

A STUDY ON REPRESENTATIONS OF ENVIRONMENTAL COMPONENTS AS DRAWN BY PRE-SCHOOL CHILDREN FROM A GEOGRAPHICAL AND PSYCHOLOGICAL PERSPECTIVE

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ABSTRACT

We have analyzed 21 drawings on the topic "My house" as drawn by 18 pre-school children attending a kindergarten in the town of Dej, Cluj County, Romania. I carried out the research during the 2013-2014 school year, analyzing the houses drawn by 4/5-year-old, 5/6-year-old, and 6/7-year-old children, considering these drawings as spatial representations. I also analyzed the same drawings of the houses from a psychological perspective.

Keywords: *the house test, drawing, space, castle, block of flats.*

INTRODUCTION

In classical psychological approaches, a representation was understood as a schematized mental image of an object which is stored in one's memory even when the real object does not act on/stimulate one's sense of the sight organ, whereas in cognitive psychology, a representation is a mental imagery of external reality, a reflected image of an objective reality within one's subjective world, an image construed on the basis of connections established between these two mediums (Zlate, 1999). The process of building and mentally working on the symbolic or substitute images is also called representation (Zlate, 1999). Representation plays an essential role in concept formation in the case of children.

We have conceived this qualitative research study starting from our preoccupation to understand the perceptions and representations of pre-school children in relation to the components of their living environment. The essential question that needed to be answered was: How do pre-school children represent the components of their living environment in their drawings?

The main objective of the research was to study the results obtained by a group of pre-school children when drawing their own house. The specific objectives of the research were the following:

- 1) analyzing the houses drawn by children in the following age groups: 4/5-years, 5/6-years, and 6/7-years as spatial representations;
- 2) analyzing the houses drawn by children in the following age groups: 4/5-years, 5/6-years, and 6/7-years from a psychological perspective.

THEORETICAL BACKGROUND

Minkowska (1948) interpreted the house drawing as a test projecting personality traits. She noticed that the structure and colours of the house reflect the social and cultural belonging of a child. Ribault (1965) studied the drawings of 396 children aged between 4 and 12. The research was aimed at establishing a statistical level enabling for a cotation scale and has awarded points for every element represented. The main elements of the cotation scale were: size of the house, roof, chimney funnel, building bodies, windows, and door. The maximum score a drawing could obtain was 66. Ribault also carried out a global analysis and a clinical approach. She demonstrated the connection between the affection component of personality and the house drawing.

Mijlkowitch (1985) carried out a longitudinal study of 193 drawings of houses spontaneously made by the same child between the ages of 4 years and 6 months and 10 years. She noticed that the evolution of the house drawings could be grouped in a number of definite typologies. A typology is a suite of graphical signs that a child uses to represent a concept (Wallon *et al.*, 2012, p. 113). Interpretations of the drawings were also carried out by Crotti (2010) and Langevin (2012).

MATERIAL AND METHOD

Location and time of the research. The research was carried out in a Kindergarten in Dej, Cluj County, in urban environment. The research unfolded during the 2013-2014 school year.

Participants. The research involved 18 pre-school children. They were split into 3 homogeneous age groups: 7 children aged 4 to 5, 8 children aged 5 to 6 and 3 children aged 6 to 7. The groups contained both genders and the children's knowledge of geography and level of cognitive development were heterogeneous. These pre-school children met the criteria established at the beginning of the experiment (age and kindergarten attendance). Under protection of anonymity and confidentiality, the parents of these pre-school children accepted that their children's materials be used in the research. In the organisational activities of learning, in applying tests and data collection, pre-school teacher Alina Buzgău was also involved, as was the author of the current study in the drawing analysis and arrangement.

Research content. The data under analysis were the 21 drawings made by children under the theme "My House".

Research methods. We collected the drawings. In analyzing the drawings, we used the method of content analysis, the enumerative method, and subjective analysis (Băban, 2002). We analyzed the drawings as spatial representations of the house and from a psychological perspective.

RESULTS AND DISCUSSION

1) The analysis of the houses drawn by 4/5- year-old children as spatial representations.

We analyzed eight drawings made by children. In drawing no. 1 a, the child represented the wall of the house narrowing at the top and with a red roof top with a different shape from real roofs. The roof, windows and door appear to be more like colour spots rather than real objects, which indicates the fact that this child displays imprecise representations. Drawing no. 1 b is similar to the first one as far as the represented shapes are concerned. The roof resembles a hat and is not in accordance with reality. The windows are irregular in shape (Figure 1).

In drawing no. 1 c, the wall is rectangular, but the roof is fragmented. We may infer that the child perceived and represented two surfaces of the roof and resorted to parallelism to represent them. The two

rows of windows indicate that it is a two floor building. In drawing no. 1 d, we notice a large house with crooked walls. The child represented the roof, two windows with irregular shapes and a deformed door with a door knob (Figure 1).

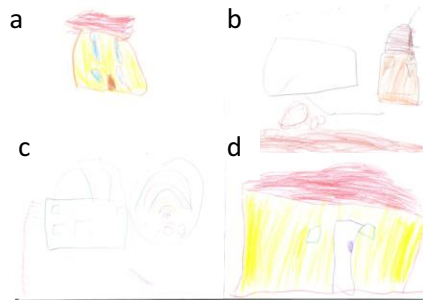


Fig. 1. Drawings of 4/5-year-old children (drawings a-d)

In drawing no. 2 e, the child represents the shape of the house and roof well, but the windows are not identical in shape. The door is rounded at the top which indicates that the child perceived such a door in the house of residence or in some other place. The house in drawing no. 2 f resembles a castle or a church because the left side looks like a tower from which smoke funnels. The door and the window at the bottom are oval in shape, which is not in accordance with reality.

In drawing no. 2 g, we notice the representation of a castle with many windows and two towers. The windows vary in shape and size. The drawing represents an imaginary house and not the house in which the child lives. In drawing no. 2 h, made by the same child as the previous one, there is a representation of a block of flats with a roof, which indicates the fact that the child lives in a block of flats. The child's representation of the windows is not accurate as the left side contains a column with four windows whereas the right side contains a columns with 7 windows. The yellow roof is not consistent with reality (Figure 2).

As far as these representations are concerned, we notice the following aspects: the drawings are simplistic; their perception includes the house overall as well as its components (roof, windows, and door); the lines are not straight, warm colours predominate (red, yellow, and orange), there are some disproportions between houses and windows (Figure 2).

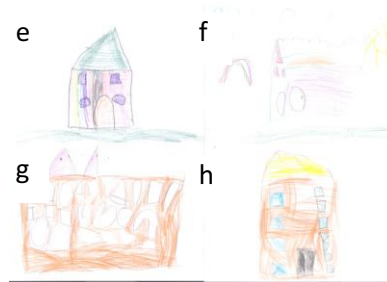


Fig. 2. Drawings of 4/5-year-old children (drawings e-h)

2) Analysis of 4/5-year-old children's drawings from a psychological perspective

Size of the house. Three children have drawn large houses, which indicates an expression of joy, hospitality, and a welcoming place. These children are open to experiencing life and the natural world, they know how to receive and offer affection (*cf.* Crotti, 2010, p. 171). Four of the houses were of medium size. One child has drawn a small house, which indicates his desire to withdraw to a quiet place. Small houses are typical to introverted children who require family support in school activity or to establish relationships with peers (*cf.* Crotti, 2010, p. 171).

Shape of the house. The roof corresponds to imagination and thought in terms of symbolism (Langevin, 2012, p. 99). The castle in drawing no. 2 g suggests confidence, strength and, at the same time, a need for security, belonging, stability.

Page layout. In seven of the drawings, the house is situated in the middle of the page, which indicates the children are happy and have expressive personalities (Langevin, 2012, p. 99).

Other details. One child has produced a representation of smoke. The absence of the chimney and smoke points to a lack of communication in the family (*cf.* Crotti, 2010, p. 178), but in our opinion it may be also another explanation (the heating system of the house may use electricity only so there is no need of a chimney). In three of the drawings, the doors have no handles, which is a signal of shyness and difficulties in communication (*cf.* Crotti, 2010, p. 178). In all the drawings, the windows are closed which symbolically indicates the child's tendency to hide from intruders, of indiscrete glances, and denotes caution in relationships and a sense of introvertedness (*cf.* Crotti, 2010, p. 178).

3) Analysis of 5/6-year-old children's drawings as spatial representations

We have analyzed 8 drawings. Around the age of 5, children draw more than what they see, they also draw what they know (Langevin, 2012, p. 25).

In drawing no. 3 a, the child has a good representation of the size and scale of the walls and of the roof as compared to windows and doors. He/she does not perceive or represent the position of the windows within walls correctly or the position of the chimney on the roof (tilted). In drawing no. 3 b, the child does not represent the roof of the house correctly. He perceives and represents the wall with the windows situated on two levels, the door with a knob, and the staircase (Figure 3).

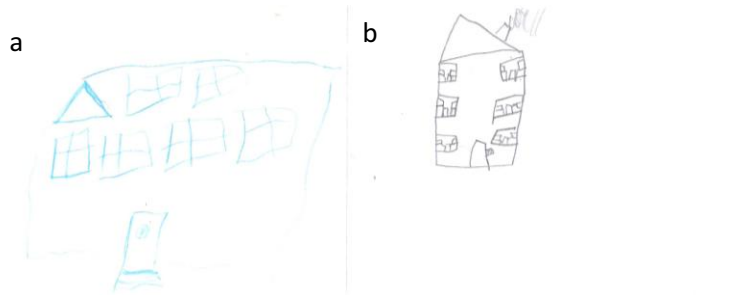


Fig. 3. Drawings of 5/6-year-old children (drawings a and b)

Drawings no. 4 c, 4 d, 4 e, and 4 f display some similarities: the size and shape of the house, including the roof, the shape of the windows, position of the door, layout of the house in the page space (Figure 4). There is a question whether these children live in houses that are similar to these drawings or whether they were influenced by illustrations found in various books. Two children coloured the roofs in red, in accordance with reality, and one child coloured the roof in yellow, which is not in accordance with reality. In two drawings, there are representations of other environmental elements: a grass covered surface, flowers, and clouds. In reality, clouds are white or display shades of grey, but they were coloured in blue/purple (Figure 4 d).

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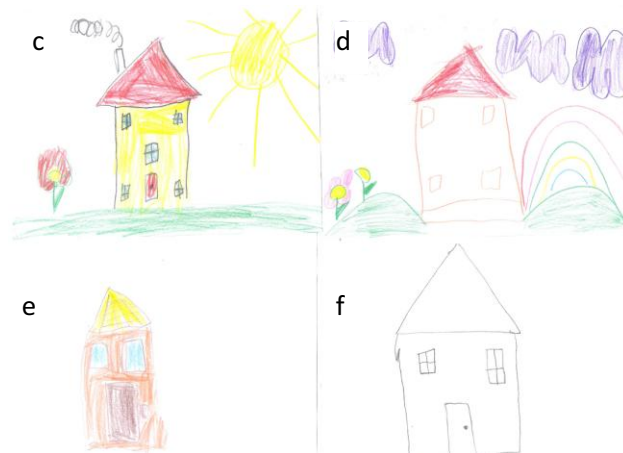


Fig. 4. Drawings of 5/6-year-old children (drawings c-f)

In drawing no. 5 g, the child displays good representation of the size and proportions of the walls and of the roof as compared to the windows and door. The representation includes several windows, incorrectly positioned on several levels. He represented the details on the windows (curtains and window separations). He does not perceive or represent the position of the chimney on the roof correctly (tilted). He represents a door at the entrance to a house or to a block of flats, but also a door inside the roof, which is not in accordance with reality (Figure 5).

In drawing no. 5 h, the child has a good representation of the size and proportion of the walls and of the roof. The representation is poor in details: the windows are missing. The shape of the roof indicates an unclear representation of it (Figure 5).



Fig. 5. Drawings of 5/6-year-old children (drawings g and h)

As regards the representation of the houses by 5/6-year-old children, we notice the following: they perceive the house overall as well as its components (roof, windows, door); some of the houses are rich in details (window separations and curtains); two of the drawings are surrounded by environmental components (flowers, grass, clouds, and the sun); placing

them in the lower half of the page, which is age-specific; the lines appear to be straighter; warm colours predominate (red, yellow, and orange); there are some disproportions between houses and windows.

4) The analysis of drawings of 5/6- year-old children from a psychological perspective

Size of the house. Two children have drawn large houses, suggesting joy, hospitality, a welcoming house. These children are open to embrace life and nature, they know how to receive and give affection (*cf.* Crotti, 2010, p. 171). Six of the houses are middle-sized.

The shape of the house: the roofs (pointy and red) are a symbol of imagination and thoughts (*cf.* Langevin, 2012, p. 99).

Page layout. In six of the drawings, the house is placed in the middle of the page, which indicates that the children are happy and have expressive personalities (*cf.* Langevin, 2012, p. 99). A smaller house is situated on the left side of the page, which may indicate some emotional issues (*cf.* Langevin, 2012, p. 99).

Other details. Three children represented the smoke, therefore they display no communication problems. They also drew chimneys, two of which are perpendicular on the roofs (tilted) and one is in vertical position, which indicates a progress in perception and representation. The absence of the chimney and smoke in the other drawings indicates impaired communication in the family (*cf.* Crotti, 2010, p. 178). The doors without knobs indicate restraint, shyness, and difficulties in communication (*cf.* Crotti, 2010, p. 178), but in these drawings all the doors have handles.

In all drawings, windows are closed, thus suggesting introverted behaviour and caution in relationships and it may also signal the child's need to hide from intruders and indiscrete glances (*cf.* Crotti, 2010, p. 182).

In three of the drawings, the windows are cross-shaped, which expresses confinement and difficulty in liberation. The doors with locks (in seven of these drawings) and the windows indicate the fact that the child feels imprisoned and conditioned by some conflict in the family, by the over-protective attitude of the parents and feels abandoned. These children may display reluctance in expressing their feelings and socialize with difficulty (*cf.* Crotti, 2010, p. 182). We may notice some contradictions in the way the drawings are interpreted: the big house and closed door with a knob indicate availability towards the outside world, whereas the cross-shaped windows express confinement.

5) The analysis of 6/7-year-old children's drawings as spatial representations and from a psychological perspective

We have analyzed five drawings. After the age of 6, the child tries to approach visual reality more faithfully. The child attempts to reproduce

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what he/she sees as closely as possible, paying attention to the use of colours, distances, and to the size of various elements. Drawing becomes more formal. The child tries to represent objects in three dimensions (Langevin, 2012, p. 26).

Drawings 6 a and 6 b are made by the same child (Figure 6). The houses are very tall and windows are organized on several floors, which indicates that this child lives in an block of flats. The child does not display precise perceptions or representations of window layout. He has a relatively correct representation of the height of the building in relation to its width, roof shape, but he has yet to perceive and represent the building in three dimensions. He places the buildings on the lower edge of the sheet of paper, which is specific to this age group.

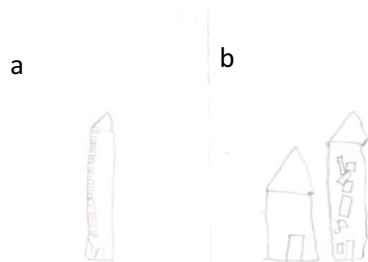


Fig. 6. Drawings of 6/7-year-old children (drawings a and b)

Drawings 7 c and 7 d belong to the same child (Figure 7). The fact that in both drawings two houses are represented leads to the interpretation that, in the child's place of residence, there are two buildings in the same courtyard.

The large houses do not have similarly represented windows, therefore we infer that the pre-school child does not have a clear representation of windows. In one drawing, the houses are side by side, in the other drawing they are separate, therefore the child is not aware of the spatial position of the houses precisely, one in relation to the other. The child displays a partially correct representation of house walls height as compared to the height of the roof which is too big if we consider the houses to be one or two floors tall. The roofs of the houses are coloured in flashy colours, which indicates that the child perceives the details (coloured tiles) or, symbolically, this may indicate that the child feels imprisoned in his own house.

One of the drawings features a tree with a long thick trunk, with a small crown, with thin short roots that are not in accordance with reality. The tree in the drawing indicates the need for affection and protection of loved ones (*cf.* Crotti, 2010, p. 182). We may also notice the cross-shaped windows, suggesting confinement and difficulty in liberation. The door with a lock and these windows indicate that the child feels imprisoned and conditioned by some conflict in the family, by the parents' over-protective

attitude, and experiences a feeling of abandonment. This child displays reluctance in expressing feelings and socializes with difficulty (*cf.* Crotti, 2010, p. 182).

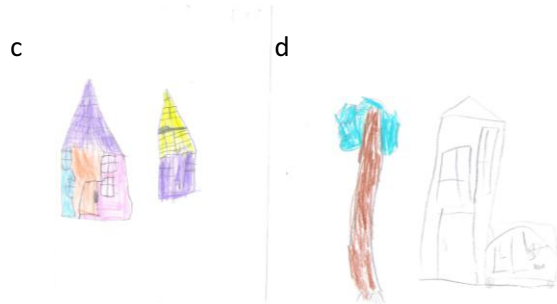


Fig. 7. Drawings of 6/7- year-old children (drawings c and d)

In drawing no. 8, the large size of the house and its layout in the middle of the page indicate happiness, a desire to embrace life and a sense of openness, the two windows and the door with a knob also indicate availability towards the world (Figure 8).

In specialized literature, it is mentioned that the drawing of the house made by 6/7-year-old is completed with details from the outside of the house (the sun, trees, and clouds) (*cf.* Crotti, 2010, p. 169), but by analyzing drawings in this age group, this assertion is not confirmed.



Fig. 8. Drawings of 6/7-year-old children

CONCLUSIONS

From the analysis of the houses drawn by children, as far as spatial representation is concerned, we reached a number of conclusions:

- In these drawings, we identified typical representations of environmental components (tree, house, the sun, and clouds), in accordance with the components mentioned in specialized research literature worldwide. It is amazing that pre-school children draw certain things identically or similarly without seeing models (the smoke, the chimneys);

- We cannot generalize to say there are clear distinctions between the drawings of children in different age groups, as it is mentioned in

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specialized literature. We believe this is because there are differences between children in their previous knowledge, cognitive and emotional development, and previous experience.

- At the age of 4, children have less precise representations, the shapes are chaotically represented; pre-school children over the age of 6 have drawings that are more imprecise in elaboration than 5-year-old children, possibly because of lack of drawing practice.

- We notice that in the drawings of pre-school children, there are many similarities with represented reality in terms of objects shape (tree trunks, tree foliage, the houses, windows, and flowers).

- In the drawing, it is obvious that children display clearer representations of large objects (the house) and less clear or absent representations of details (window separations, tiles, and chimneys).

- Children display difficulty in representing a large decoupage from reality or associations of objects, such as the house and environmental elements neighbouring the house.

- Children represented various buildings in terms of shape: one-floor houses, two or three-floor houses, and multi-floor blocks of flats.

- Children perceived and represented the differences between expanding buildings on the three dimensions: width, length, and height.

- Children perceived and represented roofs on houses as well as on blocks of flats; the question is whether the blocks of flats in which they live have roofs or are flat at the rooftop; the roofs are triangular in shape in most drawings, though, in reality, house roofs display various other shapes.

- Many houses were placed in the lower half of the page, which is characteristic of the age group 5/7. Many children represented the front door as the main entrance in the centre of the house, on the lower side line.

- All the houses are represented in two dimensions, therefore these children cannot represent buildings in three dimensions yet.

- Some children have resorted to tilting (i.e. the chimneys are perpendicular to the tilted roof).

- Many children represented similar lines inside windows (cross-shape), though we do not suspect they have such window separations in their own house, but rather they had been influenced by books or other curricular additional materials.

Deriving from the analysis of the drawings from a psychological perspective and from observing the children's behaviour, we believe there are connections between the houses drawn by children and their personality traits, relations with other people and with the environment in which they live, as they are presented in specialized research literature (Crotti, 2010; Langevin, 2012).

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