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A study on the emotional indicators in 5-6 year-old girls' and boys' human figure drawings

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Abstract

This study was conducted with the aim of examining the emotional indicators in the drawings of 5 and 6 year-old girls and boys attending preschool. A total of 235 children attending preschools in central Bolu participated in the study. Their human figure drawings were analyzed and evaluated in line with Koppitz's 5-category emotional indicators which included impulsivity, insecurity-inadequacy, anxiety, shyness-timidity and anger. The pictures of the 5 and 6 year-old girls and boys were evaluated within their gender groups by using chi-square test. An examination across all emotional indicators showed that boys produced drawings with more emotional indicators than girls did.

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1. Introduction

Children's drawings are universal and follow the same development stages everywhere in the world (Tepecik and Oğuzoğlu, 2002). Seen through these stages of development, the very first drawings of children are in the form of scribbles. Towards the end of the scribbling stage, rather basic and deficient human figures emerge in children's drawings. The human figure in this stage usually consists of a huge head in circular form, with eyes, a nose and mouth (Yavuzer, 2000). Between the scribbling and preschematic stages, children start to produce recognizable drawings. However, it is still difficult to tell what their drawings are. As they turn five, humans, houses and trees start to appear in children's drawings and these become clearly recognizable. By six, shapes and objects start to develop around a subject. The human head now has eyes, a nose and a mouth; arms and legs feature in the drawing. Burt asserts that the human figure becomes quite accurate at this age. The face is usually seen from the front and has no expression. Arms and legs come of the head, and hands may be with or without fingers. At older ages, features such as the neck, fingers, ears and irises are added to the figure (Yavuzer, 2000; Artut, 2004).

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Children's drawings not only reflect their development but also represent more than meets the eye. Drawings are a general indicator of children's development and skills. These drawings reveal their ways of thinking, as well as offer clues about their problems with other children and adults, and the ways they resolve these problems.

Machover (1949) and Koppitz (1968, 1984) analyzed children's drawings from an emotional perspective. Koppitz (1968) uses the "Draw a Man" approach in identifying certain emotional disorders in children and proposes alternative ideas in the interpretation of special signs. Koppitz's view of seeing children's drawings from the perspective of emotional indicators has continued ever since the 1950's to the present day. It is a popular projective technique based on the assumption that children's drawings reflect those emotions that they cannot verbally express, their attitudes, conflicts and self-confidence (Ryan-Wenger, 1998; Pianta et al., 1999; Cherney et al., 2006).

This instrument and its likes are commonly utilized to evaluate mental maturity, learning difficulties, personality and emotional disorders. Such evaluations of child drawings have always cast doubt upon and fueled discussions about the validity and reliability of the method used. However, they are still used commonly in the West (Lubin et al., 1985; Lubin et al., 1984; Watkins et al., 1995; Sayıl, 2004).

There are 38 emotional indicators in Koppitz's HFD method, which are present in some human figure drawings that reflect children's anxiety, fears and attitudes. These emotional indicators are categorized into three: quality signs, special technical elements and lacks. Quality signs are criteria that reflect HFD's existing features. Special technical elements include items of HFD that are not present in these drawings. Lacks, on the other hand, are the expected features that are not present in the drawings. Some examples of emotional indicators are asymmetry in legs, short arms, small figures and figures without hands (Koppitz, 1968; Koppitz, 1984; Carroll and Ryan-Wenger, 1999).

A survey of the relevant literature showed that despite the big body of research concerning the emotional indicators in children's HFD's, the majority of this research focuses on children who are not developing normally, have a chronic disease, or have been exposed to a trauma or another negative situation (Aikman et al., 1992; Hibbard and Hartman, 1990; Hart and Bossert, 1994; Burges and Hartman, 1993; Wilson and Ratekin, 1990; Çelebi-Öncü and Darıca, 2004). It has been emphasized in some of these studies that examining normally developing children's drawings in as many respects as possible would provide researchers with crucial information about evaluating the drawings of children with different characteristics (Koppitz, 1968-1984; Poster, 1989; Carroll and Ryan-Wenger, 1999; McNeish and Neglieri, 1993; Neglieri et al., 1991).

In this study, normally developing preschool children's drawings were analyzed with respect to emotional indicators. Each item among emotional indicators was studied to find whether it was related to gender.

2. Method

This descriptive study was conducted to examine the emotional indicators in the drawings of 5 and 6 year-old girls and boys attending preschool. The study group consisted of 235 children attending the preschool years of elementary schools located in central Bolu and affiliated with the Ministry of Education and independent kindergartens. Children were given crayons or pencils, and the directions, "I would like you to draw humans, they may be girls or boys, or children". They were made to sit at a distance from each other while drawing so that they would not be influenced by one another. Their drawings were evaluated by using Koppitz's (1968) "Human Figure Drawing" method, by experts trained in using children's drawings for diagnostic reasons, and the relationships of the drawings with gender, with respect to the 5-category emotional indicators of impulsivity, insecurity-inadequacy, anxiety, shyness-timidity and anger-aggressiveness were tested separately for each age group by using the Chi-Square test.

As children's thin motor muscle skills develop rapidly between the ages of 5-9, chronological age was considered in the drawing performance. Each age group was assessed within itself for emotional indicators.

3. Results (Findings)

This section presents the findings of the procedures conducted to examine children's emotional state from their human figure drawings in tabular form.

Table 1. Age and gender distribution of impulsivity related characteristics in children's HFD

Impulsivity	Age															
	5 years								6 years							
	Girls (n: 56)				Boys (n: 37)				Girls (n: 80)				Boys (n: 62)			
	Yes n	%	No n	%	Yes n	%	No n	%	Yes n	%	No n	%	Yes n	%	No n	%
Disintegrated body	3	5,4	53	94,6	-	-	37	100	3	3,8	77	96,3	-	-	62	100
Arm and leg asymmetry *	6	10,7	50	89,3	9	24,3	28	75,7	11	13,8	69	86,3	19	30,6	43	69,4
Transparencies	-	-	56	100	-	-	37	100	-	-	80	100	-	-	62	100
Big figure	-	-	56	100	1	2,7	36	97,3	2	2,5	78	97,5	2	3,2	60	96,8
Omission of the neck**	22	39,3	34	60,7	27	73,0	10	27,0	33	41,3	47	58,8	34	54,8	28	45,2

= $p<.05$ (six years χ^2 : 5,984, p: 0,014; ** 5 years χ^2 : 10,143, p: 0,001)

Table 1 presents the age and gender distribution of impulsivity related characteristics in children's human figure drawings. As can be seen, 39,3% of 5-year-old girls, 73% of 5-year-old boys omitted the neck in their human figures. The difference is statistically meaningful ($p<.05$). In the 6-year-old group, 13,8% of girls and 30,6% of boys drew asymmetrical arms and legs in their human figures. This difference was also statistically meaningful ($p<.05$).

Table 2. Age and gender distribution of insecurity and inadequacy related characteristics in children's HFD

Insecurity-inadequacy	Age															
	5 years								6 years							
	Girls (n: 56)				Boys (n: 37)				Girls (n: 80)				Boys (n: 62)			
	Yes n	%	No n	%	Yes n	%	No n	%	Yes n	%	No n	%	Yes n	%	No n	%
Slanted figure	4	7,1	52	92,9	-	-	37	100	2	2,5	78	97,5	3	4,8	59	95,2
Tiny head	4	7,1	52	92,9	7	18,9	30	81,1	3	3,8	77	96,3	6	9,7	56	90,3
Omission of hands	40	71,4	16	28,6	27	73,0	10	27,0	50	62,5	30	37,5	47	75,8	15	24,2
Monster or grotesque figure	-	-	56	100	-	-	37	100	-	-	80	100	1	1,6	61	98,4
Omission of arms *	21	37,5	35	62,5	23	62,2	14	37,8	27	33,8	53	66,3	37	59,7	25	40,3
Omission of legs	25	44,6	31	55,4	23	62,2	14	37,8	34	42,5	46	57,5	32	51,6	30	48,4
Omission of feet	26	46,4	30	53,6	23	62,2	14	37,8	34	42,5	46	57,5	35	56,5	27	43,5

= $p<.05$ (5 years χ^2 : 5,436, p: 0,020; 6 years χ^2 : 9,484 p: 0,002)

The table above reveals that 37,5% of 5-year-old girls and 62,2% of 5-year-old boys did not include arms in their drawings ($p<.05$), while the percentages were 33,8% and 59,7% among 6-year-old girls and boys, respectively ($p<.05$). Omission of legs and feet were common among girls and boys of both age groups.

Table 3. Age and gender distribution of anxiety related characteristics in children's HFD

Anxiety	Age															
	5 years								6 years							
	Girls (n: 56)				Boys (n: 37)				Girls (n: 80)				Boys (n: 62)			
	Yes n	%	No n	%	Yes n	%	No n	%	Yes n	%	No n	%	Yes n	%	No n	%
Shading of face	1	1,8	55	98,2	-	-	37	100	3	3,8	77	96,3	5	8,1	57	91,9
Shading of body or limbs	1	1,8	55	98,2	-	-	37	100	-	-	80	100	2	3,2	60	96,8
Shading of neck or hands	1	1,8	55	98,2	-	-	37	100	-	-	80	100	-	-	62	100
Feet pressed together	2	3,6	54	96,4	-	-	37	100	3	3,8	77	96,3	3	4,8	59	95,2
Omission of eyes	1	1,8	55	98,2	4	0,8	33	89,2	4	5,0	76	95,0	9	14,5	53	85,5
Cloud, rain, flying birds	9	16,1	47	83,9	5	13,5	32	86,5	23	28,8	57	71,3	12	19,4	50	80,6

No statistical difference was found between girls' and boys' drawings thought to reflect anxiety in either of the age groups. No six-year-old girls or boys shaded hands or neck in their figures. In addition to the human figure,

drawing clouds, rain, or flying birds was more common among girls than boys in both age groups (5-year-olds: 16,1%, six-year-olds: 28,8%).

Table 4: Age and gender distribution of shyness-timidity related characteristics in children's HFD

Shyness, timidity	Age															
	5 years								6 years							
	Girls (n: 56)				Boys (n: 37)				Girls (n: 80)				Boys (n: 62)			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Tiny figure	12	21,4	44	78,6	6	16,2	31	83,8	14	17,5	66	82,5	14	22,6	48	77,4
Short arms*	5	8,9	51	91,1	6	16,2	31	83,8	13	16,3	67	83,8	2	3,2	60	96,8
Arms clinging to body	1	1,8	55	98,2	-	-	37	100,0	-	-	80	100	-	-	62	100,0
Omission of nose	19	33,9	37	66,1	20	54,1	17	45,9	30	37,5	50	62,5	33	53,2	29	46,8
Omission of mouth **	5	8,9	51	91,1	7	18,9	30	81,1	6	7,5	74	92,5	14	22,6	48	77,4

*=p<.05

(* 6 years χ^2 : 6,272 p: 0,012 ; ** 6 years χ^2 : 6,565 p: 0,010)

As can be seen from Table 4, the omission of the nose, which is an indicator of shyness and timidity, occurred more often than other characteristics. Although no relationship exists between this characteristic and age, it was noteworthy that 54,1% of 5-year-old boys and 53,2% of 6-year-old boys omitted the nose in their figures. Among 6-year-olds, short arms were common among girls (16,3%) (p<.05) and omission of mouth among (22,6%) (p<.05).

Table 5: Age and gender distribution of anger related characteristics in children's HFD

Anger- Aggressiveness	Age															
	5 years								6 years							
	Girls (n: 56)				Boys (n: 37)				Girls (n: 80)				Boys (n: 62)			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Cross eyes	1	1,8	55	98,2	-	-	37	100	-	-	80	100	-	-	62	100,0
Teeth	-	-	56	100	-	-	37	100	-	-	80	100	2	3,2	60	96,8
Long arms*	1	1,8	55	98,2	-	-	37	100	-	-	80	100	3	4,8	59	95,2
Big hands	-	-	56	100	1	2,7	36	97,3	2	2,5	78	97,5	2	3,2	60	96,8
Genitals	-	-	56	100	-	-	37	100	-	-	80	100	-	-	62	100,0

*=p<.05

(* 6 years χ^2 : 3,955 p: 0,047)

Table 5 presents age and gender distribution of anger related features in children's human figure drawings. It was found that among six-year-olds, drawing long was statistically related to gender (p<.05). In this age group, 4,8% of boys drew long arms.

4. Discussion

This study was conducted with the aim of identifying preschool children's social and emotional status. The data obtained were treated in five social and emotional categories. To begin with, criteria about the first category – impulsivity – were assessed. Previous studies have claimed that impulsivity related drawings generally indicate emotional discomfort, or an organic or mental disorder (Machover, 1949; Hammer, 1958). At the same time, a figure with disintegration among the body parts has been suggested to reflect indecision, weakness in human and peer relations, poor coordination in movement, and a deficiency of stimulants in the environment (Koppitz, 1968). The existing study found that 5-year-olds did not draw the neck, and that boys in the 6-year-old age group exhibited more asymmetry in the arms and legs. It thus follows that the boys who participated in this study manifested more impulsivity related drawings than girls. Similarly, Machover (1949) explained omission of the neck with immaturity in the child and commented that it may stem from a lack of logical thought, and poor coordination in movements and behaviors.

A survey of studies about the category of insecurity-inadequacy reveals that a predominance of insecurity-inadequacy related characteristics represent defects in the nervous system, an impressionable personality (Machover, 1949), mental insufficiency and failure (Koppitz, 1968), disobedience, rejection of rules, hostile feelings and a lack of power and strength (Koppitz, 1968; Levy, 1958; Machover, 1949; Yavuzer, 1995). In the current study, the HFD's of both age groups omitted arms and boys did so meaningfully. Yavuzer (1995), interpreted this as a manifestation of insecurity and a lack of power and strength, as arms represent these two.

Machover (1949) emphasized the disintegration in the drawing of particularly 5-7 year-olds. Harris (1963) claimed that all stages of development happen in a certain hierarchical order and organization and that such development is particularly reflected in drawings. It is pointed out that there may be deficiencies in body part drawings of children who are not sufficiently mature, and that this should be considered normal until boys turn 7 and girls turn 6. Also, O'Brein and Patton (1974) claimed that the omission of body parts in HFD's may be due to a disability as well as age.

In light of the findings obtained, it seems necessary to mention the developmental characteristics of 5-6 year-old children, who constitute the participants of this study. In the preschool period, children are self-centered, cannot distinguish between the real and imagined, and do not possess logical thinking. While self-centeredness peaks at around age 2, it decreases gradually towards the age 7. The main reason why children at this age cannot distinguish between the real and imagined, and do not possess logical thinking is the lack of a mature thought system. It is only after the end of age 6 that they understand and accept other people have different viewpoints, start to distinguish between the real and imagined, and thus gradually develop logical thought (Loomis, 2003; Gzesh et al., 1985; Lloyd et al., 1995; Camaioni et al. 1998). Considering that physical and motor skill development is at its fastest between the ages of 5-9 (Cherney et al., 2006), the findings of the current study corroborates that of previous ones.

The anxiety related features of 5-6 year-old children's drawings showed that no meaningful differences existed between girls' and boys' anxiety levels in either age group. However, with a closer look, it can be seen that 6 year olds included more anxiety related items in their drawings than 5 year olds. The anxiety related criteria in HFD's have mostly been attributed in the literature to certain anxieties due to children's physical differences and bodily functions (Koppitz, 1968), a weakness in social relationships (Stone & Ansbacher, 1965), and fear of certain things. While some previous studies have concluded that girls are more easily scared than boys (King et al., 1989; King et al., 1992; Ollendick and King, 1991), others such as Stickler (1996) and Carroll and Ryan-Wenger (1999) reported no significant differences between the anxiety levels of girls and boys. These previous results are in line with the findings of the current study.

In studies conducted to date, shyness-timidity features in children's drawings have been assessed as a reflection of their insecurity-shyness emotions, a weak self image, depression, a weakness in inner control and in social relations (Koppitz, 1968; Stone and Ansbacher, 1965; Yavuzer, 1995; Levy, 1958). The shyness-timidity criteria in the study revealed no differences between the drawings of 5 year-old girls and boys, while those of 6 year olds displayed meaningful differences in short arms in girls' favor, and in omission of mouth in boys' favor. Previous studies have assessed the omission of the mouth in HFD's as a reflection of shyness, timidity, and a lack of leadership and aggressiveness (Koppitz, 1968; Lewinson, 1964). By omitting the mouth, children may be showing their fears, anxieties and depression (Koppitz, 1968). On the other hand, short arms reflect shyness, timid feelings, a poor self-image, negative conditions and depression (Koppitz, 1968; Levinson, 1964). Erkan and Kargı (2004) studied preschool children's behaviors with respect to psychological indicators and concluded that girls were more introverted than boys.

Previous research about anger-aggressiveness in children's drawings concluded that these traits showed verbal aggressiveness, sadistic feelings, ambition of winning, effort to be loved, inadequacy in manual skills, body-related anxiety and a weakness in controlling stimulants (Koppitz, 1968; Hammer, 1958; Levy, 1958). In the present study, findings about the anger-aggressiveness category revealed that 5-year-old girls and boys did not differ in their drawings; however, long arms were drawn more commonly by boys among 6 year olds. Long arms have been accepted by previous researchers as ambition of winning, effort to be loved and aggressiveness (Koppitz, 1968).

Many studies which focused on aggressiveness in children have reported boys to exhibit more of these behaviors than girls (Orçan and Deniz, 2004; Gürşimşek et al., 2004; Dizman, 2003; Şehirli, 2007; Mccoby and Jacklin, 1980). This difference between the two sexes has been attributed to mere physical strength on the boys' part, as well as families and the society suppressing aggressiveness in girls while they tolerate it in boys (Yörükoğlu, 1999; Metin, 1989; Beirhoff, 2002).

These findings lead to the conclusion that Turkish families encourage boys to be strong, robust and brave, while they teach girls to be delicate, sensitive, and more passive than boys, therefore ultimately affecting preschool children's development. In Turkish culture, girls are mostly kept in a limited-closed family environment from birth while boys are encouraged to compete and prove their superiority, which may be causing the latter to tend towards bolder and more aggressive attitudes. Parallel to this, Park and Cheach (2005) concluded that girls' development may be affected adversely by sexist parental attitudes, i.e. teaching morals to girls while placing more emphasis on the development of boys.

Seen from a general perspective, anger-aggressiveness criteria were the least preferred drawing traits by both age groups and were mainly manifested by boys among the drawings of 6 year olds. When all emotional indicators were examined, it was found that 5 year-old children used fewer emotional indicators than 6 year-olds, and that boys drew more in line with the emotional indicator criteria than girls. Kanlıkılıçer (2005) analyzed 3-6 year-old children's behavioral problems with respect to certain variables, and concluded that boys exhibited more behavioral problems than girls. His result is supportive of the results of the current study.

5. Conclusion and Recommendation

Aiming to identify the social and emotional problems of children from their HFD's, this study used 5 categories for its analyses. In the first category, impulsivity, the indicator of omitting the neck was significantly more common among 5 year-old boys than girls, and the indicator of asymmetry in the neck and legs was manifested meaningfully more often by 6 year-old boys than girls. In the insecurity-inadequacy category, arms were omitted meaningfully more commonly by boys in both age groups. On the other hand, no differences were observed between the two age groups and the two sexes in the third category of anxiety. As for shyness-timidity, the drawings of 5 year-old girls and boys did not differ significantly, while 6 year-old girls drew short arms more commonly than boys, and boys omitted the mouth more commonly than girls. Finally, in the anger-aggressiveness category, no significant difference was observed among 5 year-olds; however, 6 year-old boys preferred long arms significantly more than the girls. These findings show that children's drawings clearly reflected the stage of development they were going through, as well as the predominant child-raising style in the Turkish culture.

In light of these results, the following suggestions may be made:

- Being one of the most critical stages of development, the preschool period should be studied further by focusing on children's emotions and beliefs about themselves, their families, friends and the school environment, as doing so would equip researchers with an ability to understand children better.
- It would be useful to examine the drawings that children produce either at home or in the classroom to reveal the factors that affect them positively or negatively.
- Children need to be assisted in attaching meaning to their feelings and expressing these feelings verbally and in drawing through their drawings.
- Teachers and families should be offered training about children's drawings and the ways of assessing these drawings so that they can understand children's inner worlds.
- In order to obtain more comprehensive information about children in future studies, it would be useful to use children's drawings together with valid and reliable developmental measurement tools.
- Longitudinal studies may be conducted to examine how various changes in children's development are reflected in their drawings.

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