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Analytical Observation Method in the Development of Children's Drawings

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Abstract

The text discusses Luquet's concept of intellectual and visual realism and the concept of internal models. The aim of this study was to determine the influence of the analytical observation method on children's drawings, regardless of the "internal model" in different ages. The sample of N = 215 children, of which kindergarten age n = 86, and primary school n = 129. The type of research is quantitative and transverse, the method of research is causal experimental, and the research technique is content analysis. The instrument for data collection was a visual task. It was determined that the Luquet's internal model is very flexible, and that children before the stage of intellectual realism are able to draw by presented model, sometimes with no loss of expression of artistic action.

Key words: *children's drawing; art education; internal model; intellectual realism; perception*

Introduction

Problems of interpretation (and, consequently, of education) of children's drawings is related to many crucial questions about the development of human perception, representation, and also cognitive and intellectual development. Over the last hundred years of intense interest in this area, various theories have been created and various experiments conducted, but also many misunderstandings appeared regarding the clashes between the respective worldviews of these theories. Therefore, in this paper quotations are used frequently in order to facilitate an understanding of what the authors have truly dealt with in the past and without the intermediary of non-native secondary and tertiary literature.

This paper will focus on several aspects of this issue and try to shed light on them.

Viewed from a scientific point of view, childhood was "discovered" around the 1880s. At this point, evolutionism appears (introduced by Charles Darwin and his adherents) indicating the importance of origin and transformations (i.e. development), and also because the economic and political situation began to isolate children from work, creating a "childhood" as a world for itself (Costall, 2001). One of the first works exclusively on children's drawings was "Our Art Teaching and Child Nature", published in 1886 by an English drawing teacher Ebenzer Cooke (a student of a known Swiss educational reformer Johann Heinrich Pestalozzi; Cooke also attended John Ruskin's drawing classes).

Next was the Italian art critic and art historian Corrado Ricci, who made the first book dedicated to children's drawings. The book was published in 1887 under the title "L'Arte dei Bambini" ("Children's Art"). He made his "discovery" of the phenomenon of children's drawings in the winter 1882-1883 when, by his own description, seeking shelter from the rain under a porch, he noticed children's drawings on the wall with their poetic values (Cox, 2006). It seems that he was particularly impressed with the developmental characteristics of the relationship between the lower drawings for which he assumed were drawn by younger children, and the above drawings, which he attributed to older children.

"The Sensory Core" and "The Innocent Eye"

Influenced by Ebenzer Cooke, English professor James Sully published a book "Studies of Childhood" in 1896. He devoted two chapters of the book to children's drawings and entitled them "The Child as Artist" and "The Young Draughtsman" (Sully, 1886). There he examined the issue of failures in children's display of perspective, which raised some interesting questions about the nature of perception. Sully actually wondered why children are not successful in drawing geometrical perspective. He claimed that the lack of skills cannot be the basic explanation, because children do not even try to draw perspective. Therefore, the main question was why they do not try.

Sully tried to explain it in the following way: child's eye loses its original innocence very early, so instead of seeing what is really in front of it, it sees (or it seems to see) what his/her knowledge and logics say is there. In other words, child's perception becomes corrupted due to too large admixture of intelligence (Sully, 1896). This is called the "intellectualist theory."

Because of these theories, many people have become supporters of "non-teaching" children, believing that any education corrupts the innate child's ability (also known as the pedagogical concept called "a gardener" that does not change the child but only protects him/her from external influences). This concept goes back to Jean-Jacques Rousseau's "Emile", where the theory of non-intervention is based on the eighteenth-century belief in the romantic culture of denial and return to impeccable nature. Even artists of the early

twentieth century, such as Paul Klee and Pablo Picasso contributed to the confusion because they openly expressed their delight with artistic qualities in children's drawings which were then newly discovered. Klee famously said: "paintings that my little boy Felix paints are often better than mine" (Willats, 2005, p. 3). Picasso's words are well known: "Every child is an artist. The problem is how to remain an artist once we grow up. As a child I drew like Raphael, but when I grew up I needed a lifetime to draw as a child again" (ibid., p. 3). Unfortunately, these words easily take laymen astray, beliving that young children are actually artists. They are not artists, just like they are not scientists, because art requires great knowledge, skill and experience. After all, it is easy to distinguish Raphael's master drawings from Picasso's first childhood attempts. However, today it is also quite common to hear an inappropriate claim uttered by teachers: "Children already draw better than me." So who should then be the teach and who should be the learner?

The reason for this kind of "intellectualism" in interpretation is the assumption which has been deeply rooted and present for several centuries, and which has become a natural fact: seeing the perspective is self-explanatory, thorough, and a natural factor of visual experience. This suggestion is based on the assumption of the existence of the so-called "sensory core" that is characteristic to all human observers (and probably all species that have eyes). "The sensory core" is considered the rawest form of data reception, which can become material for higher intellectual processes. For centuries the dominant opinion has been that by elementary perception we receive data as if they were painted on a plain background. For this reason, Sully thought it was logical to assume that children, who are at the very beginning of their physical and intellectual development, have to see the perspective. He concluded that intellectual development occurs too quickly and spoils this primeval perception. The presumed children's innocence was connected with the purity of perception; that in turn created the myth of the "innocent eye". This term was introduced by an English drawing teacher John Ruskin in the mid-nineteenth century. In 1856 he said: "The whole technical power of painting depends on our recovery of what might be called *the innocence of the eye*; that is to say, a sort of childish perception of these flat stains of colour, merely as such, without consciousness of what they signify - as a blind man would see them if suddenly gifted with sight" (Forrest, 1985, p. 1). Ruskin referred to the claims of the impressionists who, having gone out of their studios, claimed to reproduce the "image from the retina". Ruskin's viewpoint was shared by an English painter Roger Fry, who attributed objectivity spots to impressionists, and William Turner (because the spot of light is the thing that comes on the eye). Even Cézanne said about Monet: "Monet is only an eye - yet what an eye" (*Monet n'est qu'un oeil—mais quel oeil!)* (Gombrich, 1984, p. 239). Indeed, even today the audience is still wondering why artists do not simply show what they see, but instead make all kinds of deformations. "The innocent eye" has easily found many supporters.

The analysis of drawings of the autistic persons, particularly those with Savant syndrome proved as support of the assumption of normality in spotting the perspective with the "naked / innocent eye".

Many have studied the drawings of a famous Savant Nadia Chomyn. Ellen Winner associated her with *the naked eye* and Selfe Lorna and Rudolf Arnheim wrote about her and more recently - autistic Savant Stephen Wiltshire, who has been dubbed a "living camera". These drawings are sometimes like real photographs (at least on the proportional level) and there is no clear answer to this state of mind, and the *incorruptibility of the eye* is a concept that is imposed easily. Moreover, there was an attempt to integrate the development of children's drawings with the development of the human intellect through art history (Golomb, 2002).

Many years later, public criticism of this view of artistic expression and such an interpretation of art history emerged. In his essay "Perceptual Abstraction and Art" published in 1947, Rudolf Arnheim (1966, pp. 27-50) criticized this approach. He explains the issue: "The abstractness of children's drawings and other primitive pictorial representation is commonly explained by what may be termed the intellectualistic theory. The formula, "the child draws what he knows rather than what he sees" has become almost an article of faith. A typical exposition of this theory is given by Florence L. Goodenough who clearly indicates that by "drawing from knowledge", she means drawing from intellectual concepts, as distinguished from memory images. Frequently, children are called "ideoplastic" meaning representations, according to the author of the term, Max Verworn, derived from what the draftsman thinks and knows of the subject rather than from a memory image." (Arnheim, 1966, p. 29). For clarity, Verworn opposes the term "ideoplastics" (formalized and stylized way of display, allegedly based on knowledge and thought) to the term "physioplastics", which refers to "the mechanical copy of the "retinal" projection" (ibid., p. 38).

Arnheim criticizes this approach by saying: "Apart from being based on an antiquated psychology of perception, such a theory creates an artificial dichotomy between what is considered two kinds of art, the one abstract and the other concrete, different both in their principles of representation and in the psychological processes from which they spring" (ibid., p. 38). Let us also add Arnheim's arguments to this debate: "It is probable that, for the purpose of producing visual images from visual objects, the child will choose the sophisticated detour via intellectual concepts? (...) Probably the intellectualistic theory owes its origin and longevity to the fact that as long as perception is considered a purely passive "photographic" registration of the retinal image, striking deviations from that image can only be explained by the intervention of higher mental processes, such as intellectual conceptualization" (ibid., p. 29). In the rest of the text, Arnheim revises the entire interpretation of art history with this approach, denying that there are periods of "better" or "worse" models displayed (in the sense of failure in perspective display).

Arnheim hereby sets the first real blow to the idea of the "innocent eye". This fight for the abolition of the myth will immediately be joined by other important names of art theory. Ernst Gombrich (1984) in his preface to the discussion begins with the notion that any artist, in essence, cannot paint what he sees, but invents the means of representation. The question

is simple: if the eye will respond only to light and colour, where does our knowledge of the third dimension come from? It comes from motion.

In perception, the mind is the one that creates the image, not the eye. It is necessary to understand the difference between watching, defined as a visual sensation and registering irritations, and seeing defined as the mental act of unconscious or conscious interpretation of the observed forms. Wolfgang Keller made an experiment with chickens that had been taught to eat the food placed on a brighter gray piece of paper placed beside one darker piece of paper. If he removed the darker piece of paper and replaced it with an even brighter one, the birds would look for the food on the new piece of paper – the brighter one, not the one on which they had first been given food. Therefore, their brains, as well as ours, are set to relational degrees, not to individual stimuli, or more precisely, to relative rather than absolute values.

J. J. Gibson described the retina of the eye in the same way - as an organ that does not respond to individual light stimuli, but to their connections. He concludes: no one has ever seen a visual sense, not even the impressionists, despite Roger Fry's view (Gombrich, 1984). Watching and seeing are two separate phenomena. Each view of a model is only one possible aspect. Each view is burdened by its past experience, knowledge, attitudes and prejudice, and the eye is the only submissive member of a complex and capricious organism. It selects, rejects, organizes, distinguishes, classifies, analyzes, constructs. It takes more than it produces and mirrors.

The French writer Andre Malraux simplifies things in this way: art is born of art, not of nature. Paintings are derivatives of other paintings, not nature. Painter translates a model in terms of his medium (painting, which consists of colours, canvases and paint brushes). This is amazingly lucid and expertly explained by a politician, an amateur painter, Winston Churchill: "We look at the object with an intent regard, then at the palette, and thirdly at the canvas. The canvas receives a message dispatched usually a few seconds before from the natural object. But it has come through a post office en route. It has been transmitted in code. It has been turned from light into paint. It reaches the canvas a cryptogram" (ibid., p. 32). A painting is a transposition, not a copy. It represents the model by an invented system of symbols. Gombrich closes the debate: "The innocent eye is a myth. That blind man of Ruskin's who suddenly gains sight does not see the world as a painting by Turner or Monet—even Berkeley knew that he could only experience a smarting chaos which he has to learn to sort out in an arduous apprenticeship (ibid., p. 239).

Nelson Goodman convincingly joined the debate saying "The catch here, as Ernst Gombrich insists, is that there is no innocent eye. The eye comes always ancient to its work, obsessed by its own past and by old and new insinuations of the ear, nose, tongue, fingers, heart, and brain. It functions not as an instrument self-powered and alone, but as a dutiful member of a complex and capricious organism. Not only how but what it sees is regulated by need and prejudice. It selects, rejects, organizes, discriminates, assicuates, classifies, analyzes, constructs. It does not so much mirror as take and make; and what it takes and

makes it sees not bare, as items without attributes, but as things, as food, as people, as enemies, as stars, as weapons. Nothing is seen nakedly or naked." (Goodman, 1976, pp. 7-8). And Goodman concludes, just like Gombrich: "The innocent eye is blind and the virgin mind is empty" (ibid., p. 8). There is nothing in the "sensory core" and the innocence of children's view. This has been sufficiently explained.

Luquet's Heritage: Intellectual Realism and Internal Model

Intellectualistic theory has been thoroughly disproved, and James Sully failed to respond to his question. Why is it then that children do not try to show the central perspective?

The first meaningful response to this question was offered by a French philosophy professor Georges-Henri Luquet. Luquet was born in France, in Rochefort-sur-Mer, in 1876. He published several books on medieval history, logics, philosophy and anthropology and was also the editor of the psychology journal *Journal de Psychologie*. In 1906 he became a Mason. He died on the 4 November 1965. He was one of the pioneers in studying children's drawings. In 1913 his book "Les dessins d'un Enfant" ("The Drawings of a Child") was published, based on the drawings (more than 1687 of them) of his daughter Simonne Luquet, born in 1904. His most famous book "Le Dessin Enfantin" ("Children's Drawing") was published in 1927. This book will strike the basis for all future discussions on the analysis of children's drawings as an aspect of developmental psychology.

Developmental theories that have been mentioned so far are known as "stage theories". Here we need to clarify that Luquet had not claimed that the earlier stages are a prerequisite for the subsequent development of the perspective presentation. In fact, according to these theories, *the perspective does not improve at all*, because the ability to see the perspective and draw it is there from the beginning, only eclipsed by foreign factors, mainly by the development of conceptual thinking and its deterioration of an innocent child's perception. Luquet's periodization of the child's drawings development also has the properties of stage theory. One phase is called "intellectual realism", and Luquet was remembered and influential by this period, as well as his famous statement, "Children draw what they know rather than what they see". However, after many revisions and retellings of what Luquet noted, it is useful to go back once again to the original meanings of these terms.

Luquet was the first one who did not consider non usage of the perspective as a failure. "What matters to the child is not the contingent and varying appearance of the object, dependent upon a particular viewpoint, but its appearance in itself, *sub specie aeternitatis* (the eternal form)" (Luquet, 2001, p. 150). Although there is a detachment here from the previous theories, Luquet's book with its chapter order still suggests stage theory. After explaining the basic properties of children's drawings - the intent, interpretation, typology,

the internal model and the use of colour in the first part of the book, in the second part of the book, Luquet lists the degrees or stages. First, he explains the concept of realism, and then the first stage: fortuitous realism, followed by the second stage: failed realism, and the third stage: intellectual realism. But where we could expect the fourth phase - the presumed visual realism, which he often mentioned to that point as an opposition to intellectual realism - it is not found. Instead, the last chapter is titled "Graphic Narrations", and in it Luquet shows how children tell stories with their drawings. There he lists three models: 1) the symbolic type – selecting just one phase of the action or episode of the story as the most important and using this to symbolise the whole event; 2) cartoon sequence of frames that can be labelled and numbered (Luquet calls this the Epinal type, made by the popular French coloured prints of the nineteenth century, with the theme of Napoleonic history); 3) successive chain elements in two varieties – repetition of all the characters, or the retention of immutable elements, and repeating only the variable ones. At the end of the book, there is a conclusion which includes psychological and educational comprehension derived from this model of drawing classification. However, there is no stage of visual realism. Let us try to understand why this is so.

His theory, as well as the developmental stage theories, has stages that follow one another: fortuitous realism, failed realism, intellectual realism and visual realism. But, although the term "stage" implies progress and development, the last two "realisms" are not really stages, but concepts of artistic representation. He named "the intellectual realism" the way of deep representation of what is universally relevant (in the first book he named it "logical realism"), standing in opposition to the way of using perspective which he called "visual realism", and which shows transient and accidental occurrences. Luquet's merit is that now we can talk about those two modes as of equal value, models that have their own advantages and limitations, stressing that both modes of representation are equally conventional and that there is nothing natural in the perspective representation.

Visual realism is, therefore, the only alternative coding model (using Churchill's words) that is no less valuable than the perspective model which we are accustomed to. However, although the difference between intellectual and visual realism is based on the opposition between the seen and the known, Luquet still manages to separate the concept of intellectual realism of the existing theories by bringing into question the perceptual basis of visual realism, i.e., denying the innate sense of linear perspective to perception. All this happened soon after the appearance of the Cubists and their manifesto in which they stress the artificiality of "frozen" view (and the accompanying perspective). Luquet, unlike the Cubists, did not go so far as to argue that intellectual realism is more realistic than the visual realism (and the only true realism), but he doubts the usefulness of "one-eyed" and fixed display and insists that children have a good (logical) reason to use it this way. Moreover, Luquet indicates reconciliation in several places, the simultaneity of both realisms in the display. What children display Luquet attributed to the existence of "the internal models",

that is children's mental representations of the integrity of the model. "The internal model" has led him to the claim that "children draw what they know, not what they see."

Luquet described "*the internal model"* in these words: "It is that which evokes in children's minds the representation of the object and the intention to draw, and even when these are suggested by the sight of an object or a model, the resulting model is not, as one might assume, a mere copy. (…) The term "Internal model" is meant to distinguish the object or model in the strict sense from this mental representation which is expressed in the drawing" (Luquet 2001, p. 47). The internal model, just as any representation, contains the most important prominent features that a model has as distinctive characteristics from other models. Luquet claims: "When a drawing is produced from memory, or as they say in the studios, *de chic ("without a model"),* then it is necessarily based upon the internal model. But it is also the internal model that children copy even when they explicitly declare that they are reproducing something in front of them, that is, drawing from nature or copying from other drawings. In both these cases, the external object merely serves as a suggestion but what is really being drawn is the internal model" (ibid., p. 47). He says the evidence for this is that drawings made by observation have the same characteristics as the drawings made from memory. At an early age, in kindergarten, this is particularly evident: regardless of the person standing before them as a model, the children of that age will always (and therefore, by observation and from memory) draw the so-called tadpole figures, i.e. cephalopods; a circle with feet, rarely with hands (Cox, 1997). A child's mind differentiates the essential from random details, i.e., it creates a hierarchy among them. "As Spinoza once said, if a peasant, a painter, and a general were to look at the same scene, they would not receive the same impressions. Similarly, a child in front of an object or drawing does not see the same details as an adult, or, more precisely, although his eyes see them, the mind perceives them only to the extent that they are of interest or given some significance by the child" (Luquet, 2001, p. 55).

What are, then, techniques that children use to express the principles of intellectual realism?

Luquet describes the following techniques (processes, methods) that children use to complete the display of models: transparent (X-ray) display of shapes covering something that is important to a child (wall of the house will be shown transparent in order to show what is inside); detail multiplication (mouse will have too many legs to run away from the cat more easily, repeating the object in his path in order to show the direction of movement); select a point of view (one or more on the same drawing) that best fits the view (animals will mainly be drawn from the profile and people from the front, and in the same drawing there can be multiple points of view, which is why the horseback rider is so often used in children's drawings' interpretation, or the table is shown above and the person who sits at the table sits in front); overemphasis of shape dimension that is particularly important

to a child (more importantly, sometimes it refers to the entire figure, like a huge mother in relation to minor characters, sometimes to only one part, such as an ear for listening to an interesting story); dismantling and transferring characters (each has its own focus, some are upside down, and some shifted laterally), and superposition forms (closer objects are down, and distant are drawn above).

Using these procedures, a child's drawing possesses great artistic expressiveness, which is why this period during which the child draws in this way is called "the golden age of children's creativity." On the other hand, critics of the "internal model" have suggested that Luquet has not provided an explanation of exactly how an internal model generates these non-perspective drawings which children create. It is understandable that children use different methods of representing the integrity of models which are drawn, however, it is not clear if instead they represent an internal model. This reminds of Plato's "shadows of shadows." The cited assertion that the "external object serves only as a suggestion, but what is really drawn is the internal model" should not be forgotten. This is where many of the ambiguities appeared that led Luquet's successors in the entirely wrong direction - to be exact, to the claim that children are not able to draw by visual (shown) model, which is why it should be avoided and leave children to draw from their imagination. John Willats (2005, p. 4) responds to the idea that the only job of art educators is to protect children from being spoiled by the values of conventional society, that every kind of art education is harmful to the child and that art education should be based on the absence of education: "As a result we have an adult population who say, almost universally and truthfully, that they cannot draw."

Another target of Luquet's critics is a request for clarification: what is, in fact, the property of visual realism? Luquet is not consistent here. Sometimes he will say that it is a purely geometrical perspective view, and sometimes he will allow for a wider range of expressive possibilities. At the appearance of the face in profile, children will make two nostrils visible as if viewed from the front. This would be an example of the usage of intellectual realism, while only one nostril corresponds to visual realism (the same applies for the one or two eyes shown in the profile view).

While successive and Epinal type of storytelling by drawings is associated with intellectual realism, the symbolic type says that it responds purely to visual realism. Luquet also includes into visual realism the display of overlapping back shapes with frontal shape, or shape shrinking when a shape is distant.

Finally, the last of Luquet's inconsistencies will be revealed when we ask ourselves at what age the different stages of his system appear. Luquet wrote: "If we take the representation of a single eye in profiles of heads as our criterion, the shift from intellectual to visual realism most often occurs between 8 and 9 years of age. But there are certainly great individual differences between children, and there is some evidence of an intention towards visual realism at much younger ages. For example, a young American girl (4y; 3m) drew a cat with just one ear and then explaned: 'Just one ear; the other one cannot be seen.'

(…) Intellectual realism not only reappears in later drawings, but the same drawing may include aspects of visual realism and intellectual realism. (…) Animals in profile still have two nostrils, in accord with intellectual realism, while at the same time they are given just one eye, in accord with visual realism" (Luquet 2001, pp. 124-125). Furthermore, referring to the graphic narration methods he says: "However, the facts seem to indicate that the symbolic type is not used to any significant extent until about 11 or 12 years" (ibid., p 139). For achieving visual realism he says: "From that point, children have, in their drawing, reached the adult period. Only development in technical skill, acquired in a specialized culture, establishes differences among individuals, and many adults remain incapable throughout their lives of producing drawings any different from those of children of 10 or 12" (ibid., p 142).

Therefore, the range of these years which are associated with visual realism in Luquet's book is from 4 to 12 years. Moreover, he says that many adults, who quietly believe they have reached the stage of visual realism, show occasional traces of intellectual realism in their drawings. With exceptional lucidity, Luquet recognizes that "Furthermore, as we have seen, even civilised, "well-washed" adults who are not themselves specially skilled in drawing continue to employ the techniques of children's drawings without any sense of embarrassment, even though they live in an environment where visual realism is the only conception of representation acknowledged and practised" (ibid., pp. 155-156). This inability of the contemporary man to find his way today in images that surround him completely has become a topic of theoretical debates called *The Iconic Turn* in philosophy, which put the visual education at the centre of educational issues.

Luquet therefore recommends that art education, once the child reaches the ability to display visual realism, should focus on learning more efficient ways of the representation of this model. That means mastering a few basic principles of perspective. "Whereas verticals remain verticals, horizontals recede and become transformed into obliques, so that right angles become acute or obtuse. Circles take the form of ellipses which are either elongated in width or height. The dimensions of objects diminish with distance. More distant surfaces tend to be occluded by nearer ones" (ibid., pp. 158-159). Only at this stage Luquet considers it advisable to draw by observation.

Luquet's negative legacy is the belief that children are not able to express themselves artistically by observation (since already working towards the internal model). From this assumption it follows that any encroachment on the children's choice of models and any cognitive learning and explanation generally harms children (because they are already born as small artists and education only corrupts them), and that by teaching children a conventional display (i.e., art education in general) you will only achieve that children lose expressiveness in their work (Ružić, 1959). This research will attempt to examine and verify the assumptions of the analytical method using didactic observations. Analytical method

involves observing and drawing what is presented to children, either as reality or in photographs. In both cases, it is necessary to put some effort in the clarity and visibility of models. If the model is set live, it is good to set it at a higher position so that children could easily see it. If using photos (today usually printed by a computer printer), it is necessary to increase the model by photocopying it to A3 size (twice the size of a standard sheet of paper for home printers) so that children could see the model from the distance. The term "analytical" in the name of the method refers to the description of what is seen. Children answer the teacher's questions: "What do you see?" and "What else do you see?" The elements that children see are enumerated and described as are their relations.

Research Aim and Problem Questions

The aim of this research was to determine the influence of analytical observation methods on children's visual art expression, regardless of the "inner model", at various ages.

Problem Questions

1. Is the child in the period prior to the visual realism phase really incapable of drawing according to the observation of the presented model (are there any differences between drawing with and without observation)?
2. What will drawing response be like in terms of visual arts shape rhytmics (zebra's surface) by inner model method, and what will it be like in terms of the analytical observation method?
3. How will children of different ages present the human figure (both male and female) in complex movement of the whole body during ball juggling?
4. Will the analytical observation method advance the capability of presentation of human figure from the front, back and side (profile view) in senior kindergarten age group?

Research Methodology

Participants

The sample is N=215 children, of which kindergarten age N=86, and primary school age N=129. Research was conducted in two kindergartens and two primary schools in Zagreb. Research encompassed age span from 2 years (prekindergarten group) to 11 and a half years (fourth grade); in all four kindergarten groups: older nursery group 2-3.5 years (N=10), junior kindergarten 3.5– 4.5 years (N=18), middle kindergarten group 4.5-5.5 years (N=12), senior kindergarten group 5.5-7 years (N=46), and in three primary school grades: in the second grade 7.5-8.5 years (N=36), third grade 9-10.5 years (N=28) and in the fourth grades 10.5 – 11.5 years (N=65). Research was conducted by the author of the paper and the teaching staff of the mentioned establishments.

Research Type, Method, Technique and Instrument

Research is quantitative and transverse. Research method is causal experimental, participants were divided into control (CG) and experimental (EG) groups. Research technique was content analysis. Instrument for data gathering was visual arts task: a drawing of a zebra by analytical observation and/or from memory; drawing of a male or female character by observation; and front, side and back drawing of a person playing with its hat, by observation.

Procedure

Research was conducted by the author in cooperation with teaching staff from kindergartens and schools during 2011 and 2012. For the first problem question verification, children (senior kindergarten children and primary school pupils) were divided into experimental (EG) and control group (CG). The experimental group drew, by observing a black and white A3 sized photo of a running zebra, which was visible from its side. The control group was only told to draw a running zebra from memory. Available time was not limited, but the majority of participants in both groups finished drawing within 15 minutes. In order to verify the second problem question the results of the EG and CG were again used. Pieces acquired by the above mentioned method of expressivity (or its loss) and visual realism of display (or its failure) were matched according to observation or memory and children's age.

In order to verify the third problem question, male and female jugglers performed for 15 minutes in front of children by throwing balls and moving their whole body; during the performance children were drawing by observation.

In order to verify the fourth problem question, a juggler played with his hat for ten minutes and spun around his axle in front of the middle kindergarten group who were drawing him by observation. Material for all the mentioned drawings was pencil and paper.

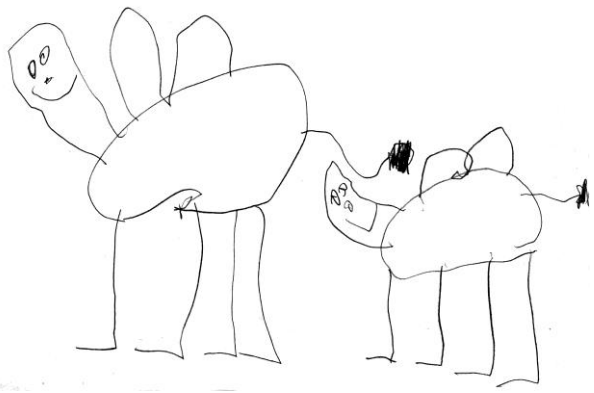
Results and Discussion

Approach to children's drawing is possible from two directions: by observing its visual artism and expressivity or by observing its illusionistic (proportional and perspective) success. Obviously, visual quality and expressivity will be on the side of intellectual realism display model, while "objective" illusionism will characterize visual realism display model. What was primarily tested was the thesis by Luquet and his successors that the "child draws what it knows, and not what it sees", meaning that even with visual model it is analytically observing in front of him/her, a child draws according to the inner model, ignoring what is before his or her eyes. Besides, we were interested if the use of the visual model necessary results in the loss of visual art's expressivity.

1. Will the drawings of a four-legged animal in motion (zebra) obtained by observation and from memory be equal by success, number of details and proportion relations?

Out of 215 children, 40 observed a photo of a running zebra, 97 drew a zebra from their memory, and 38 drew it first from memory and then from a photograph. At senior nursery age the inner model is predominant: the amount of doodling is equal with or without a presented model. The same applies for the junior kindergarten group. We can say that the inner model dominates in the middle kindergarten group as well: the plethora of visual art's drawing variation of zebra is astonishing. But with the senior kindergarten group (older than 5.5 years), the experiment starts yielding results. Some children from CG refused to draw a zebra from memory "because they don't know it", other consciously drew a giraffe or a camel, while some emphasized they did not even bother making an effort. Not a single drawing from CG had knees, 13 out of 26 zebra drawings had *en face* smiling human face drawn in profile view. In EG, 7 out of 16 zebras in drawings had knees drawn, and none had a human face. Proportions in EG were by far more accurate, and the same goes for the number of details in the drawings. The same progress has been noted in the elementary school. Here as well some members of CG drew a giraffe instead of a zebra, here also several smiling human faces appeared, and lack of knees predominates (at almost all of them) even in the fourth grade. All members of EG drew knees to their zebras (most of them correctly bent backwards).

Figure 1: *Zebra*, 2 years 10m, by observation



Zebras (*camels with faces*), 5years,10m, from memory

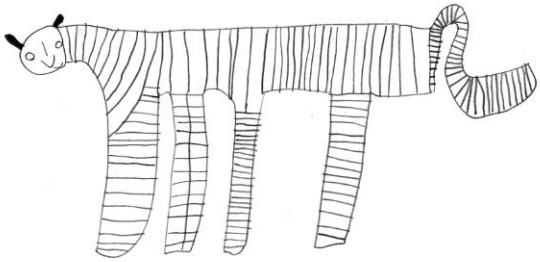


Figure 2: *Zebra*, 6 years 2m, from memory

Figure 3: *Zebra*, 6 years 10 m, by observation

2. What will be the drawer's response (visual art's expressiveness) to visual art's shape rhythmic (zebra's surface) by inner model method and what will it be like by analytical observation method?

Again, senior nursery and junior kindergarten group did not show differences in approach. Four-and-a-half-year-olds achieved certain similarity with the model by observation, but in so many formative variations that obviously observation of the model did not diminish their expressiveness. Among children beyond 5.5 years of age, observation of model expectedly diminished form variations in EG, but expressiveness was made up for in the field of visual art's rythmisation of zebra's stripes (several children from EG did not even draw the stripes). In primary school EG drawings showed a significantly larger number of details and invested effort. Marin (10 years old) notices many variations in rhythms in the photograph and expresses them by line shape and thickness. The same goes for human form: due to a large number of visual problems, expressiveness of drawings also increased as a result of intense search for solutions.

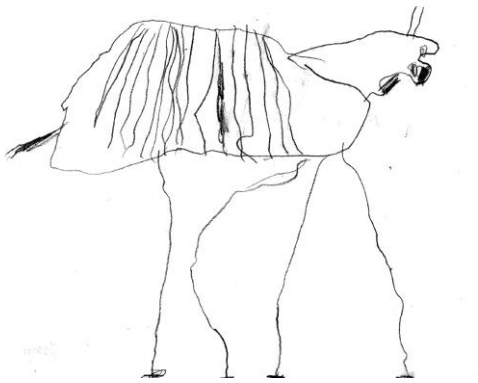
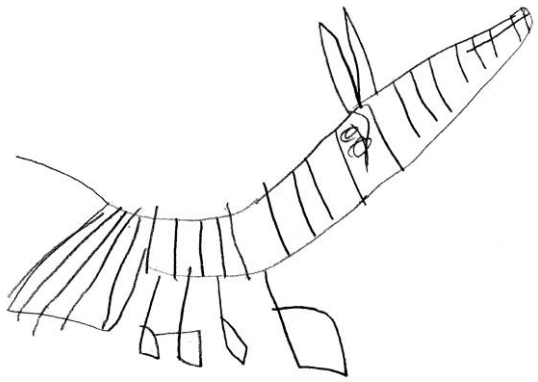


Figure 4: *Zebra*, 4 years 11, by observation



Zebra, 4 years, 5 months, by observation

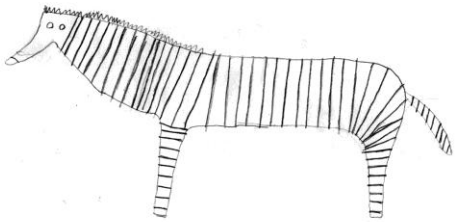


Figure 5a: *Zebra*, Marin V., 10 years, from memory

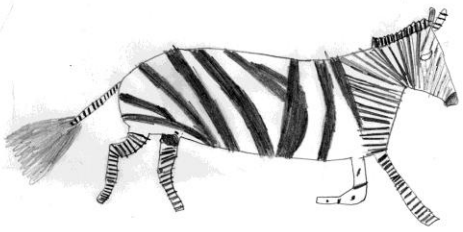


Figure 5b: *Zebra*, Marin V., 10 years, by observation

3. In what manner will children of various ages present the human figure (male and female) in complex movement of the whole body during ball juggling?

Senior nursery group did not show differences in their approach. Junior kindergarten group accentuatedly multiplied circles for balls and/or lines for arms. Beyond 4.5 years

some of the children still drew the "tadpole" form, but even they arranged the balls around the character whose hands were spread out; all except one child drew fingers on hands catching the balls. After 5.5 years children have no problem presenting movement dynamics, they even add details such as shirt stripes, belt and shoelaces. At primary school age the distance from habitual presentation is dramatical: there is even perspective shortening of hands drawn from the front (although no instructions as how to draw were given), a myriad of clothing and head details as well as limbs curved in movement.

Juggler, 3years, 11months

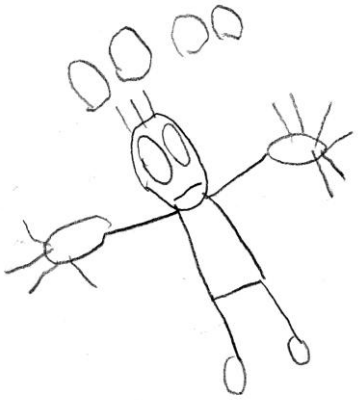


Figure 6: *Juggler*, 4 years, 8 m

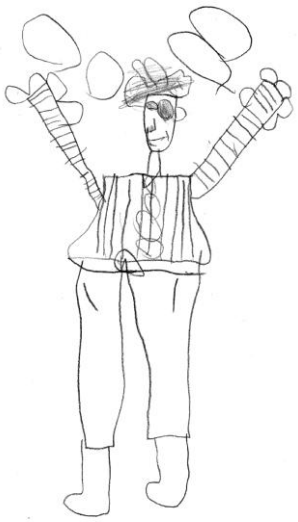
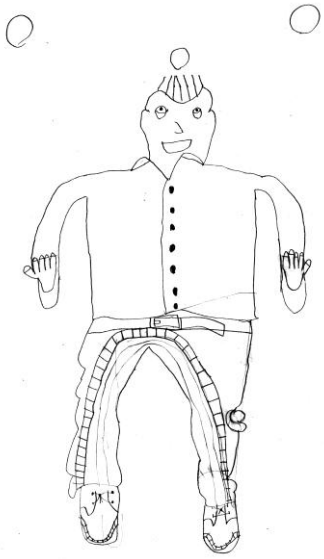


Figure 7: *Juggler*, 6 years, 10 m



Juggler, 8 years

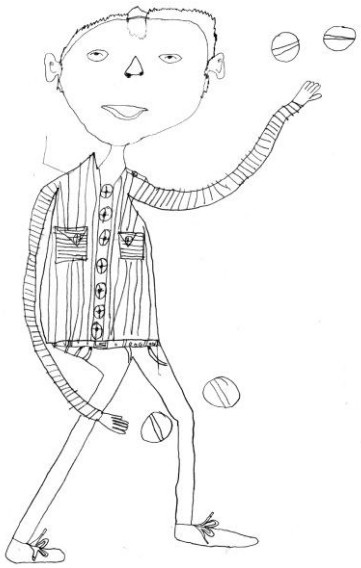


Figure 8: *Juggler*, 9 years

Figure 9: *Juggleress*, 10 years 11 m

4. Will the analytical observation method advance the capability of human body presentation from the front, back and side (profile view) in the senior kindergarten age group?

In the senior kindergarten group age, out of 21 drawings representing a man playing with a hat, two figures were drawn from the back, and one from profile view. Younger children were discovering buttons and other details.

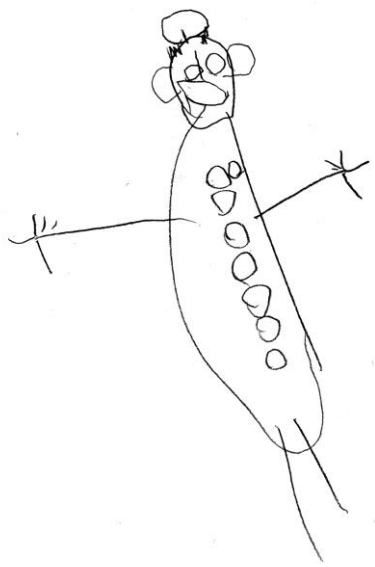


Figure 10: *Playing with a hat*, front, 4years, 9m

Figure 11: *Playing with a hat* from a profile, 6 years, 10m

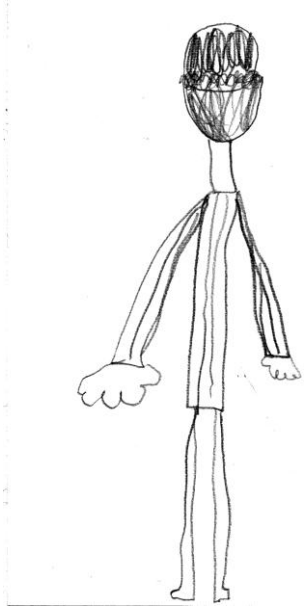


Figure 12: *Playing with a hat* from behind, 6years, 8m

Conclusion

In this research we have shown that Luquet's inner model is much more flexible than he presumed, and children are capable of successfully drawing the presented model even before the phase of intellectual realism, sometimes without the loss of expressivity of visual art's locution. Horst Beisl (1978) will say that it is noticeable that every methodical tool adopted by a child represents a step further from crude towards fine motor skills, and simultaneously also refinement, differentiation of observation capability.

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Metoda analitičkog promatranja u razvoju dječjeg crteža

Sažetak:

Tekst problematizira Luquetov koncept intelektualnog i vizualnog realizma, te koncept unutarnjeg modela. Cilj je ovog istraživanja bilo utvrditi utjecaj metode analitičkog promatranja na dječji likovni izraz, neovisno od „unutarnjeg modela", u različitim uzrastima. Uzorak ispitanika je N= 215 djece, od čega vrtićkog uzrasta n=86, a osnovnoškolskog uzrasta n=129. Vrsta istraživanja je kvantitativno i transverzalno, metoda istraživanja je kauzalno eksperimentalna, a tehnika istraživanja analiza sadržaja. Instrument za prikupljanje podataka bio je likovni zadatak. Utvrdilo se kako je Luquetov unutarnji model vrlo fleksibilan, te da su djeca i prije faze intelektualnog realizma sposobna crtati prema predočenom motivu, ponekad bez gubitka ekspresivnosti likovnog izraza.

***Ključne riječi*:** dječji crtež, likovna edukacija, unutarnji model, intelektualni realizam, percepcija