ΦΩΤΕΙΝΗ ΜΠΟΝΩΤΗ - ΠΛΟΥΣΙΑ ΜΙΣΑΗΛΙΔΗ

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Ιωάννινα 1998

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Περίληψη

Στο άρθρο αυτό εξετάζονται τα παιδικά σχέδια του ανθρώπου μέσα από το πρίσμα των σύγχρονων ερευνών, οι οποίες δίνουν έμφαση στις γνωστικές διεργασίες που εμπλέκονται στη σχεδιαστική διαδικασία. Πιο συγκεκριμένα, το άρθρο επιχειρεί να απαντήσει στα δύο βασικά ερωτήματα που θέτει η σύγχρονη μελέτη του παιδικού σχεδίου: (1) πώς ερμηνεύονται τα ιδιαίτερα χαρακτηριστικά που παρουσιάζει το σχέδιο του ανθρώπου (μουντζουρώματα, γυρίνος και τυπική ανθρώπινη φιγούρα) στις διάφορες περιόδους ανάπτυξης του παιδιού και (2) πώς συντελούνται οι σημαντικότερες αναπτυξιακές αλλαγές που παρατηρούνται στα σχέδια αυτά.

For many years it was believed that drawings reflected children's intellectual maturity (Goodenough, 1926; Harris, 1963) or emotional condition (Koppitz, 1968; Machover, 1949). As a result, the earlier studies in the field attempted to analyse children's spontaneous drawings in order to assess the child's psychological well being. Recently, however, researchers (Freeman, 1980; Goodnow, 1977; Karmiloff-Smith, 1992; Thomas, 1995) have started to focus on the cognitive aspects that underlie the drawing performance of the child.

The human figure is one of the earliest subjects to appear in children's drawings, which adults recognize as representational and which remains one of the child's most popular topics during childhood. Naturalistic approaches in the study of the human figure drawing have nowadays been replaced by experimental studies. Furthermore, considerations of it not as a "print out" of a mental concept, but as a construction whose final form depends on the procedures used to produce it, are emphasized. Psychologists and educators have found the idea of using a non-verbal task, the drawing of the human figure, very useful in assessing the child's developmental level.

This article reviews the experimental evidence currently available on the development of children's human figure drawings (HFDs), beginning even before the first figures become recognisable. Although classification into stages

tends to obscure the continuity of development, for the purpose of this paper a classification of stages in children's HFDs will be attempted and the transition from one stage to the next will be discussed.

The child's early attempts to represent the human figure in their drawings pass through the stages of scribbles, tadpoles and conventional figures. From the age of 18 months onwards children begin to make marks on the paper, marks which are commonly defined as scribbles (Cox, 1993; Thomas & Silk, 1990). Scribbles are scattered lines spread all over the page. Piaget and Inhelder (1969) consider scribbling as a play of exercise, in which the child thinks she recognizes forms. Kellogg (1979) maintains that scribbles are neither incidental nor they are placed haphazardly on the paper. She argues that before children begin to draw human figures, they go through a period of motor and visual self-training through scribbling. Then comes a period of drawing simple shapes followed by periods in which they combine them into typical designs ('combines' and 'aggregates'). Next, they draw mandala (a cross superimposed on a circle) and sun figures and finally reach the stage of drawing human figures.

The earlier attempts to draw a human figure result in the curious tadpole form (21/2 years to 4 years approximately). The tadpole is usually a circle to which a number of lines may be attached to represent the limbs. Arms are often omitted but when they are included, they are usually attached to the head since the figure has no body. In addition, marks within the circle may be used to signify facial features.

Tadpole's unique form has stimulated a lot of theoretical and research interest. Arnheim (1956) considers that the tadpole form represents an undifferentiated head and trunk. This lack of differentiation leads the child to attach consistently the arms to the head. Montessen (1984) attributes the undifferentiated tadpole form to limitations in motoric development and quotes Werner's (1964) developmental theory of gradual improvement in differentiation and hierarchical organisation in order to support her claims. Yet, a different explanation is offered by Kellogg (1979), who posits that tadpoles emerge from suns, radials and mandala and serve drawings' purpose for balance. The use of these symbols, Kellogg argues, is universal and accounts for the stereotypy which characterizes the tadpole figure.

For Piaget and Inhelder (1969) the tadpole form reflects the child's inadequate mental representation and her inability to construct an image using different parts. It is argued that the young child is more concerned to display what she knows about the object rather than what she sees, a concern referred to as intellectual realism by Luquet (1921). In contrast, Cox and Parkin (1986) assume that children's mental image of the human figure is complete, but "they

analyze it in either a piece-meal (i.e. missing out the torso) or an overinclusive (i.e. combing the head and torso) way" (pp. 368).

More recent explanations of the tadpole, regard it as the outcome of planning problems that the child faces when it comes to draw a human figure. Freeman (1980) suggests that detailed observation of the order of production items, together with omission data could enable us to understand young children's problems in organising both the temporal and spatial production of a human figure. He interprets the tadpole form as a serial position problem, since the terminal items (head and legs) are better produced than the middle ones (trunk and arms). Studies in memory are quoted (Roediger & Croweder, 1976; Shiffrin, 1970) which provide evidence that indeed there is a tendency to recall better the items first and last in a list than those in the middle.

Freeman (1980) further proposes that tadpoles may be the result of the conjunction of two serial strategies, namely 'starting at the top and working down' plus 'end anchoring'. Bassett's (1977) study has provided evidence for Freeman's argument. She found a consistent top to bottom serial order effect in the production of the tadpole. Thus, Freeman (1980) credits the tadpole drawer with a great deal of mental representation. If the child did not have some degree of mental image of the intermediate items in the human figure, she would not be able to end-anchoring correctly in the terminal items. It seems that the child knows about trunk and arms but she has difficulty in producing them.

In the tadpole form not only is the absent trunk striking but also the problem of arm position. Freeman (1977, 1980) presented children with a properly scaled series of head-trunk ratios, in which the ratios varied at approximately equal intervals on the underlying scale, and found a tendency to attach the arms on the largest segment regardless of whether it stood for the head or the trunk. This tendency, termed as the 'body-proportion effect', was found to be an established phenomenon among tadpole drawers and provided evidence that young children decide to position arms by using as a cue the body segment's relative size, which differs from the cues they use for all the other body parts.

The tadpole stage precedes the one which is characterized by the conventional figure (5 to 8 years approximately). Conventional figures depict a separate head and trunk. Goodnow (1977) speculates that the conventional form develops out of the tadpole by placing a single line across-between the legs (Goodnow, 1977). This change may stem from an accidental discovery that a cross-line may create a solid figure. In their longitudinal study Cox and Parkin (1986), however, did not find evidence to support Goodnow's (1977) claim. The conventional figures had a complete circular shape for the body and were not adapted in any obvious way from a previous form. They concluded that it is

more likely that the body appears as an additional item, when the child decides to add a distinct body part to his HFDs.

Although the conventional figure seems to be a realistic representation of the human figure, it is characterized by some 'queer' attribute: the head is very often larger than the trunk. The overestimation of the head has stimulated a lot of research and led different researchers to alternative and sometimes contrasting interpretations. Piaget & Inhelder (1956; 1969) consider the disproportionate conventional figure as the outcome of an inaccurate mental image. Arnheim (1956) maintains that the child attributes to the head greater importance than to the rest of the body and she uses the size to signal its significance. For Montensen (1984), the overestimation of the head is due to its emotional and sensory importance, as it is the receiver of the majority of sensual impressions as well as the cite of thought and imagination.

For Rouma (1913) the head's greater size is due to planning and organisation problems in the conventional human drawing. He supports that if the head is drawn first not only has it more free space available on the page, but it can be drawn without worrying about connecting it to anything else. Thus, children are often seen dashing off the drawing of the head and then draw the trunk more slowly, in the less space available, in order to join the lines onto the head. Freeman (1980) seems to agree with Rouma's position, by arguing that the dominance of the head has more to do with the sequence in which children draw than with their internal representation of the human figure.

Selfe (1983), carried out a study with children aged between 5 and 10 years of age. She gave them the task to complete a pre-drawn headless figure, based on the assumption that there would be a much larger degree of accuracy in producing proportions, if the trunk, arms and legs of the figure were pre-drawn, thereby solving problems of spatial organisation and sequencing. The striking finding of her study was that the youngest children tended to underestimate the head -contrary to the common observation of overestimation. Thomas and Tsalimi (1988) assumed that some special feature of the pre-drawn figure in Selfe's task, in particular the neckline, produced these results. They carried out a study which improved on Selfe's methodology by including pre-drawn headless figures with different or no necklines. They found that the type of neck in the pre-drawn figure, influenced significantly the size of the added head for the 3-4 and 5-6 years old groups, but not for the 7-8 years old group. Their findings support Freeman (1980) who claimed that the task of joining head and trunk can influence the size of the second drawn part especially in younger children.

In a further experiment Thomas and Tsalimi (1988) asked children to start their drawings with the trunk instead of the head and their results showed that

head and body were on average correctly proportioned. These findings pinpoint to the view that the overestimation of the first drawn head, must be a consequence of leaving insufficient space for a visually correct depiction of the rest of the body. In an attempt to explain why children start their HFDs from the head, Thomas and Tsalimi (op cit) proposed that this may be a product of the top-to-bottom direction of English writing. Such an assumption, however, leaves open the question about the drawing sequence and performance of children grown up under the influence of different cultures. In the same experiment the head-trunk ratio was found to be larger in the HFDs of the youngest children regardless of the drawing order, indicating that on average they produce a better approximation to visually correct proportions. The authors attributed that finding to the tendency shown by older children to depict facial features.

The planning for the inclusion of details has also been reported as an explanatory cause for the overestimation of the head. Whereas, the outline of the body is often left blank, children have to enlarge the outline of the head to make sure that there will be enough space to draw the eyes, nose and mouth (Freeman, 1980). When Henderson and Thomas (1990) asked 4 to 7 year-old children to draw a person with large teeth, they drew the head of the figure much larger than they normally did in order to depict the teeth. Conversely, when they were asked to draw a man from behind, so that his face could not be seen, the head was smaller than usual. In addition, there is evidence that children aim at a visually correct depiction of sizes, but they increase the size of the smaller figure (i.e. dog's size is overestimated relative to human figure's size, which is overestimated relative to house's size) to ensure that there will be enough space for the inclusion of details (Silk & Thomas, 1988).

Allik and Laak (1985) consider that the drawing performance is the result of local decisions which the child makes when she draws. They have come up with results which support that the child is guided in her conventional drawing of the human by a realistic concept that states that the head must be smaller than the body together with the legs. In their study a relative size constancy was found to be independent of particular tasks (free and completion drawing). Thus, the concept that "the head is smaller than the body" can be attributed to the child's mental representation.

Although the body-proportion effect was found to be more pronounced among tadpole drawers, Freeman (1980) reports that conventional drawers may show a similar tendency to the same effect. By directing the child's pen to the trunk (in order to draw a navel) or to the head (in order to draw a nose or ears) and by observing details of the movements made, Freeman and Hargreaves

(1977) found that the body-proportion effect cannot be reliably modified. Scribblers and tadpole drawers showed a strong body-proportion effect, while the conventional drawers showed a slight one. Thus, the break through to drawing a conventional figure, which involves mastery over the trunk, may not immediately entail a real mastery over arm-attachment.

The influence that some early units in children's drawings have over the later ones, has been investigated by Goodnow and Friedman (1972), who tried to prove that figures in a non-standard page orientation are the results of a principle that specifies a particular type of agreement among the parts of the figure. They asked children between 3 to 6 years of age, to complete a drawing which was a circle either with two dots parallel to the base of the page but low in the circle or with two dots parallel to the side of the page. The younger children were clearly affected by the eyes' (dots') position and produced horizontal or upside down figures, while the older children found alternative ways to solve the problem (e.g. by converting the dots into some other facial features). That evidence emphasizes the sequence of units and the agreement among them and provides an alternative in the argument that drawings in odd orientations are signs of perceptual deficit. What has to be further investigated is how some early parts of a drawing come to depart from standard position, whether all ealry parts of a drawing would have the same effect and whether individual differences can cause alternative responses (Goodnow, 1977).

Another characteristic of children's conventional figures is that they seem to follow the principle that each part of the body must have its own space (Goodnow, 1977). None of the parts overlaps another, even in cases (e.g. ears and hair) where they would do so in a visually correct projection. Setting up an experimental situation in which children were asked to complete a figure either by adding arms (when hair was pre-drawn) or hair (when arms were pre-drawn), Goodnow (1977) found that very few children overlapped the two. Most of the children adopted different solutions like locating arms wherever there was available space or changing the usual angle of arm-line. Consequently, a child who draws an armless figure, is not necessarily suffering from a faulty conceptual system, but she may prefer to omit arms in order to avoid crossover of the lines. For the same reason children often draw hair standing up like wire or draw humans with hats.

As children get older their HFDs become increasingly realistic. From the age of 8 years onwards, they attempt to portray depth in their drawings and they begin to draw from a particular view-point. Profiles become more common (Freeman, 1980) but often in the beginning the body is drawn in front view and the head in profile (Thomas & Silk, 1990). Cartoon figures and comic strip

figures are drawn and drawings show less variability and idiosyncrasy (Cox, 1993). The number of children who continue to draw after the age of 8 is small. One reason is that seeing work of the "talented" children discourage children who are dissatisfied with their own drawings (Kellogg, 1979). Moreover, as Thomas and Silk (1990) point out, given that drawing is not considered to be a central part of the school curriculum, many children no longer pursue this activity.

So far, an attempt was made to approach children's drawings of the human figure in a cognitive way. Children's drawings are nowadays seen as the result of an exacting and often exhaustive production as Freeman (1980) suggested. New terms have been introduced, such as 'production errors', 'planning and sequential problems', 'body-proportion effect', that signal the shift towards a more cognitive approach. Since there is evidence (Bassett, 1977; Cox & Parkin, 1986; Freeman, 1980; Goodnow & Friedman, 1972; Thomas & Tsalimi, 1988) that making a representational drawing of the human figure requires complex skills including motor control, memory, serial sequencing and spatial integration, we should not be surprised anymore with young children's drawings if they are rather crude in style and seem to lack some essential body parts. Tadpoles, armless and disproportionate HFDs and humans in odd orientations, can be considered as stages of the child's normal drawing development. In addition, research on the HFDs of children with severe learning difficulties suggests that a similar pattern of development occurs to these children (Cox & Cotgreave, 1996; Cox & Howarth, 1989). The difference is that the drawings of children with severe learning difficulties reflect a developmental delay.

Findings of recent studies promise a more complete understanding of children's HFDs. It seems that while research continues enriching our knowledge of the cognitive aspects and the performance factors involved in children's pictorial representations, there are more possibilities that future use of drawings as indices of intellectual development or emotional expression can be more reliable and more valid.

Undoubtedly, that sift in the study of children's drawings is due to the fact that recent research is based on the same rules of evidence as other areas of experimental psychology. Experimental analysis of drawings based on completion, dictation or copying tasks, has helped us to bring out and put under control performance characteristics that cannot reliably be inferred from post-hoc inspection of spontaneous finished products. Therefore, it seems, that a careful and meticulous design of future studies could reveal more about children's drawing performance.

As far as the developmental stages of children's HFDs are concerned, there is

a need for more longitudinal studies, since the data gathered come mainly from cross-sectional studies. Longitudinal studies could provide us with more safe evidence about the developmental pattern in children's HFDs and the transition from one stage to the next, because findings of such studies cannot be attributed to individual differences and thus can better be assumed to the development of children's drawing performance. Finally, the universality of the developmental stages has yet to be established, because as Alland (1983) suggested children in different cultures may differ not only in details of drawing style, but also in the basic strategies used to construct their drawings. Cross-cultural studies could aslo help to shed more light in this field of research.

References

Alland, A. (1983), Playing with form. New York: Columbia University Press.

Allik, J. & Laak, T. (1985), The head is smaller than the body: But how does it join on? In N.H. Freeman & M.V. Cox (Eds.), Visual order: The nature and development of pictorial representation. London: Cambridge University Press.

Arnheim, R. (1956), Art and visual perception: A psychology of the creative eye. London: Faber & Faber.

Bassett, E. (1977), Production strategies in the child's drawing of the human figure: Towards and argument for a model of syncretic perception. In Butterworth, G. (ed), The child's representation of the world. New York: Plenum Press.

Cox. M.V. (1993), Children's drawings of the human figure. Hove: Lawrence Erlbaum.

Cox, M.V., & Cotgreave, S. (1996), The human figure drawings of normal children and those with mild learning difficulties. Educational Psychology, 16 (4), 433-438.

Cox, M.V., & Howarth, C. (1989), The human figure drawings of normal children and those with severe learning difficulties. British Journal of Developmental Psychology, 7, 333-339.

Cox, M.V., & Parkin, C.E. (1986), Young children's human figure drawings: cross-sectional and longitudinal studies. Educational Psychology, 6, 353-368.

Freeman, N.H. (1977), How young children try to plan drawings. In G. Butterworth (Ed.), The child's representation of the world. New York: Plenum Press.

Freeman, N.H. (1980), Strategies of representation in young children. London: Academic Press.

Freeman, N.H., & Hargreaves, S. (1977), Directed movements and the body-proportion effect in pre-school children's human figure drawings. Quarterly Journal of Experimental Psychology, 29, 227-235.

Goodenough, F.L. (1926), The measurement of intelligence by drawings. New York: Harcourt, Brace & World.

Goodnow, J.J. (1977), Children's drawings. London: Fontana Press.
Goodnow, J.J., & Friedman, S. (1972), Orientation in children's human figure drawings: An aspect of graphic language. Developmental Psychology, 7, 10-16.
Harris, D.B. (1963), Children's drawings as measures of intellectual maturity. New York: Harcourt, Brace and World.
Henderson, J.A., & Thomas, G.V. (1990), Looking ahead: planning for the inclusion of detail affects relative sizes of head and trunk in children's human figure drawing. British Journal of Developmental Psychology, 8, 383-391.
Karmiloff-Smith, A. (1992), Beyond modularity: A developmental perspective on cognitive science. Cambridge, MA: MIT Press.
Kellogg, R. (1979), Children's drawings, children's minds. New York: Avon.
Koppitz, E. (1968), Psychological evaluation of children's human figure drawings. London: Grune & Stratton.
Luquet, G.H. (1913), Les dessins d' un enfant. Paris: Alcan.
Luquet, G.H. (1927), Le dessin enfantin. Paris: Alcan.
Machover, K. (1949), Personality projection in the drawings of the human figure. Springfield, Ill.: C.C. Thomas.
Mann, B.S., & Lehman, E.B. (1976), Transparencies in children's human figure drawings: A developmental approach. Studies in Art Education, 18(1), 41-48.
Montensen, K.V. (1984), Children's human figure drawings: Development, sex differences and relation to psychological theories. Kobenhavn: Dansk psykologisk Forlag.
Nash, H., & Harris, D. (1970), Body proportions in children's drawings of a man. The Journal of Genetic Psychology, 117, 85-90.
Piaget, J., & Inhelder, B. (1956), The child's conception of space. London: Routledge & Kegan Paul.
Piaget, J., & Inhelder, B. (1969), The psychology of the child. London: Routledge & Kegan Paul.
Rouma, G. (1913), Le langage graphique de l' enfant. Paris: Misch et Thron.
Selfe, L. (1983), Normal and anomalous representational drawing ability in children. London: Academic Press.
Silk, A.M.J., & Thomas, G.V. (1988), The development of size scaling in children's figure drawings. British Journal of Developmental Psychology, 6, 285-299.
Thomas, G.V. (1995), The role of drawing strategies and skills. In C. Lange-Kuttner & G.V. Thomas (Eds.), Drawing and looking: Theoretical

approaches to pictorial representation in children. Hemel Hemstead: Harvester Wheatsheaf.

Thomas, G.V., Chaigne, E., & Fox, T.J. (1989). Children's drawings of topics differing in significance: effects on size of drawing. British Journal of Developmental Psychology, 7, 321-331.

Thomas, G.V., & Silk, A.M. (1990). An introduction to the psychology of children's drawings. Hemel Hemstead: Harvester Wheatsheaf.

Thomas, G.V., & Tsalimi, A. (1988). Effects of order of drawing head and trunk on their relative sizes in children's human figure drawings. British Journal of Developmental Psychology, 6, 191-203.