

The drawing development characteristics of gifted and children of normal development[†]

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Abstract

This study was conducted in a survey model in order to compare the drawing development of gifted and children of normal development in the Scheme Period (7–9 years). A simple random sampling method has been included in the study of 122 gifted children with 135 children of normal development. In the study, the data were collected via the drawings of the children, and as a data collection tool, the Drawing Evaluation Form, was used. The pictures that the children made were evaluated by the researcher and a painting teacher using the Drawing Evaluation Form. The data analysed using descriptive statistics and 2 × 2 analysis of variance showed that drawing characteristics of gifted and children of normal development are similar; it was also found that the difference between boys and girls was not significant, and that the drawings of children who showed non-gifted differed according to the age.

Keywords: Drawing, drawing development, scheme period, gifted child.

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1. Introduction

Drawing, which is seen as a way of expressing children's emotions, thoughts and desires, is known to show a certain and sequential development with age as well as all other developmental areas of the child (Anning & Ring, 2004; Arnheim, 1974; Artut, 2013; De Leo, 1996; Kelly, 2004; Keskinok, 2001; Kirisoglu, 2002; Klaue, 1992; Malchiodi, 1998; Matthews, 2003; Mayesky, 2002; Porath, 1997; Sutton & Rose, 1998; Yavuzer, 1997). Children's drawings not gained attention until the second half of the 19th century have taken an important place with increasing interest in child development (Porath, 1997). Britsch who was the first to draw attention to the fact that children's drawings were increasingly realistic with age, and progressed from a very simple to a very complex example, originally developed according to certain rules in a progressively differentiated process (Arnheim, 1974; Kirisoglu, 2002).

The understanding of the developmental stages in children's drawings has been discussed by a number of educators and philosophers from Rousseau to Froebel, drawn interested in Lucquet's longitudinal studies, and became popular with Burt and Goodenough's taking attention to the relationship between intelligence and drawing and claiming that this relationship follows a specific sequential order. The notion of development theory has gained importance with the studies of Lowenfeld (1947) and Piaget (1963) (Anning & Ring, 2004; Matthews, 2003; Porath, 1997). In light of all these views, Lowenfeld examines drawing development in five stages; scribble (2–4 years), pre-schematic (4–7 years), schematic (7–9 years), the gang (realism) stage (9–12 years) and the pseudo-naturalistic stage (12–14 years).

The development of drawing in children begins with a period of scribbling, which is drawn only to be drawn, and repeats a series of unintentional drawing and turns into regular shapes (Artut, 2013; Keskinok, 2001; Lowenfeld & Brittain, 1987; Malchiodi, 1998; Mayesky, 2002). In the pre-schema stage, symbolic expression begins; symbols change and schemes develop. In this stage, children convey the things they know and feel more than they see (De Leo, 1996; Isbell & Raines, 2003; Kapsch, 2006). In this period, they started drawing human as the first symbol. Although the drawn person is not detailed, it contains gender characteristics. For the child who concentrates on symbols, the relationship between places and objects is neglected in this stage, and colour is formed based on the child's desire, and the colours are not depicted by the true colours of the objects (Lowenfeld & Brittain, 1987; Mayesky, 2002).

Since the children at the schematic stage are aware of the surrounding area, they reflect it in their drawings. They can recognise the connecting links between the entities and objects in space and reflect it in their drawings. Because the relationship between objects is seen in this stage, the place line is seen in the drawings and the objects are placed in a meaningful way according to this line (Gurtuna, 2004; Hale, 1996; Kehnemuyi, 2001; Lowenfeld & Brittain, 1987). In drawing a human being, details begin to be seen, and the child who discovers the relationship between colours and objects starts to use true colours of objects in drawings. In the gang (reality) stage in which physical and psychological changes are experienced, children are interested in drawing elements, such as dimension, proportion and perspective, and the search for reality starts by losing individuality and originality in drawings. Sex-related differences and movements are indicated in drawing a human being. As for the colours, stereotyped colour-object relationship is seen (De Leo, 1996; Isbell & Raines, 2003; Kelly, 2004; Keskinok, 2001; Klaue, 1992; Lowenfeld & Brittain, 1987; Malchiodi, 1998; Matthews, 2003; Yavuzer, 1997).

In all societies or cultures and in spite of all their differences, children generally experience developmental stages very close to each other as in other developmental areas, and they undergo these stages (Artut, 2002; Lowenfeld & Brittain, 1987; Malchiodi, 1998; Ozturk Ayhan, 2008). However, there are different opinions that gifted children are more advanced in drawing development or have similar development. Gifted children, are defined as individuals that are having internal experiences and cognitive skills regarding quality and quantity from the general characteristics

accepted as normal, have differences from their peers in terms of their developmental characteristics. Gifted children exhibit cognitive skills faster than expected with their abstract thinking, original ideas, high imagination, intense attention, curiosity and creative behaviours, and are distinguished from their peers as the ones with fast-growing, early-speaking, early-developing motor skills (Hertzog, 2008; Morelock & Morrison, 1999). In general, all psychoanalytic sources emphasise the basic relationship between children's drawings and cognitive development (Liu, 2007). Abell, Von Briesen and Watz (1996), Harris and Goodenough (1963) and Koppitz (1968) evaluated the tools used in the children's human figures by using Wechsler's IQ test in order to investigate children's mental abilities, and the outcome of the two test results were found to be similar.

Some studies express different views on the drawing skills of gifted children. It is asserted that gifted children have distinctive characteristics, such as creativity, original thinking and imagination, which are effective in expressing themselves visually, in an original way (CfBT, 2008). In the schematic period, gifted children show differences according to their peers in drawing development as in other areas of development. Like all children, they also go through various phases, but this is not at the same time and at the same pace as their peers (Gur, 2006). A striking common feature in the paintings of gifted children is that these children have an extraordinary performance over their peers by their artistic skills (Yavuzer, 1997). Winner (1996) noted that gifted children are better at drawing skills than their non-gifted peers. Furthermore, Harrison (1999, 2000, 2004) asserts that visual expression is a distinctive process for gifted children and is different from their peers at the same age. Having a high level of intelligence is accelerating the development of narrative skills (Horowitz, Lewis, & Luca, 1967), and these children can be a few years advanced from their peers (Drake & Winner, 2012; Golomb & Haas, 1995). Emphasising that there is a relationship between intelligence and drawing, researchers have stated that drawing tests are able to measure intelligence and that these tests can be used to measure the mental ability of gifted children (Altschuler & Hattwick, 1947; Freeman, 1980; Goodenough, 1926; Goodnow, 1977; Harris, 1963; Mathijssen, Feltzer & Hoogeveen, 2016, Piaget, 1963, Schepers, Dekovic, Feltzer, De Kleine & Van Baar, 2012). Mathijssen et al. (2016) conducted a study to see whether the drawing-IQ's of gifted and normal children are different by using drawing tests. Goodenough-Harris Human Draw Test (GHDT) was used; the results showed that gifted children between the ages of seven and nine got significantly higher scores than normal children in GHDT. Mathijssen et al. (2016) found that there was no significant difference between the drawings of gifted and children of normal development between the ages of seven and nine in further studies. However, when Human Drawing Test was examined at the item level, it was also shown that gifted children were more successful in some areas than the children of normal development ones.

Clark and Winner (1985), Rosenblatt and Winner (1988) found as result of longitudinal studies that in drawings, the difference between gifted and children of normal development was in the production stage; the drawings of gifted children were with more advanced technical skills, more explicit contours and less stereotyped forms compared to their non-gifted peers. Pariser (1987) has examined the childhood drawings of Klee, Lautrec and Picasso; they revealed the struggle with various problems in the expression. Contrary to these views, some researchers have claimed that stylistic characteristics of gifted and children of normal development might have something in common (Porath, 1997) and that gifted children follow the same developmental progress with the non-gifted ones; they do not skip stages and do not pass them quickly (Gardner, 1980; Golomb, 1985).

Drawing, which is a tool for children to express and organise their ideas, is a childhood language that deserves understanding and support. The change in the visual expression of children's drawings attracted the attention of psychologists, therapists, teachers and parents, and the interpretation of these changes has been important in predicting development stage, intelligence, personality and emotional distress in the past. Analysing the drawings of gifted children can help to point out the advanced level of uncertainties in many areas and to understand the nature of superior talent in early childhood. The examination of both the processes and products of the visual expressions of gifted children is a useful tool for parents and educators who want to understand and support superiority especially in early childhood (Harrison, 1999; 2000; 2004). In this study, it was aimed to determine

whether drawing development differed according to peers of gifted children and whether gender and age were effective in drawing development.

2. Methods

The data of the study was collected through survey model. Survey model is a research model that aims to describe a circumstance which exists in the past or present in a bare fact way (Buyukozturk, 2017).

2.1. Study group

Children between the ages of seven and 9 years who have continued to go to the primary schools in the Gaziantep city centre and the Science and Art Centre (BILSEM) during the 2016–2017 education year were included in the study. The normal development children consisted of 135 children randomly selected from 21 primary schools in Sahinbey District of Gaziantep province. The gifted children are the students of BILSEM who were diagnosed as gifted (Tests of Special Abilities children not included). The sample consisted of 122 children randomly selected among 340 children. A total of 257 children (50.6% non-gifted, 49.4% gifted) were included in the study. 37.7% of the children of normal development aged 7–9 years were 7-year old, 34.9% were 8-year old and 27.4% were 9-year old. 30% of the gifted children were 7-year old, 37.7% were 8-year old and 30.3% were 9-year old children. When the gender distribution of the children was examined, it was found that 52.6% of the children of normal development were girls, 47.4% were the boys and 51.6% of the gifted children were the girls and 48.4% were boys.

2.2. Data collection procedure

The children were taken to a separate class and the purpose of the study was explained. Each child was given a picture paper and pastel paint consisting of eight colours. It is the school and friends who are the closest environment of children. Toku (2001) and Eisner (1967) based their research studies on school theme, which is children's closest environment. Therefore, in this study, children were asked to draw on 'my school and me' topic. Children were told that they should draw a paint on 'My School and Me' topic. There was no time limitation for painting. Children's drawings were collected by writing a code for each child.

2.3. Data analysis

The Drawing Evaluation Form was used in the analysis of data. Studies on how children's drawings have changed and developed are well documented, and a wide range of literature in this field dates back to the nineteenth century (Alter-Muri, 2012; Coates & Coates, 2006; Quaglia et al., 2015). Many views of children's drawings have shown that children's drawings follow a significant phase, as in other developmental periods. Each stage shows distinct features and these development characteristics have been demonstrated by many researchers. Lowenfeld and Brittain's (1987) developmental stages and developmental characteristics of these periods are widely used (Anning & Ring, 2004; Arnheim, 1974; Artut, 2013; Cox & Lambon Ralph, 1996; De Leo, 1996; Eisner, 1967; Golomb, 2004; Hale, 1996; Kelly, 2004; Keskinok, 2001; Kirisoglu, 2002; Klaue, 1992; Lowenfeld & Brittain, 1987; Lowenfeld, 1947; Malchiodi, 1998; Matthews, 2003; Mayesky, 2002; Porath, 1997; Schirrmacher, 2006; Sutton & Rose, 1998; Willats, 2005). The drawing development form of Lowenfeld and Brittain (1987) was taken into account when preparing the drawing evaluation form. Lowenfeld and Brittain (1987) argue that the development of art from early childhood to young adulthood remains standard (Alter-Muri, 2014). The drawing evaluation form was developed by the researchers considering the characteristics of the Schematic Period from the drawing development periods of Lowenfeld and Brittain (1987) and expert opinion was obtained. The preliminary application of the form was made by the researcher and an art teacher.

The drawing development form was given to review to two art teachers and two academicians whose specialty is child development as experts. According to the feedbacks from the experts, the some items were excluded from the scale and some were revised then the last version of the scale was finalised. The Drawing Evaluation Form consists of 19 items in total including the four sub-dimensions related to ‘Drawing Characteristics’ (4), ‘Place Characteristics’ (8), ‘Drawing a Human Characteristics’ (6) and ‘Colour Characteristics’ (1) Each item in this form is scored in the form as ‘yes (2)’, ‘no (0)’, ‘partly (1)’.

The data were analysed by the researcher and a painting teacher separately by filling the Drawing Evaluation Form. The two experts worked on 10 drawings before the evaluation; opinions were exchanged and the consistency between the scores was checked. Inter-rater reliability was calculated using the Kappa statistic to determine compatibility between scores given by multiple planners. The Kappa value is defined as the degree of consistency or consistency between two or more scoring (Cohen, Swerdlik & Phillips, 1996). Inter-rater reliability was calculated as 73. The scores of the two researchers were added together to obtain a common score. SPSS package program was used to analyse the data. Descriptive statistics were used to describe the characteristics of the distribution of values or scores of one or more variables and 2 × 2 analysis of variance (ANOVA) was used to test the main effects of two factors between the groups and the common effect of the two factors on the dependent variable.

3. Result

The findings related to the gifted and children of normal development are presented in tables and figures. When Table 1 and Figure 1 are examined, it is seen that the mean scores of girls according to their drawing development level are very close to each other. Similarly, the average of boys is close to each other.

Table 1. The distribution of mean and standard deviation values of the drawing skills of the gifted and children of normal development according to gender

Groups	Gender	\bar{X}	SD	N
Gifted children	Girl	25.95	7.19	63
	Boy	21.24	5.50	59
	Total	23.67	6.82	122
Children of normal development	Girl	25.47	5.27	72
	Boy	21.78	5.85	63
	Total	23.75	5.83	135
Children of normal development	Girl	25.70	6.22	135
	Boy	21.52	5.66	122
	Total	23.71	6.31	257



Figure 1. Averages drawing development of gifted and children of normal development by gender

In both groups, girls' averages for drawing development are higher than boys. The highest average belongs to gifted girls. The results of 2 × 2 ANOVA, which are related to whether the aforementioned changes show a statistical difference, are given in Table 2.

Table 2. ANOVA results of gender-specific scores of gifted and children of normal development

Source of variance	SS	df	MS	F	P	η^2
Level of Drawing Development	0.06	1	0.06	0.00	0.97	0.00
Gender	130.01	1,113	0.01	31.60	0.00*	0.11
Level of Drawing Development *Gender	16.65	1	16.65	0.47	0.50	0.00
Error	9,046.37	253	35.76			
Total	154,684.00	257				

It was determined that the children's drawing development did not differ according to be their gifted and non-gifted; in other words, the scores did not differ between being gifted and children of normal development, $F_{(1;1,113)} = 0.001$, $p > 0.05$. As shown in Table 2 and Figure 1, it was found that the averages of children's drawing development differ according to gender; in other words, the scores were found to be high in favor of girls, $F_{(1;1,113)} = 31.60$, $p < 0.05$, $\eta^2 = 0.11$. It was found that the averages of children's drawing development did not differ when the level of drawing development and gender were considered common, and there was no significant difference between gifted girls and boys or non-gifted boys and girls, $F_{(1;1,113)} = 0.47$; $p > 0.05$.

Table 3. Descriptive information on the scores of children of normal development and gifted children's drawing development according to age

Groups	Years	N	\bar{X}	df
Gifted Children	7 years	39	23.13	6.65
	8 years	52	24.88	5.87
	9 years	31	22.32	8.27
Total		122	23.67	6.82
Children of normal development	7 years	49	21.08	6.03
	8 years	49	24.12	4.85
	9 years	37	26.78	5.21
Total		135	23.75	5.83

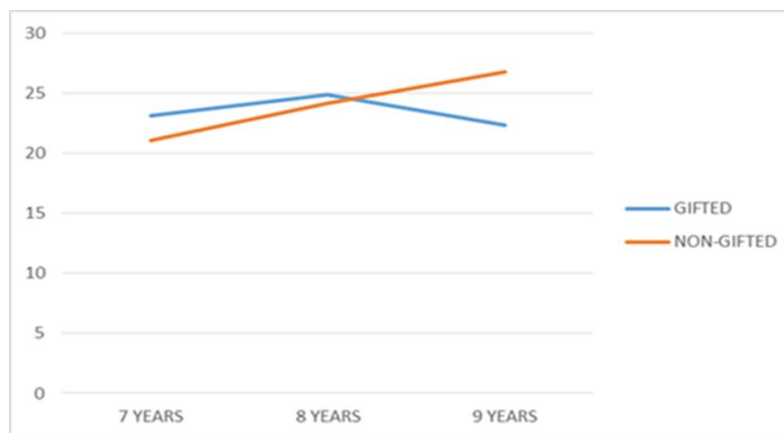


Figure 2. Averages drawing development of gifted and children of normal development by age

As shown in Table 3 and Figure 2, it was determined that the averages of children's drawing development differed by age; in other words, the scores were higher in favour of girls. $F_{(1;1,113)} = 31.60$;

$p < 0.05$; $\eta^2 = 0.11$. It was determined that the averages of children's drawing development did not differ when the level of drawing development and age were considered common, there was no significant difference between gifted girls and boys or boys and girls who non-gifted, $F_{(1;1,113)} = 0.47$, $p > 0.05$.

Table 4. Comparison of age-related drawing development scores in gifted children

Source of Variance	SS	df	MS	F	p
Between Groups	144.44	2	72.22	1.57	0.213
In-group	5,490.44	119	46.14		
Total	5,634.89	121			

In Table 4, the scores of the gifted children in drawing development were evaluated according to the age variable. In the analyses, it was found that there was no significant difference between the age groups in the gifted children, $F_{(2;119)} = 1.57$, $p > 0.05$. Although there is no statistical difference, it is seen from Figure 2 and Table 3 that the gifted children tend to decrease in drawing development after the age of eight.

Table 5. Comparison of age-related drawing skill scores in children with children of normal development

Source of variance	SS	df	MS	F	P
Between Groups	696.23	2	348.11	11.93	0.000
In-group	3,851.21	132	29.18		
Total	4,547.44	134			

The analysis of the drawing development of children of normal development is presented in Table 5. According to this, there was a statistically significant difference between the mean scores of children of normal development, $F_{(2;132)} = 11.93$, $p < 0.001$. Figure 2 and Table 3 show that the development of drawing of children of normal development is age-dependent. The post-comparison Benferroni test showed that the difference between the age groups was between the all ages except for 8 and 9 years.

4. Discussion and conclusions

The aim of this study is to investigate drawing development of the gifted and children of normal development. For this purpose, gifted and children of normal development were compared regarding their drawing ability. Here in this study, it appeared that substantial drawing skills differences are not observed. However, Harrison (1999) states that a number of features, such as fast developing motor skills, perfectionism, attention to detail, extended focus, task awareness, high perceptual ability and creativity are reflected in the drawing process. Supporting this view, Winner (1996) states that gifted children do not only draw differentiated shapes and details, but also show third dimension. Harrison has conducted three observational studies on the drawing development of gifted children in different age groups. Harrison, in his work on drawing developments of 50 gifted children between the ages of two to eight (Harrison, 1999), 1 year-old seven gifted children, 6 months to 8-year old 15 gifted children (Harrison, 2000) and 6 months to 8 years between 15 gifted children (Harrison, 2004), revealed the developmental stages of the children of normal development by scanning the literature and examined the development level of gifted children. The findings of these three studies show that the drawings of gifted children are more creative, highly detailed than their peers, and that gifted children move faster than one stage to another.

The findings of this study also show that the drawing development of gifted children is similar to children of normal development. Ozturk Ayhan (2008) also found that gifted children were behind their development stages (23% in concrete works and 13% in abstract paintings) in their thesis study

which examined linear development in 9–12 years gifted children. Harrison (2000) argues that this may be caused by the gifted children being perfectionist in their drawings and refusing to participate in drawing and painting activities because of their fear of doing wrong. In the process of data collection, it was observed that most gifted children were not willing to draw. Also not giving enough importance to studies on arts education in the educational process in Turkey, such as music and drawing, and education of gifted children to be mainly focused on science and mathematics fields, is thought to cause this condition. Gur (2006) stated that arts education does not have sufficient interest in Turkey, and even in the upper socio-economic levels, children's drawing skills are under the level required. Toku (1997) stated that Japanese children have more advanced drawing skills compared to their American peers in his study of American and Japanese children's drawing skills, and concluded that this difference is influenced by Japanese culture and art education programs. Similarly, studies (Abaci, 2003; Atan, 2004; Chung & Ro, 2004; Cooke, Griffin & Cox, 1998; Hawkins, 2002; Stokrocki & Somoraj, 2002; Thomas, 2003) demonstrating that the art education given to children supports the development of children's drawing skills. Studies that suggest that differences in the drawings of boys and girls are in the narrative dimension of the boys and girls indicate that the social environment is related to the expectations and support of girls and boys gender (Alter-Muri, 2014; Duncum, 1997; Silver, 1992; Wallsh, 1993). Rose, Jolley and Charman (2012) in his study examining the narration of the children in the National Education Curriculum, Steiner and Montessori schools, Steiner stated that the art program in education has more effect on children's drawing than other programs. Similarly, Ogletree (2000) and Cox and Rowlands (2000) also show that children in Steiner schools have better drawing performances. Music, drawing not given the necessary importance in Turkey as efforts to arts education, the gifted science and math education of children is thought to be executed at a weighted cause this condition.

Although there was no difference between the mean scores of the drawing characteristics according to the gender of the gifted and children of normal development, it was determined that girls were more advanced than boys. Mathijssen et al. (2016) have shown that girls have higher scores than boys when they examine the works of 7–9 year old children. Similar studies supporting the findings of this study show that girls have higher drawing skills than boys (Abell et al., 1996; Cox, Koyasu, Hiranuma & Perara, 2001; Harris, 1963; Koppitz, 1968). Cox et al. (2001) who conducted a study on the drawings of human figures of English and Japanese children found that girls scored higher than boys. Cox et al. (2001) declared that there are findings showing that, in the early 20th century, boys were more advanced in girls in terms of drawing skills (review by Burt, 1921; Kerschensteiner, 1905), yet they revealed that later studies (review by Cox, 1993; Goodenough, 1926; Harris, 1963; Lange-Kuttren & Edelstein, 1995; Willsdon, 1977) have shown that girls' human drawings are better than boys. But, Metin and Aral (2012) who studied on the drawing skills of the children with 4–7 years of age, and Liu (2007), who studied on the drawing skills of primary school children revealed that there is no difference between the drawing skills of girls and boys non-gifted. Likewise, in their study they have conducted with 125 first, third, and fifth grade elementary school students, McNeal and Ji (2003), have not found any gender differences in the drawings. In Martlew and Connolly (1996)s study which examined the human figure drawings of 10–15 years old children who went to school and did not go to school, and Silver (1998)s study on examining the spatial skills of a total of fourth grade 58 children, 29 girls and 29 boys, both stated that the gender factor had no effect. Stokrocki and Somoraj (2002) stated that there are very few differences in terms of gender in the drawings of 6-year-old children.

When the findings about the relationship between the development of drawing and the age of the children participating in the study were examined, it was determined that the drawing skills decreased after the age of eight although no significant difference was observed in the age-related drawing development of gifted children. Harrison (1999, 2000, 2004) in his studies where he observed drawings of children, revealed that children's drawings developed with age. All of the children participating in the study are continuing to BILSEM. As age levels increase, it is thought that the gifted children will focus more on mental processes in activities such as painting and music, and this expectation may be in this direction. Coskun (2007) applied to the opinions of teachers working at

BILSEM and Anatolian Fine Arts High School for the education of gifted children and showed that the physical structures of institutions providing education for gifted children are not suitable, there is a lack of material and that the courses are not sufficient. This shows that, because of the lack of arts education for gifted children in Turkey, children could not show the required performance of their drawing skills.

It was determined that there were age-related differences in the development of drawing of children of normal development, and the difference between age groups was observed between the ages of eight and nine. Cox et al. (2001) in their study comparing human drawings of 7- and 11-years old Japanese and British children revealed that the older children get less scores than younger ones. Figures become more detailed and proportions become more realistic as children grow up (Goodnow, 1977). Cox and Lambon Ralph (1996) and Pinto and Bombi (1996) also reported that there is a differentiation in the drawings of the non-gifted depending on age. In their study, they have conducted with first, third, and fifth grade elementary school students, McNeal and Ji (2003) asked children to draw the boxes of cereals they eat for breakfast. As a result of the study, it was stated that the drawings of the young children contained less detail and they gave less space to the relations such as right-left and upper-lower. In his study where he examined the spatial relationships in the drawing of children aged 5, 7, 9 and 11, Klaue (1992) revealed that the spatial relationships in the drawing have improved with age. Karmiloff-Smith (1990) examined the expressive skills of 4–11 year-olds in their drawings and stated that older children were more capable of expressing in their drawings. Contrary to these views, in his study where he examined the imagination and imitation with 200 Japanese and American 1st to 6th grade elementary school students, Toku (2001) stated that the children imitated objects they knew rather than using their imagination as they grew older and Acer and Ilhan (2004) reported that children were under the developmental stage of their drawings (73.4%, 6 years 25% of the developmental period) in their study of 5–6 year-old children.

This study is limited to the gifted children attending to BILSEM and the period of drawing development from the schema period. Considering the results, it can be said that gifted and children of normal development do not reflect their developmental characteristics in drawing development. It is advised to develop the arts education programs for gifted children in Turkey, giving importance to art in these children's education and also the teachers who work with these children to take in-service training in this regard. In addition, it is recommended that detailed observation of the drawing development periods of gifted children and the necessary efforts to be made to support these developmental periods.

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