1949), adapted to by Oktay (1980) with 'Readiness Test to Metropolitan School' ,test of 'Goodenough Harris Draw a Man' that was developed by Goodenough (1926) and was revised by his student Harris (1963),it was applied aimed at assessing the mental development of children between 4-14 years.

Findings and Results: According to result of research between test results for children's drawing scores with the test scores for readiness skills was found a significant relationship. It is seem that when childrens' drawing points rises their school readiness points also rise in line. Regarding the ability of children's drawings was found to be significantly associated in terms of gender and age variables including in favor of girls and in favor of age factor however, no significant difference was found towards gender variable related to school maturity.

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INTRODUCTION

When the related literature examined it is seem that almost all the school readiness studies determining the childrens' conceptional, cognitive skills. But mostly the human figure drawings of children is not to take into consideration by many researchers in spite of it is an important hint about all areas of child development. Readiness what is extremely important for the educational process is an important input for the learning and teaching system (Bloom, 1995). Having several competences when starting the 1st grade in primary school eases the child's adaptation to the class by allowing him to avoid long-term adaptation problems (Ural *et al.*, 2016). In addition to this, the level of readiness can be expressed as a biography of the student and also it is expressed that it comprises general and special abilities of students, the quality

of knowledge and skills related to the target behavior, interests, attitudes, motivation and general health status. (Senemoglu, 2009; Bloom, 1995). If a child's who starting to primary education readiness level is high he can comment on the subject by grasping issues more quickly. Child make his homeworks easily because of child learned to the subject and concepts related to the subject; He may become more ready to learn the next subject because he learned previous issue very well. Therefore thereby physical needs of children are met,by showing the child's emotionally needs love and attention and that level should be kept high (Yenilmez and Kakmaci, 2008). In this respect parents and educators role play important on their child readiness level. Readiness divided into three including cognitive readiness, social readiness and educational readiness (Unal, 2005). Cognitive Readiness which is one of readiness types expresses possess the necessary skills related to learning and to have the prerequisite behaviors related to learn newly and to be ready in terms of cognitively (Tuna and Kacar, 2005). Readiness in terms of cognitive can be provided

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creating environments to ensure the development of critical thinking skills (Yenilmez and Kakmaci, 2008). People make questioning, analysis, synthesis and evaluation and ask questions in environments that supporting cognitive readiness. Readiness according to cognitive learning theories is has provided individual perceiving a new subject and it has developed cognitive patterns that is the foundation of learning. When cognitive patterns of the individual isn't enough to learn new subjects, the acquisition of required prior knowledge and skills are important to learn the subject. When the student isn't enough, the subject to be taught must be downloaded to the readiness level of students without spoiling the integrity (Senemoglu, 2009). So the readiness is a prerequisite on learning systems. Children's Cognitive Readiness levels may be closely related to understanding some artistic symbols. This symbolic concepts are plane, completion, size hierarchy, transparency, realism, again and symmetry, proportion, humor and draw pictures according to rules (Yavuzer, 2007). One of the most important activities performed is children's drawings for the emergence this artistic symbols. In this process, the child directed to various activities and invention without being bound through image the rules of logical and analytical (Artut, 2004). Children's application capacity on paper of human figures and contoured shape of a human drawn by children is acceptable as a "clever" behavior for child who 4 years old.

This performance in the drawing operations is based on the capacity of a variety of cognitive, motor, perceptual, towards attention and motivational (Arden *et al.*, 2014). Children's drawings can be counted indicator of child's self-reflection, their thoughts and feelings about the events, their inner world, explanation format, their skills and their mental development (Dulger 2008). Therefore researchers focused on three main points including internal structure and visual validity in the children depictions, drawing processes that including perceptual, cognitive and motor processes and the interpretation of the validity and reliability of children's drawings (Cherney *et al.*, 2006). In this context the childrens' drawings skills includes many important indications about this development areas. Children's drawings serves learned of the ideas for submission. Children reconsiders and revises the they learned while drawing (Chang 2005). Child pictures is regarded as an projective assessment tool that frequently used in research and practice by many researchers (Yildiz, 2012). Shaw (1996), has stated that children's drawings are one of the most important signs of readiness to school. Because, children's drawings are considered to be a mirror representing their development (Cherney *et al.*, 2006).

Picture offers significant opportunities in communication with them for especially understand the level of knowledge and experience of children (Kendrick and McKay, 2004).

Children's drawings are divided into six stages including;

- Scribbling stage (2-4 years),
- Pre-schema stage (4-7 years),
- Schematic stage (7-9 years),
- Pre-pubertal stage (9-11 years) and
- Logic age (11-13 years).

Puberty crisis (13 years and over) (Kirisoglu, 2002). The transition between stages depends on the variables as every muscle growth of children, intelligence, reasoning ability, to copy, to establish correlation, pairing and duration of drawing

picture. Some of the most important skills include these variables determining the level of school readiness of children. Therefore it is contemplated that a relationship may exist between school maturity and human figure drawings of the children. Different approaches have emerged while increased the studies towards children's drawings. These include: Developmental Approach, Symbolic Approach, Projective Approach and Artistic Approach. Each of these approaches is intended to identify and make sense of their children's drawings (Saglam, 2011). Within this research children's drawings are tackled in terms of projective approach. Because children's drawings often used about connected with differences especially age and gender and in personality, cognitive structure and diagnostic evaluations with projective approach to create a reliable basis (Cherney *et al.*, 2006). Especially the schematic stage as long as close development of certain symbols striven for look realistic of the components (Yavuzer, 1993). These skills reflected by children in their linear growth rather it may be decisive for the ability of their school readiness. To this end, the connection between children's readiness status to school and their human figure drawings were examined in the study. The researches' main purpose is determining the relation betwixt school maturity and human figure drawings of children whose 48-60 monthly. According to this purpose the school maturity and human drawings of childrens' have examined that depend on the questions of gender and age factors.

MATERIALS AND METHODS

Research Design

In this study, human figures of drawn by children have examined whether differed according to variables as age, gender, number of siblings. Relational model is one of the general screening model types was used in this study. Because relational scanning model; is a research model between two or more of the variables aimed at the presence of change together and / or determine of the degree (Karasar, 1999; Kircaali Iftar, 1998). In the study, human figures of drawn by children whether the differed were analyzed according to level of their elementary school readiness.

Research Sample

For the purpose of representing the universe completely the sample group of the study consist of a total of 48-60 monthly 56 children including 28 girls and 28 boys whose studying in 3 kindergarten connected with Duzce Directorate of National Education. The working group has received approximately the same duration pre-school education in order to minimize the effect of other variables, it is selected from children whose having similar socio-economic and family features.

Research Instruments and Procedure

Goodenough-Harris Drawing Human Test was used to children whose located in study group with the aim of assessing their mental abilities and 'Metropolitan School Maturity Test' was used to children with the aim of assessing of their level of readiness to school.

Goodenough Harris Draw a Human Test

The test applied to children between 4-14 years of age developed by Goodenough (1926) and draw a picture of the

man as well as the second woman drawing test was added by his student Harris (1963) is an aptitude test aimed at measuring the development of the individual mind. Mental ability test is based on the process of the 'concept development' in general sense. Test is oriented projective techniques which is based on the children produce something and they using the mind to do something. Interrater reliability coefficient of test is 0.90 and 0.94 correlation was found between the same person again scoring. In order to assess the human figure drawn by the children as well as the image evaluation form made by Yavuzer (1993) and Kirkan (1994), drawings were examined taking opinions psychologists, child development and education specialist. Subject headings of experts whose search for the answer and evaluated in the test scoring table: 1. The organs of the human face, 2. Body anatomy, 3. Limbs, 4. Clothing, 5. Motor coordination, 6. Rate as they can be listed

Metropolitan Maturity Test

Test was prepared by Hildert *et al.* (1949) and test was adapted to Turkish by Oktay (1980). The test consisted of 100 items has six separate subtests. Subtests and explanations on the subtests are given below (Gunduz and Caliskan, 2013):

are given after each explanations for students to comprehend sentences and they show pictures.

- General Information (14 items), showing images of objects child may face in everyday life are prompted. The object name can't be said direct, explanation is made on what the object works.
- Matching (19 items) is a visual perception test. It is prompted that to find the same and marking the circled in the middle of the test of geometric shapes, animal and object.
- Numbers (24 items), It is to measure skills as recognize numbers, simple addition, writing of numbers, rankings of numbers.
- To Copy (10 items), understanding the shape shown from and prompted to students that copy correctly. According to the verbal instructions given in the scored test or copies of the pictures that the students had to mark each correct answer 1 point, no points if they did wrong.

In the "Metropolitan Maturity Test"; understand words, sentences, general information, mapping tests state reading

Table 1. Comparing According to Gender Variable of Children's Scores Taken From Goodenough-Harris Drawing the Human Figure Test

Test	Gender	N	X	SS	t	df	P
Goodenough-Harris Test	Boy	28	23,65	10,47	5,68	125	0,000
	Girl	28	36,81	12,59			P<0,05

Table 2. Comparing According to Age Variable of Children's Scores Taken From Goodenough-Harris Drawing the Human Figure Test

Test	Months	N	X	SS	t	df	P
Goodenough-Harris Test	48	28	21,73	9,54	6,53	137	0,000
	60	28	38,56	14,43			P<0,05

Table 3. Comparing According to Gender Variable of Children's Scores Taken From The Drawings of the Metropolitan School Readiness Test

Dimensions	Gender	N	Mean	Ss	T	p
Understand words	Girl	28	9,86	5,20	1,47	0,395
	Boy	28	8,66	4,97		
Matching	Girl	28	8,61	3,01	1,05	0,490
	Boy	28	7,98	2,64		
Sentences	Girl	28	7,42	6,75	1,28	0,290
	Boy	28	4,60	5,57		
Genel bilgi	Girl	28	7,57	5,34	1,65	0,054
	Boy	28	6,84	4,72		
General information	Girl	28	29,86	11,13	1,80	0,398
	Boy	28	27,76	10,92		
To copy	Girl	28	4,01	4,66	1,38	0,145
	Boy	28	4,87	4,31		
Numbers	Girl	28	6,54	6,41	1,50	0,171
	Boy	28	5,08	5,75		
General maturity	Girl	28	41,74	21,89	1,32	
	Boy	28	38,39	19,56		0,365

It is meaningful at the level of * p < 0,05.

- Understanding the Word (19 items) is the test that to understand and grip of the language. It prompted from students that to demonstrate and marking what is said respectively in each row of four pictures.
- Sentences (14 items), it prompted that understood and comprehended the sentences and marking the appropriate picture. Disclosures are made to students related marking the desired image and it prompted that marking the official described of students. 15 seconds

maturity; the numbers, maturity of the number; understand words, sentences, general information, matching, to copy, numbers state the overall maturity level of the child.

Data Analysis

According to data obtained from children in assessing the relationship between their points taken from Goodenough Harris Draw a Human Test with gender and age was used one-way analysis of variance ANOVA, in the assessment of the

differences between the test scores of 'Metropolitan School Readiness' was used independent T-test. The significance level was taken as $P < 0.05$ in order to test the differences between the variables.

FINDINGS

According to gender variable of children's scores taken from Goodenough-Harris Drawing the Human Figure Test was compared in Table 1. The scores of the boys as arithmetical average is 23.65, the scores of the girls as arithmetical average is 36, 81 was found in the Goodenough-Harris Test.

Table 4. Comparing The Children's Scores Taken From The Drawings Of The Metropolitan School Readiness Test and Children's Scores Taken From Metropolitan School Maturity

Tests	X	S	P
Goodenough Harris Test	30,23	11,47	,495**
Metropolitan School Maturity Test			,000

** Correlation is meaningful at the level of 01 (2-way).

Consequently, scores between children taken from Goodenough-Harris Draw a Human test according to gender seems to be a difference as $p < 0.05$ in significance level. Based on this finding, it is said to be girls are more successful than boys in Goodenough-Harris Draw a Human Test. According to children's months of children's scores taken from Goodenough-Harris Drawing the Human Figure Test was compared in Table 2. The scores of the 48 monthly children as arithmetical average is 21, 73, the scores of the 60 monthly children as arithmetical average is 38,56 was found in the Goodenough-Harris Test. Consequently, scores between children taken from Goodenough-Harris Draw a Human test according to age seems to be a difference as $p < 0,05$ in significance level. Based on this finding, said to be of a significant relationship between the age factor of children with human figure drawings.

In Table 3, the average scores of girls and boys were taken away from the school maturity test were examined. According to the obtained data, it is seen that there isn't significant difference according to gender in children's school readiness level ($p < 0,005$). In similar studies, there are no significant differences in the boys and girls of school readiness levels results were found. In Table 4, when analyzed the children's scores that Goodenough-Harris Draw A Human Test and Metropolitan School Maturity Test there is a meaningful relationship in positive and intermediate level between relationship levels between tests ($r = -,495$; $p < 0.05$). According to research results, levels of ability scores for children's human figure drawings as long as increases, seen a marked increase in their scores of Metropolitan School Maturity Test towards to measure the school maturity.

DISCUSSION AND CONCLUSIONS

The study is a turning point because of being very rare research made in area about relationship with school readiness and human figure drawing of children. Evaluating the childrens' drawings with developmental perspective not only give very important information about children but also provide unique clues for effective interventions. Evaluating the childrens' school readiness with this approach, will be able to breakthrough in preschool term when preparing the primary

education. A meaningful relationship was found statistically between the level of school maturity and human drawing figures of the children who are taken into the research. Children's drawing scores as long as increases it has been found that the test scores show positive increases in parallel towards readiness. When the datas evaluate detailed, scores between children taken from Goodenough-Harris Draw a Human test according to age seems to be a difference as in significance level and it is seen that there isn't significant difference according to gender in children's school readiness level and levels of ability scores for children's human figure drawings as long as increases, seen a marked increase in their scores of Metropolitan School Maturity Test towards to measure the school maturity. All of findings indicates Goodenough-Harris Draw a Human test has determining status about gender and age at 48-60 montly children. In this case, said to be of a significant relationship between the gender factor of children with human figure drawings. In addition, the research reveals that girls more selector than boys about use of colour, pay attention to details in drawings etc.

In performed many research, girls are always routed to the fine motor skills so that they are more successful in fine motor skills also in reading and writing skills is also seen that girls have superior writing skills than boys (Tufekcioglu, 2010; Ozer, 1997). Similarly Bogday, Saygili (2014), has revealed in his studies on pre-school children that girls than boys that they are in a better level self-care skills and in especially such as dressing requiring small muscle skills. The researchers that determining the childrens' drawings about gender and age, Bensur, Eliot and Hedge (1997) and Buyurgan and Buyurgan (2007), found that there are differences according to age in developmental expression of children's drawings. In parallel, many researches put forth that the group of younger age children mostly drawing stickman figure of a human, but with increasing age, figures began to looks like real human figures (Magnuson, *et al.* 2006; Golomb, 2004; La Voy *et al.* 2001; Case and Okamoto, 1996). According to all of studies, it is emerging the chronological age is an important factor on development of drawing (Ari and Özcan, 2015; Cherney and *et al.*, 2006).

Tas, Aslan, Sayek (2006), drew attention to the concept of gender and children's drawings on school readiness by determining with that they have gender in harmony with children of figures in children's drawings and generally as age increased details increases in their pictures. All of this finding indicated that the human figure drawings of children, very important clue about childrens' developmental varieties. The development of visual schema about art expression impress the child's cognitive abilities at the latter part of the preoperational period. (Stolley, 2015; Light and Simmons, 2004). Uslu and Uslu, (2013) and Arıkok (2001), in his studies for examining according to various variables of the level of school readiness of pre-school students they concluded no meaningful differences relating to gender. Cinkilic (2009) in his research on school maturity level on first grade elementary students he has determined that there isn't impact of gender on the school maturity. Leong and Joshi (1997), associated with school maturity in a study examining the issues that phonological awareness, memory capacity, literacy and cognitive development in children they concluded that gender doesn't determining to significant difference. But in addition some of studies maintain that the child's school readiness range valuations are changing with child characteristics include: low

or very low birth weight, current weight and height, age, gender, and race/ethnicity (Magnusaon *et al.*, 2006). The global studies conducted in different countries, reveal that their mean scores of Goodenough Harris Draw A Human Test of children who school success in high level is higher than others (Altinkopru, 2003; Tas, Aslan, Sayek, 2006; Dogru Yildirim, Turcan, Aslan, Dogru, 2006). In addition they stated that is a harbinger status of it is ready or not ready to learn and to do their literacy skills of children's drawings activities (Einarsdottir, Dockett and Perry 2009). Yavuzer (1993), stated 1500 pictures have done by children also he applied intelligence and personality tests to children and there is a relationship between children's school readiness levels and their draw pictures.

Researchers have examined the situation that learning to read and write and school readiness of preschool children and they stated what kind of activities that should be applied to children by determining of the maturity to ready for school based on the children's drawings and how they evaluate the child's development based on the their drawings. On the other hand researchers stated that drawings are a product of children's visual experiences, physical, mental, visual coordination, and motor functions. Especially drawings are product of children's instinctive school preparing performance (Hsu and Ya-Huei, 2014; Unutkan, 2007; Yangin, 2007; Collado, 1999). The data obtained from children when analyzed according to various variables in the Goodenough Harris Draw A Human Test it was watched that in the $p < 0.05$ significance level, girl students draw the human figure more successful than boy students, children in 60 month groups drawing more successful than children in 48 month groups. The data obtained from children in Metropolitan School Readiness Test when examined according to gender although girls were more successful than boys in test scores this difference wasn't statistically significant. According to the data obtained from the study group it has been seen that a significant relationship between children's human figure drawings and their test scores towards their readiness. Accordingly; before children start primary school, when evaluation of the use of childrens' age of maturity, their drawings should be used and it is important to pay attention the following of childrens' line development, with their qualifications such as age, gender, socio-economic status should be given to monitoring to be addressed. Education at early childhood term and training should be provided by necessary experts to parents and educationalists for evaluation and commenting childrens' drawings.

In order to support of the children's readiness to school and for they complete properly that the stages of development of children's line, necessary material conditions, time, space should be provided to children. Paints and drawings made by the children should be seen as a technique that assessed not only readiness but only their cognitive skills such as reasoning, judgment, establishing a pattern. Parents shouldn't be seen as a aimless activities of the children's drawings, they should be raising awareness how important making the scribbles which is part of the developmental process of children in the home environment before starting the pre-school education. After that, it is considered that researches will be consist the evaluation of school maturity for childrens will start primary school, their drawing levels are should be take into account and drawing activities should be enhanced for different developmental children.

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