The Relationship Between Modern Art and Children's Painting in The Context of The New Visual Perception Theory

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Abstract

Art has been the only shelter for artists against the alienation that came with Modernism, which covers a hundred-year period between 1860-1960. In modern art, instead of classical art rules, it is seen that the surface, form and color are given importance in painting with the desire to reach the new, and basic forms gain value in line with the desire to reach the essence. However, children's pictures have broken these rules as an innate feature. However, children's pictures have broken these rules as an innate feature. Recognizing that children paint objects as they perceive, not as a representational reality, and that they follow a very original way while doing this, caused children's paintings to be a source for modern art. Along with modern art, Manet deferred form by chasing light in the open air, and did not refrain from deforming Cezanne forms with the help of geometric forms. The forms used in modern art, where the depth is reduced to two dimensions on the surface, are no longer imitating nature. For painters who chose the path of conveying their spiritual experiences and pure emotional intensities by moving away from the reality of the world seen in modern art, children's paintings included a unique and rich visual language that took them to a metaphysical universe. The aim of this research is to emphasize the effect of children's painting on modern art by revealing similarities between children's paintings and the works of artists such as Gris, Kandinsky, Klee, Cezanne and Chirico, who are among the important names of Modern Art.

Key Words

Art education • Children's paintings • Cubism • Modern art • Visual perception

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Introduction

The period when the aesthetic aspect of children's paintings was realized is the second half of the 19th century. "19. At the end of the 19th century, the aim of art education shifts from the service of industry to the development of one's aesthetic judgment. (Kırışoğlu, 2005, p. 17). Before this understanding, the period when psychologists, as well as pedagogues, art critics, aestheticians and art historians, started to be interested in children's drawings was the end of the 19th century. Toomela (2002) states that children's drawings are closely related to their psycho-motor development, imagination, memory and perception capacities. As it can be understood from these statements about children's painting, when it was understood that the drawings made were almost a mirror of the child's inner world, they entered the field of psychology and many psychologists began to conduct research on children's drawings. We see the early 20th century as the period when the development of the child began to be considered as a whole, and the experience in education gained importance for the individual to learn by doing and living. On the other hand, ignoring the fact that children's paintings can have an artistic and aesthetic dimension, it is seen that the paintings made by children are only considered as a mirror of the child's mind.

Between the years of 1860-1960, when modern art was seen, artists took the place of psychologists who focused on the child's understanding of painting his own world and were not interested in its aesthetic aspect. The most important reason for this is that the artist, who moved away from the understanding of imitating nature with the influence of modern arts, tried to find different sources for himself with the changing aesthetic taste. "The main sources that avant-garde artists turned to for this purpose were the art of primitive cultures and children with similar characteristics such as simplicity and sincerity, and they began to use them in their own works". (Cited from Aman 1990, İşler, 2004, p. 55).

Apart from art educators, psychologists who were interested in children's drawings were interested in the developmental language system of children's drawings with symbolic values rather than artistic aspects. "Many important qualities peculiar to children's art such as originality, intensity of emotion, directness, saving of expression, symbolic expression, and liveliness have been ignored. However, these qualities specific to children's art and primitive art overlap with the logic of an artist in modern understanding of seeing and expressing the world at many points" (İşler, 2004, p.55).

With this understanding that started to change in the 20th century, children's painting began to be considered as an artistic expression. Especially the new modernist views in the art movements supported this view. As a result, it has begun to be noticed that children's painting has an artistic aspect. Regarding this situation, Aytaç stated that "in the painting class, instead of the mechanical ornamentation practices and model copies of the old, an art lesson based on life was given, and with the influence of contemporary art movements (such as expressionism), it was given importance to the child's expressionist painting". (Aytac, 2006, p.20).

It is often claimed that children are talented artists because they have a natural talent for free, spontaneous and creative features in their work. With the 20th century, many artists became interested in children's paintings. "Among these, it is seen that many modernist artists such as Marc Chagall, Juan Gris, Wassily Kandinsky, Joan Miró,

Dubuffet, Pablo Picasso and Paul Klee collect children's paintings and use their unique images and forms in their own works" (Kümmerling-Meibauer, 2013, p. 15).

Modern Art and Children's Painting

Modern art has made art free by leaving the known classical measures and the necessity of fulfilling the rules, and as a result, the artist has the chance to reflect his individual worldview and inner world. "Now, the artist was not subject to the visible objects in nature, to the conditions of a subject, a description, a story, but to the characteristics of painting, the artistic qualities of creation and the conditions of plastic form" (Şahindokuyucu, 1997, p. 4).

The modern artist has chosen to reinterpret the objects around him within the framework of his inner world and views by analyzing them. While examining the nature of the artist, observation in parallel with modern science was replaced by theoretical thought, and concepts were handled with the influence of theoretical thought, leading to abstraction in modern art. While the artist was repainting the objects and colors he saw in nature by subjecting them to deformations and transpositions in line with his inner world, they were plastically transformed into different forms and brought into a much different state than they actually were.

"Impressionists and expressionists stated that the works reflect changing behaviors, and in this sense, the realist form and color of things, based on expressionism, were now emotionally distorted, and the Renaissance perspective disappeared. It was emphasized that personal views and perceptions now come to the fore, and that what is presented to the art audience is the artist's feelings" (Denvir, 1989, p. 109).

In the period when these developments in art were experienced, it is seen that children's paintings in Germany started to be reproduced alongside the paintings of European avant-garde artists in Der Blaue Reiter, founded by Wassily Kandinsky and Franz Marc.

It should be underlined here that the urge to collect drawings made by children probably arose with Kandinsky at the beginning of this century. In later years Gabriele Münter joined him. It is no longer clear exactly when this common collection began. But the children's drawings that have survived to the present day date back to the years 1905-1906 to 1914. Münter's interest in drawings made by children continued even after he parted ways with Kandinsky (Strauss, 2007). For the artists, these drawings were like a treasure trove of images created by the rich imagination of children.

Inspired by these rich visual treasures, the Blaue Reiter group, which includes artists such as August Macke and Klee, was founded in 1911 and represented the pinnacle of German Expressionism. The works produced as a result of these inspirations were included in the Futurist Exhibition in Milan, Italy in 1911, where children's drawings were also included (Fineberg, 1997).

Herman von Helmholtz and the New Theory of Visual Perception

Paintings made contrary to perspective drawing in modern art appear as the most important similarity between children's drawings and the works of avant-garde artists. Towards the end of the 19th century, Cézanne started to use drawing systems close to parallel systems instead of perspective. Many painters, especially the Cubists, gave up

perspective in their works. One of the reasons for this can be explained by the new theory of visual perception developed by psychologist Herman von Helmholtz in the mid-19th century. It led to the development of vision theories and perspective based on the optical laws of the Renaissance. However, Helmholtz tried to explain the term vision by emphasizing not only the images that light reflects on the retina, but also how these images are processed by the human visual system. This term, which Helmotz calls psychological optic vision, is the opposite of physiological optics. This theory of the visual process was the precursor to the theory of vision developed by Marr (1982).

"Helmholtz is an empiricist; he argues that science and perception are gained through experience and not innate. Depth perception is achieved through axioms of geometry and experiences, contrary to what Descartes and Kant think. These are learned between events consists of relationships. Of course, the importance of such an empiricist attitude in terms of experimental psychology cannot be disputed" (Karakaş & Bekçi, 2003, p. 252).

Another contribution of Helmholtz to experimental psychology is the theory of perception. According to Helmholtz, experiences related to objects and events in the external world do not only include sensory patterns caused by stimuli. At the basis of these experiences are the images, that is, the ideas, created by previous impressions. Thus, what is perceived at a given moment; Along with stimuli in the current state, past experiences and related images or ideas are determined. It would not be wrong to say that these views of Helmholtz are also the basis of the perception explanation accepted today. Helmholtz's explanation of the sense of sight and color perception, called the Young-Helmholtz theory, which combines physics, physiology and psychology; on hearing, there is the theory of 'resonance', which is still valid today (Boring, 1950, p. 76; Christman, 1971, 99).

Helmholtz's empiricist side and his explanations on perception are united in another view, the "doctrine of unconscious inference". According to this doctrine, our perceptions are based on inferences derived from experience as well as current sensation. These predictions are made so often that they eventually become a mental habit and appear unconsciously. The inferential feature of unconscious signification is most clearly seen in illusions. As the train tracks move away from the observer, their image on the retina turns into a line. However, the person does not perceive the situation as two rails merging into one. Likewise, objects that are not actually moving in a movie are perceived as moving. Both examples are based on subconscious interpretation of stimuli in line with past experiences (Karakaş & Bekçi, 2003, p. 252).

Teuber expresses the effect of Helmholtz's vision theory on Cézanne and the Cubists as follows: In Georges Braque's early Cubist work "In Houses at L'Estaque", trees are depicted in basic cylindrical shapes (Image 1-a) (Teuber , 1980 cited in Williats, 2005, p. 196). These ideas were also supported by Cézanne in France. In Georges Braque's work "In Houses at L'Estaque", which belongs to early Cubism, trees are depicted in basic cubic prism shapes. Helmholtz, in his book physical optics, stated that we see an optical illusion or perspective transformation of every object rather than a retinal image. In all perspective views, we see the amazing shapes found in nature in cube, sphere and cylinder forms without illusions. This can be explained by Helmholtz's doctrine of "subconscious interpretation"

Image 1. (a) Georges Braque, "In Houses at L'Estaque" 59 x 72.5 cm , Oil on Canvas, 1908, (Golomb, 1992).

(b) The subject of the painting In Houses at L'Estaque. Photograph of the house in L'Estaque, located in Marseille, France.

Helmholtz's doctrine of subconscious interpretation also explains the perception of the images formed on the retina with an object-centered description, the first function of the human visual system. As seen in Figure 1, the shapes of the surfaces of the objects are distorted in perspective images. Alternatively, it is possible to represent these surfaces as real shapes, and this is the system adopted by many of the Cubist painters. It is noteworthy that this is also an application used by many children. Images 2 and 3 below show pictures of Georges Braque and a nine-year-old girl. In both pictures, the edges of the houses are drawn as real shapes as possible.

Image 2. Georges Braque, *L'Estaque: Viaduct and Houses* (detail), 1908, Oil on canvas,   72.5 cm × 59 cm, (Golomb, 1992).

Image 3. Drawing of a nine-year-old girl. Golomb, C. (1992).

Cubism and Children's Paintings

Horizontal and vertically inclined projections were widely used in Early Cubist paintings. Cézanne used these systems in his work "Still Life in Front of a Dresser" (Image 4). The table in the foreground of the painting is in close approximation to the vertical inclined projection, and in front of the dresser behind it is depicted in the horizontal inclined projection.

Image 4. Cézanne "Still Life in Front of the Dresser", 1887-1888, 79.9 x 3.8 cm,
TÜYB, Harvard Art Museum. Janson, H. W., & Janson, A. F. (1997).

The majority of later Cubist paintings were still life painting rather than landscape, and the system most commonly used in these paintings was vertical inclined projection. In many of these paintings, besides the objects shown on the table, the faces of these objects and the top and front of the table are usually shown in their real shapes.

As children's paintings affected the art understanding of the period, this understanding of art also affected the art education practices of the period. For example, practices similar to Cezanne's understanding of still life started to be used as new methods in art education. In this method, which can be considered as new, it is seen that placing the objects on the paper statically is replaced by a system based on the child's seeing the differences such as angles and distances between the objects and transferring them to the paper by creating the composition from different angles and plans (Image 5-6).
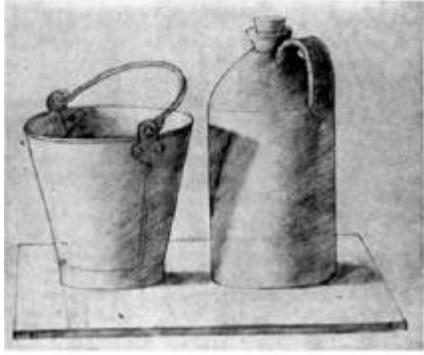
Image 5. Figure 5. Example of a typical model drawing (old method) A picture of a 12-year-old boy. Macdonald, S. (1970).
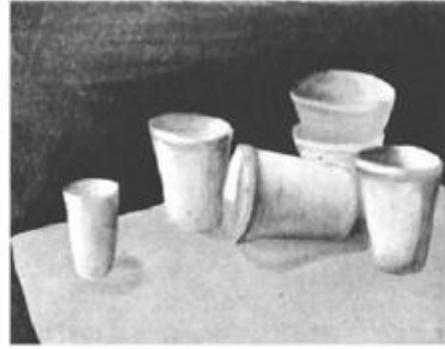
Image 6. Figure 6. A group of models (new method) A 15-year-old middle school student. (Tomlinson, 1944: 10, 11). Macdonald, S. (1970).

The similarities between cubist paintings and children's paintings seem to prove that children are avant-garde artists. It is seen that the vertical oblique projection system is used between Picaso's painting "Fruit on the Table and Still Life" dated 1914 and the table drawing of an eleven-year-old child (Image 7-8). In Picasso's painting, objects are depicted by overlapping. For example, the various objects on the fruit plate are depicted in such a way that they can be seen from a certain point of view, regardless of their resemblance to the objects they represent. In the child's drawing, the objects are arranged on the farthest edge of the table and are in the form of a folding box drawing (Image 8).

The outside world is very different for children, and the color, smell, sound, light and students are very different. In terms of the individual's proper evaluation of all these trainings. He is sure that he is in the perception in this direction. Our focus is more on education. Selectivity has an effect on perception and ineffective image. He will learn the distinctive line that will help him distinguish between different educations as well as those for children. In this respect, it does not take into account the interests that are outside or small and starts to take it into consideration. It also learns to be directed in a certain way towards this planning. It may have seemed possible to draw attention to these perceptual state drawings.

Both images contain mixtures of drawing systems. It is noteworthy that while the fruits in Picasso's painting and the radio in the children's painting are depicted as seen from the front, the surfaces of the tables in both paintings are depicted from a straight up view. This feature, which is seen both in children's drawings and in the paintings of avant-garde artists, caused the art educators of the period to claim that children are naturally creative.

Image 7. Pablo Picasso, Fruit on the Table and Still Life, 1914–1915, TUYB, 64 cm × 80 cm. Columbus Museum of Art. Willats, J. (2008).

Figure 8. Table Drawing of an 11-Year-Old Child, (Willats, 2008).

Undoubtedly, there are some similarities in terms of the contradictions seen in Cubist paintings and paintings by children, but these similarities do not mean that all children are avant-garde painters. Describing the basic form or thought of an object has been one of the goals of the Cubists (Marr, 1982). Accordingly, the drawing systems seen in the paintings of Cubist painters and children arise for similar reasons, both deriving almost directly from the object-centered definition. The main reason why children make objects this way in their pictures is their perceptual characteristics. Children cannot perceive and distinguish different situations as a whole. Children in this period see objects as a part of their environment. In this context, the distinctive features of the object cannot be distinguished from other non-significant features. The child in the preschool period first perceives a complex shape as a whole and cannot see the details. After the age of six, he pays attention to details and puts a lot of emphasis on them. Finally, the child turns to the unifying, integrative tendency. After such an event, he perceives the whole, the part, the relations of the parts with each other and the whole part at the same time (Fişek & Yıldırım, 1983). The prerequisite for the development of perception is figure-ground distinction. figure-ground distinction is not just about visuals. It is any consciously perceived pattern of sound, touch, taste, and smell. The basis for the perception of complex sensory material is hidden in the distinction between shape and ground. Another shape in the figure, overlapping shapes, geometric shapes and real shapes is successful when the 4 age group has the ability to distinguish.

According to Cooper and Tinterow (1983, p. 136), "Gris's main purpose in painting is to represent the three-dimensional experience of reality in two dimensions on the canvas surface without resorting to illusion, which is a goal that Braque and Picasso also have". One way to solve this problem has been to draw the faces of objects as real shapes. This solution seems to be applied to children's drawings as well, but as Costall (2001, p.17) states, the limitation of this approach is that it is "impossible to connect all the parts of an object".

Many of the anomalies seen in children's drawings and Cubist paintings are the result of attempts to solve this problem. However, there are important differences between a child's intentions and those of avant-garde artists. Children aim to achieve realism. Therefore, when children notice anomalies in their own drawings (such as the transparency due to their failure to reflect absorption, their inability to properly combine faces and vertices in their doubled drawings), they try to find new ways of representing these anomalies to avoid. Recognition of these

anomalies and efforts to overcome them provided the driving force behind the development of drawing. On the contrary, avant-garde artists willingly accepted these contradictions and used them deliberately; their purpose is to explore the nature of the depiction, to achieve expressionism and to flatten the painting surface for visual enjoyment (Willats, 2008).

One of the biggest changes that took place in the art of painting in the nineteenth century was that artists saw that the drawing systems used by artists who grew up in different periods and cultures were different from the perspective and expression systems that were not based on light plays. For example, colored woodblock prints produced by the Japanese became widely known in France in the early 1860s with their content far from traditional perspective understanding and tonal models, and the use of uniform areas containing pure colors. These works offered an alternative to the traditions of European painting, and offered a solution for combining color representation with shape representation through tonal models. In addition to these, the invention of photography has brought painters face to face with a dilemma. The mechanical nature of photography guaranteed its authenticity and fitted perfectly with the exploration of perspective, which is the foundation of Western art. But it also left an impression that weakened the painters' position as artists. Moreover, only a few years after the invention of photography, Helmholtz explained his theory of vision, and while it became possible to produce pictures that capture the light coming from the landscape exactly, the validity of these pictures, which record our real experiences within the scope of vision, began to be questioned. All these conditions have shaken existing ideas about the nature of depiction, so most painters have stopped depicting objects in landscapes and have instead started to use the act of painting as a way to explore this act itself (Willats, 1997).

Turning the normal rules upside down in their own minds and seeing what happens as a result has been one way of making this discovery. In the 1950s and 1960s Chomsky (1965, 1972) constructed sentences containing various contradictions such as "colorless green thoughts sleep in anger", thus trying to investigate language rules. On the other hand, Clowes (1971) and Huffman (1971) used pictures of non-existent objects to investigate the rules of painting made using lines without color and shadow in the 1970s. But long ago, avant-garde artists used the anomaly to explore the rules of painting. The first painter to deliberately and regularly perform this action was probably Juan Gris.
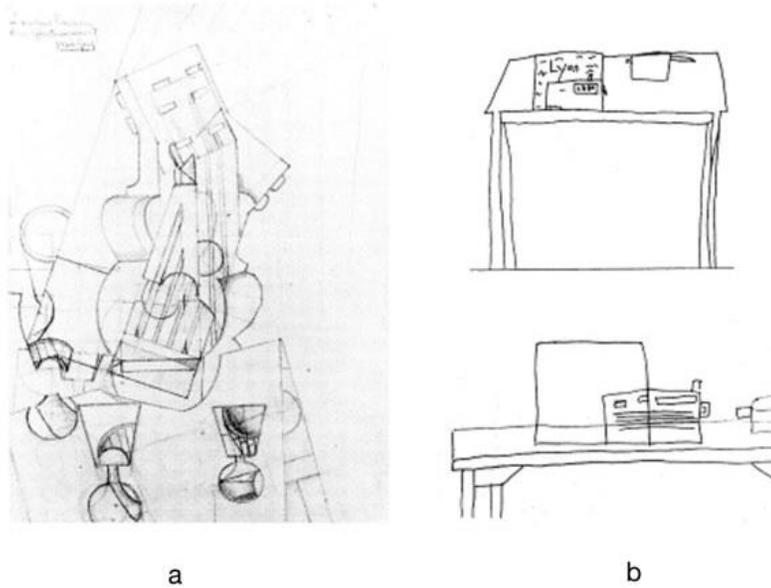
a   b

Image 9. (a) Juan Gris, *Gitar*, 1913, Graphite on paper, 65 cm × 50 cm. Willats, J. (2008).

Image 9. (b-top) An 11-year-old child's drawing of objects on the table showing attachments made by incorrect connections, similar to cubist painters (b-bottom) Examples of transparent drawings that violate the rules of stacking objects. Willats, J. (2008).

Figure 9-a shows Gris' work named Guitar (Guitar) drawn in 1913. In this work, the table (or the part of the table we can see) is projected in a vertical and inclined position, while the guitar is projected horizontally and inclined. In other words, the front part of the guitar is shown in its real shape and the sides are added here. The windows, on the other hand, consist of a mixture of a perpendicular (orthogonal) projection and a vertical and inclined projection. In addition to these, there are two types of anomalies in the drawing. At the bottom of the drawing, the frame of a window appears to be attached to the end of another frame on one side, while on the other side it is attached to a line (presumably representing the edge of the shadow of the body of the guitar). The absorption representation is quite difficult to decipher, but there are several outliers. There are many false connections between the rim of the glass on the left and a line representing the foot of the other glass and the edge of the shadow of the guitar. There are many anomalies in this presentation, in which the images are superimposed. The two drawings made by children, shown in Figure 9-b, are also based on a mixture of orthogonal and vertical-tilt presentation.

This situation can be explained by the perceptual object invariance phenomenon for children. It is the child's perception that even if he sees a different version of an object, that object is still himself. Object constancy is studied from two aspects: shape constancy, size and size, shape constancy. In shape constancy, even if people look at a table from any angle, they know that it is a table and perceive it correctly. Children develop and realize this object constancy only as a result of learning. In such a process, the object given to the child realizes the invariance of the object by taking it in his hand and turning it over and looking at it from every angle and discovering it. Another

version is the immutability of size and meaning in object immutability. When adults look at a table from far or near, they know that it is still the same size. But children have trouble with this. He cannot detect the changes in perception by adjusting the images reflected in his eyes from different distances. But as a result of learning, he starts to perceive correctly whether the object approaching and moving away from him is the same or not (Fişek & Yıldırım, 1983).

In both examples, the tables are shown in a vertical-slanting manner (although the top table shows some perspective) while the box and radio are mirrored in an orthogonal fashion. The drawing above contains various unreal connections between the table, the box, the radio and the ceiling. At the bottom of the drawing there is an unreal connection between the lower edges of the box and the radio, and certain transparency can be seen at the far end of the table, which can be seen through the box, radio and pan.

Image 10. Juan Gris, Breakfast (Breakfast), 2014, Paper belt, oil on canvas, 80.9 x 59.7 cm. New York Museum of Modern Art.

In his work, Breakfast (Image 10), which Gris produced a year later, in 1914, a mixture of drawing systems, inversion of normal absorption rules, unreal connection of objects in the picture, unreal bonds between the objects in the picture and the frame , the inversion of the normal rules of atmospheric perspective, the use of real surfaces such as wallpaper, and the use of written expression (Willats, 1997). Apart from the atmospheric perspective that children never use, all such contradictions can be seen in the drawings made by children. Children generally use drawing systems in a mixed manner in their drawings. Some examples of transparency and unreal attachments can be seen in the image. Children do not have any reservations about using text in pictures. For this reason, many of the pictorial anomalies found in the works of Gris and other Cubists can also be seen in the paintings made by children. The difference, however, is that while Cubist painters, especially Gris, deliberately use these anomalies as a way of investigating the nature of the depiction, they occur by chance in children's drawings. When children notice these

anomalies, they see them as mistakes and try to remove them from their pictures in order to perform a more effective representation.
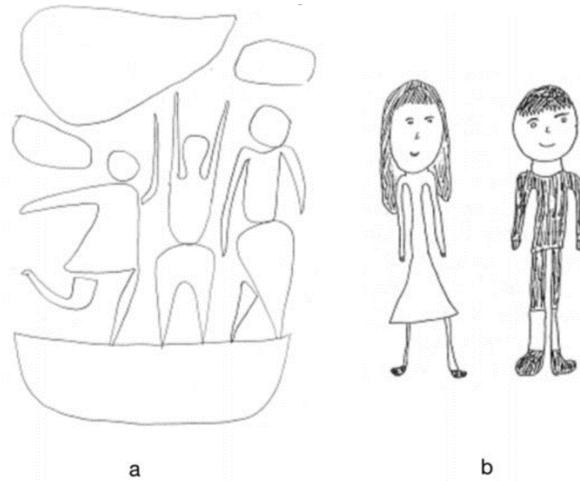

Image 11. (a), Paul Klee, Shipwreck, 1938, 29.5 x 20.3 cm. Kunstmuseum, Berne

Willliats, J. (2006). Rudolf Arnheim's graphic equivalents in children's drawings and drawings and paintings by Paul Klee, Ed.Liliana Albertazzi, in Visual Thought: The depictive space of perception (204-235 pp.).

Image 11. (b) Drawing of an eight-year-old boy. Cox, M. (1992).

It is seen that many drawings and paintings produced by Klee in the last period of his life contain pictorial contradictions in terms of 19th century academic painting standards. In many of these anomalies the state of the lines is manipulated (transformed into signs or reverted to a primitive stage of painting) and differs greatly from the anomalies used by the Cubists. Although lines are seen as contours in the artist's work named Ship Wreck (Image 11-a) of 1938, primitive features are included as regions instead of lines in this painting. While the main body of the figure reflects the enlarged form in the drawings of the children resembling spinning threads (as in the drawings shown in Visual 11-b), the shapes denoting the regions have been modified with the second sections added later, thus ensuring that they are "pointed" and "twisted". Therefore, these lines used as markers only define the contours of the regions and the detailed shapes of these lines, which are irregular in both Klee's and the eight-year-old girl's drawings shown in image 12 and are not clear in themselves.
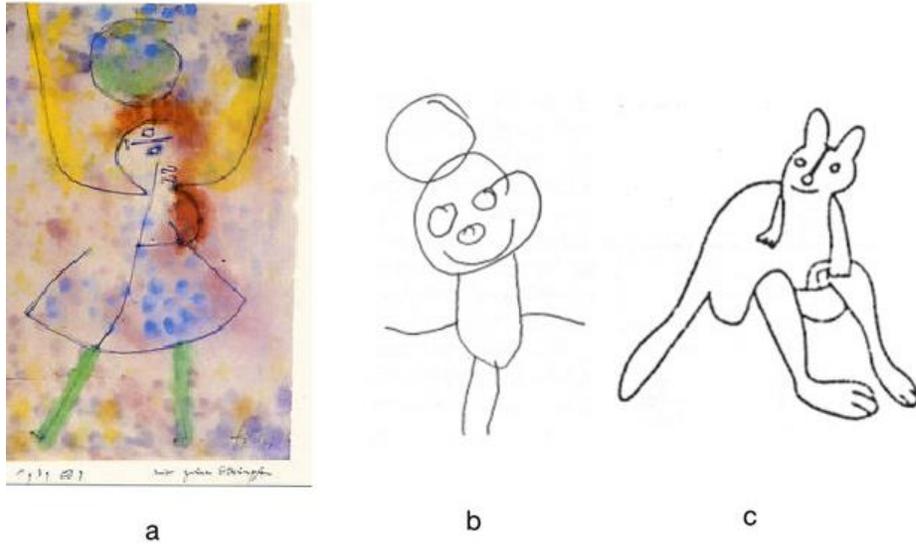
Image 12. (a) Paul Klee, With Green Stockings, Watercolor, 34.9 cm × 21.0 cm, 1939, Felix Klee Collection.

Image 12. (b) Human figure drawn by a four-year-old girl. Willats, J. (2008).

Image 12. (c), Kangaroo drawn by a child. Reith, E. (1988)

The anomalies used in *With Green Stockings*, which Klee completed a year later in 1939, are much more complex (Figure 12-a). Just like in the *Shipwrecked* study, the markings were used instead of lines, but colors were added in the form of spots. However, unlike Shipwrecked, the lines represent different types of primitive stages of painting in different parts of the painting, and the meanings of the lines also change along the way they follow. Figure 12-b shows a drawing made by a four-year-old girl. In this drawing, the arms and legs are represented by a single line. In such drawings, lines replace large areas reflecting the primitive stages of painting and, in turn, indicate long areas expressing arms and legs. In Klee's painting, such single lines represent arms and legs. However, instead of ending at the contours of the body, as in the drawing by the four-year-old girl, these lines continue towards the inside of the girl's body, but in this way their meaning is also changed.

Lines in drawings made by older children can sometimes have different meanings as they progress (Figure 12-c), but the fact that this is a transitional phase is beyond doubt. The line in the lower left part of the figure has a different meaning as it moves towards the leg in the lower part of the body, while the covered surface first remains to the left of this line and then to the right. A line at the top of the drawing also changes its meaning as it progresses from the head contour to the arm contour. At this point, it is seen that the four lines come together. But throughout all these meaning changes, lines continue to express their contours.

In Klee's painting, on the other hand, the changes in meaning of the lines are much more radical. In the lower right part, the line gains volume and expresses the leg, while it becomes a contour as soon as it passes the hem. Therefore, Klee confuses expression systems taken from the extremes of children's drawing development when drawing with single lines. With Green Stockings contains a number of other outliers. There is an untrue addition

between the lines denoting the right leg and the folded part of the skirt. Likewise, there are also two unreal bonds between the ends of the lines that represent the arms and the upper edge of the paper. There are three other such unreal end-of-line joins: one where the skirt contour ends in the left-middle part of the picture, and the other two due to the lack of closure in the representation of the girl's ball. Even small children are generally careful to avoid such shortcomings in closure. The faint gap in the outline of the plate above the head of the four-year-old girl (Image 12-b) is undoubtedly due only to a minor disruption in motor control.

Changes in the expression states along the path of the lines are rarely seen in children's drawings, and these changes were undoubtedly created unintentionally. As suggested by Reith (1988), the semantic changes in visual 12-c were a "by-product" of this child's addition of schematic shapes to the contour. These "errors" are eliminated at a slightly more advanced stage of development.

On the contrary, Klee undoubtedly used such anomalies deliberately, and similar contradictions are seen in many of the paintings and drawings he produced during this period. For example, from 1937 Oh, but oh! In his work, a single line was first used to denote the edges of a bow tie, then advanced interchangeably to indicate the contour of a cheek, a tonal speck denoting an eyebrow, height denoting the nose, and a scar on the upper lip (Willats, 1997). "I did a lot of experimentation with the laws and used them as a basis," Klee said. But an artistic step can only be taken when an obstacle arises" (1961: 454). The strongest evidence of Klee's deliberate use of outliers in his With Green Stockings is probably in the painting itself. The use of color in this painting seems very simple and for decorative purposes, and in fact, it is extremely necessary for the meaning of the painting. At the exact point where the lines denoting the arms and legs change meaning, these changes are marked by the edges of the patches of color, yellow for the arms (unfortunately not visible in this black-and-white reproduction) and green for the legs. This is where the picture gets its name: *With Green Stockings*.

The greatest concern of Gris, Klee, Braque and Picasso was to find a way to paint. The contradictions seen in his paintings and drawings also constitute a certain part of his research. Picasso said, "I never create a painting as a work of art. All images are research. I research non-stop, and this research also has a logical sequence" (O'Brian, 2018). Other avant-garde painters such as Chagal, de Chirico, Derain, and Matisse were more concerned with the use of deviant structures used for representation as a means of expressionHowever, in Chirico's painting 'Mystery and Melancholy of a Street' seen in Image 13, a contradictory mixture of drawing systems is used expressively.

The subject of this painting is not particularly clear in itself, although the shadow of the concealed statue projected across the empty street probably conveys a sense of threat. The mystery and melancholy that this painting conveys is therefore not very relevant to this obvious subject. Instead, de Chirico used the incongruous mixture of drawing systems in this painting as a form of expression. The arches extending to both sides disappear at different points, while the pickup truck is shown in a slanting way. Therefore, the space system in this painting is inconsistent when considered holistically. Commenting on the spatial systems in de Chirico's paintings, the critic James Soby said that "geometry is deliberately altered to create a poetic expression" (1966, p. 71).
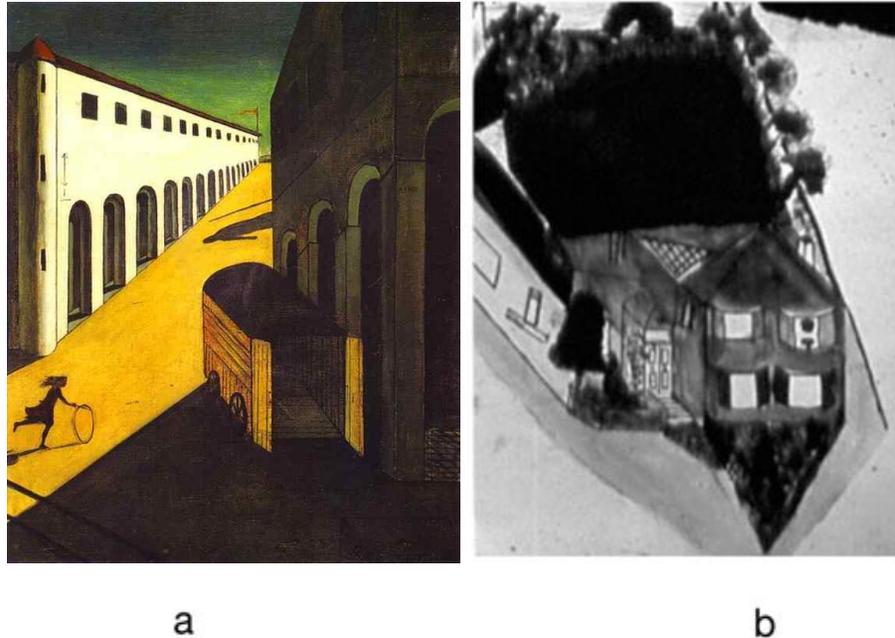
Image 13. Giorgio de Chirico, Mystery and Melancholy of a Street, Oil Painting, 87.0 cm × 71.0 cm, 1914, Private Collection. Willats, J. (2008).

A house painting by a child (Figure 13-a) likewise includes a mix of drawing systems (in this example there is a mix of battered expression and inverted perspective). There are certain expressive features in this painting, as in de Chirico's painting. However, it is very unlikely that these features were deliberately included in the child's picture. Rather, this mix of systems seems certain to be the result of the child's effort to master a new drawing system; just as many of the drawing systems in early Italian painting (though they seem to be an expressive feature) were the result of painters' efforts to master perspective.

Golomb (1992) used the following expressions for older children: "The part with the meaning that generally produces the effect is the head or face, while the body posture is shown essentially undifferentiated." Representation of facial expression is limited to showing the mouth curled up or down, or straight. The expression given by the posture of the body (if given) is much more limited. Moreover, since most children are limited to showing the head completely from the front or completely in profile, expression with the gaze direction, if any, is not possible.

Image 14. A drawing named refugees by an eight-year-old girl. Willats, J. (2008)

Figure 14 shows a picture made by an eight-year-old girl, showing an emotionally intense scene. For a girl of this age, this painting seems to have a rather extraordinary feat of conveying emotions. The facial expressions of the figures are sad; mirroring the body posture is extremely effective, given that the boy's arm wraps around the girl and his feet are turned inward. However, there is no clarity in the expression of the direction of gaze. It is difficult to tell whether the sense of chaos resulting from the inconsistent use of perspective (although appropriate enough for the subject of the painting) was created deliberately or accidentally. There are two unreal or almost unreal points of junction in the painting: the parts between the girl's bag and part of the boy's pants, and the parts between the girl's leg and the shadow stain. However, they appear to have been created by accident. Although the claim that children's drawings are expressive is often expressed, children's expressions are mostly hidden in their choice of subject and the way they reflect their facial expressions. If this picture is compared with the picture named A War Wedding (Image 15); Although one depicts a sad scene (refugees) and the other a happy scene (wedding), it will be difficult to distinguish between the emotional content of these two works (without seeing the title) by looking at how they are portrayed.

Image 15. The painting named wedding in war, made by a 14-year-old boy. Willats, J. (2008)

In Figure 15, it is seen that there is no correct point of view in the painting made by a 14-year-old boy. The door on the right and the door on the left are depicted in a sloping manner so that the eye is directed to the center of the painting area. On the other hand, the figures are arranged horizontally. The figures do not stop directly at the bottom edge of the picture, as in many children's drawings. There is a strong contrast between the image presented in the painting and the subject of the scene depicted. Brush marks are large, separate and clumsy, with gaps left in some areas of the image. All these factors seem to have been carried out to draw attention to the subject of the painting.

These examples show that the formal similarities between children's drawings and the paintings and paintings of avant-garde art produced in the early 20th century are striking. The most obvious of these similarities is the lack of perspective, but there are many other anomalies these paintings have in common. These can be listed as abnormal drawing systems such as folded drawings and the occasional use of inverted perspective, different objects drawn from multiple perspectives located on the same surface, transparent objects, false inserts and edges. The objects and figures in these paintings are often large-scale, rough and clumsy, and the painting surface is often blank. Naturally, these similarities with avant-garde art have led to the claim that children are natural artists.

Discussion

Children may not have the skills and vocabulary to verbalize their feelings, fears, and concerns. It is often difficult for adults to express their feelings, and therefore it can be concluded that it is almost impossible for children. In some studies, it has been determined that children do not always engage in verbal communication that reflects their emotional state (Clatworthy, Simon, & Tiedeman, 1999). For this reason, children use the

painting surface, on which they intervene more freely and comfortably, especially in order to express their inner world, if it is read correctly, as a communication tool.

Children's drawings are works produced as a result of the effect of the child's mental and physical development. While the child is painting, he does not perform this action with a certain consciousness. This process happens naturally by itself. The painting and the child are inseparable parts of each other and complement each other by making sense of each other. Children's drawings are a window to their inner world and contain developmental clues. Children's drawings not only give clues to adults about their inner world, but also give clues about their mental and physical development levels. It was towards the end of the 19th century that it was discovered that children's pictures are a powerful means of expression and an important tool in obtaining clues about their inner world. This discovery caused the child's drawings to be used in different areas and led to the understanding that even the child's intelligence can be measured.

In order to determine the developmental characteristics of children, especially in the period between 1885-1920, researches were made on a large number of children's pictures and thousands of children's pictures were collected and analyzed. With the help of psychology, it has been diversified according to the cognitive, affective and psychomotor development characteristics of the child. In this process, it is seen that the aesthetic value of children's paintings is not emphasized.

The realization that children's paintings have an aesthetic value started with modernism. At this stage, it is seen that many avant-garde artists collect children's paintings and create works by making use of the rich imaginary treasures of these paintings as much as possible. The free and unconventional spatial arrangement seen in children's drawings has been a special source of inspiration for artists of the modern period, and they have collected children's paintings for this purpose. They used the pictures they collected to synthesize different artistic effects, and eventually they reached the point of separation from concreteness and independence.

It can be said that the most important common aspect of modern art and children's paintings is that the individual paints what he perceives, not what he sees. While perceiving nature, the individual used the well-known composition rules and especially perspective differently. This can be explained by the new theory of visual perception developed by psychologist Herman von Helmholtz in the mid-19th century. Classical art rules developed as a result of vision theories based on the optical laws of the Renaissance and led to the development of single point perspective. However, Helmholtz tried to explain the term vision by emphasizing not only the images that light reflects on the retina, but also how these images are processed by the human visual system.

Optical perception forms and their reflection on painting have followed a different path in modern artists and children. For example, while Gris, one of the Cubist painters, deliberately uses perspective perception as a way of investigating the nature of depiction, these contradictions occur by chance in children's drawings. When children notice these contradictions, they see them as mistakes and try to remove them from their pictures.

Ethic

I declare that the research was conducted in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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References

Antmen, A. (2010), *20. yüzyıl sanat akımları,* [20th century art movements], İstanbul: Sel Publication.

Aytaç, K. (2006). *Çağdaş eğitim akımları, [Contemporary education trends]*, Ankara: Mevsimsiz Publication.

Boring, Edwin, G. (1950). *History of experimental psychology* (2nd ed.). New York: Appleton Century Crofts.

Braque, G. (2021). https://www.kunstmuseumbern.ch/en/see/collection/videos-higlights-collection/georges-braque-houses- in-lestaque-268.html. Accessed: 24.06.2021.

Christman, R. J. (1971). *Sensory experience*. London: Intext Edu. Pr.

Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.

Chomsky, N. (1972). *Language and mind.* New York: Harcourt Brace Jovanovich.

Clatworthy, S., Simon, K., & Tiedeman, M. (1999). Child drawing: hospital-an ınstrument designed to measure the emotional status of hospitalized school-aged children. *Journal of Pediatric Nursing, 14*(1), s. 2-9.

Clowes, M. (1971). On seeing things. *Artificial Intelligence, 2*(1), s.79–116.

Costall, A. (2001) *Introduction and notes to g.h. luquet's children's drawings ('le dessin enfantin'), Translation And Commentary* by A. Costall. London and New York: Free Association Books.

Cox, M. (1992). *Children's drawings*. New York: Penguin Books.

Denvır, B. (1989). Fauvism and expressionism. In D. Britt (Ed.), *Modern Art: Impressionism to Postmodernism*, s.109-157. London: Thames & Hudson.

Dilmaç, O. (2018). *Çocuk sanatının tarihi. [History of children's art]*, Ankara: Pegem Academy.

Felix Klee Collection. https://www.ancientsculpturegallery.com/paul-klee-oil-painting-9929.html. Accessed: 26.06.2021.

Fineberg, J. (1997). The innocent eye: children's art and the modern artist. Princeton, NJ:Princeton University Press.

Fişek, G., O. & Yıldırım, S., M. (1998). *Çocuk gelişimi. [Child development]*. Ankara: National Education Publication.

Golomb, C. (1992). *The child's creation of a pictorial world. Berkeley*: University of California Press.

https://www.ancientsculpturegallery.com/paul-klee-oil-painting-9929.html. Accessed, 26.06.2021.

Janson, H. W., Janson, A. (1997). *History of Art*. New York: Abrams.

Karakaş, S., & Bekçi, B. (2003). Zihin/davranış ile beden/organizma ilişkilerini ele alan bilim dallarının doğuşu ve gelişimi. [The birth and development of the branches of science dealing with mind/behavior and body/organism relations]. *NeuroQuantology, 2*(1), s. 232-265.

Kırışoğlu, O. T. (2005). *Sanatta eğitim, görmek öğrenmek yaratmak, [Education in art, seeing, learning, creating]*. Ankara: Pegem Academy.

Klee, P. (2007). *Modern sanat üzerine. [On modern art]*, İstanbul: Altıkırkbeş Publication.

Kümmerling-Meibauer, B. (2013). Childhood and modernist art. *Libri & Liberi, 2*(1), s. 11-28.

Macdonald, S. (1970). *The history and philosophy of art education*, England: Lutterworth Press.

Marr, D. (1982). *Vision: a computational ınvestigation into the human representation and processing of visual information*. San Francisco: Freeman.

MOMA. https://www.moma.org/collection/works/35572. Accessed: 26.06.2021

New York Museum of Modern Art. https://www.moma.org/collection/works/35572 Accessed: 26.06.2021

İşler, A. Ş. (2004). Çocuk resmi, ilkel sanat ve 20. yüzyılın başındaki öncü sanat anlayışları arasındaki ilişki. [The relationship between children's painting, primitive art and pioneering art at the beginning of the 20th century]. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi [Journal of Uludağ Universtiy Faculty of Education]. 17*(1), s. 53-64.

O'Brien, D. (2018). Cubism and Kant. *Proceedings of the European Society for Aesthetics, 10*, 482– 506.

Soby, J. T. (1966). *Giorgio de Chirico*. New York: Museum of Modern Art.

Reith, E. (1988). The development of use of contour lines in children's drawings of figurative and non-figurative three-dimensional models. *Archives de Psychologie, 56*, 83–103.

Strauss, M. (2007). *Understanding children's drawings*. Hillside, Forest Row: Rudolf Steiner Press.

Şahindokuyucu, M. (1997). *Bir kavram olarak 'modernizm' ve resim sanatına etkileri. ['Modernism' as a concept and its effects on painting]* (Master's thesis, Abant İzzet Baysal University Bolu) Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Toomela, A. (2002). Drawing as a verbally mediated activity: a study of relationships between verbal, motor, and visuospatial skills and drawing in children. *International Journal of Behavioral Development, 26*(3), s.193-201.

Willats, J. (1997). *Art and representation: New principles in the analysis of pictures*. Princeton, NJ: Princeton University Press.

Willats, J. (2008). *Making sense of children's drawings*. New Jersey: Lawrence Erlbaum Associates.

Williats, J. (2006). Rudolf Arnheim's graphic equivalents in children's drawings and drawings and paintings by Paul Klee. Liliana Albertazzi, (Ed.), *Visual thought: the depictive space of perception*, p.204-235. London: John Benjamins Publishing.