



SEVERAL CHARACTERISTIC FEATURES OF CHILDREN'S REPRESENTATIONS

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Abstract: The purpose of our research was to test the following hypothesis: 6 and 7 years old children's representations were strongly influenced by the environment they lived in. Representations are interiorised models of objects, phenomena and events, independent of present use of our senses and of the presence or absence of objects. We realised our research in Grădinița cu Program Normal Florești/Florești Kindergarten, Cluj county, during the 2008-2009 school year. The sample was represented by twelve children in their last year of kindergarten, preparing for school. We analysed nine of those children's drawings. We identified the representations that appeared in several of children's drawings and in the same child's drawings for several times, then we identified for each child her or his singular representations and compositions as a reflection of the world they were living in or of an imaginary world. After analysing children's drawings we realised that it confirmed the hypothesis that 6 and 7 years old children's drawings were influenced strongly by their environment. We noticed the following: kindergarten children's representations were very diverse, but they were characterised by a certain peculiarity of the place they inhabited; some objects appeared more often than others, and that meant that kindergarten children knew them better and could represent them graphically more easily; kindergarten children preferred drawing familiar objects that they had drawn before; some drawings included the essential features of the represented objects and that proved that kindergarten children had the respective concept and could represent it in drawings, while one could not identify other objects without writing down what the child said he or she meant.

Key words: drawing, perception, environment, concept, process, mental image

1. Introduction

It is difficult to identify 6 and 7 years old children's knowledge about the world they live in. One way of getting to know their representations is studying their drawings. The purpose of our study was to find answers to the following questions: What were 6 and 7 years old children's representations? How did 6 and 7 years old children represent their world through drawings? We decided to test the following hypothesis: 6 and 7 years old children's representations were determined strongly by the environment they lived in. Through this research we offered teachers certain information on 6 and 7 years old children's representations and ways of identifying and analysing them.

2. Theoretical basis

Each time we see an object we have a certain perception and a certain representation. Therefore, our perceptions and representations of the same object are multiple and variable. In order to reduce the high diversity of stimuli about the objects in our environment, our mind selects perceived information and organises it in order to build an abstract mental representation, it establishes knowledge categories that it represents in a simple way, easy to process, to memorise or to remember if necessary. Our cognitive system uses these *representations* – interiorised models of objects, phenomena and events,

independent of present use of our senses and of the presence or absence of objects (Dulamă, 2004). According to classical psychology, a *representation* is a sketch image of an object, in the absence of its action upon our senses, while according to cognitive psychology, a *representation* is a mental image, a reflection of exterior reality into the interior environment, based on a set of relationships between these two environments. *The abstract mental representation* is a mental construction that appears as a result of a thinking process, facilitated by using words or other symbolic forms (Dulamă, 2009). People think using abstract mental representations, knowledge categories, words, and other symbolic representations.

When someone's mental representation of an experience appears, it gets attached a certain *semantic significance* meaning that representations are distinct and subjective. This significance is the result of relationships of similitude with other pieces of significance in that person's cognitive structure. This semantic significance is a product determined by the following *features of a cognitive structure*: quality of extant relationships, stability, the degree of differentiating the elements of the structure it is going to be integrated in. If a person has a well structured knowledge basis, that person will integrate easily, in a differentiated manner, precisely, logically, and in a balanced way, a new piece of knowledge. The ideas represented in a cognitive structure are clear, stable, differing from one another, easy to remember and use during the process of semantic integration of other ideas. Creating a semantic significance is a dynamic process dependent on a person's will to engage in a certain experience, to clarify a new idea and to differentiate that idea from other available ones. An idea integrated within a person's cognitive structure becomes *subjective* as it is the result of an individual mental process, the processes of learning a piece of knowledge beginning and developing in a subjective way (Dulamă, 2009).

3. Method

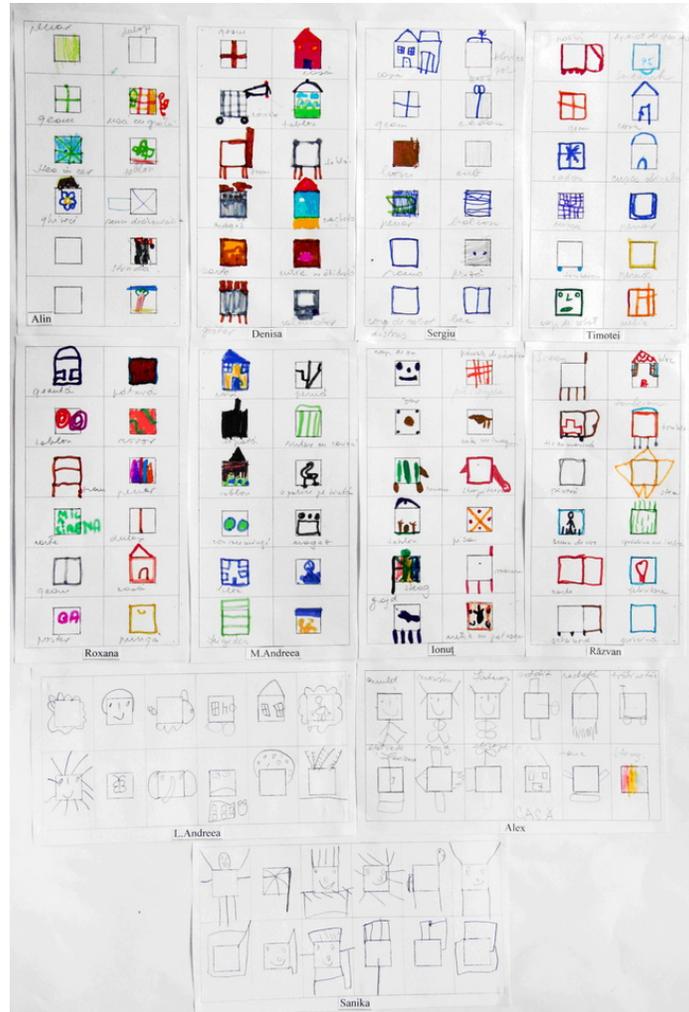
We realised our research in Grădinița cu Program Normal Florești/Florești Kindergarten, Cluj county, during the 2008-2009 school year. The sample was represented by twelve children in their last year of kindergarten, preparing for school (both girls and boys). Our research had several variables: *an independent variable* – the learning situations in which kindergarten children got involved into; *a subject variable* – children's age and individual features; their previous knowledge and experience according to previous education; *a dependent variable* – children's drawings.

During this research children drew several drawings according to teacher's requests. Their drawings had as a starting point certain elements that the teacher previously drew on their sheet of paper: "What can you draw using quadrates?" (Florei, 1978); "What can you draw using two vertical parallels?" (Florei, 1978); "What can you draw using circles and quadrates?" (Gîrboveanu, 1978); "What can you draw using triangles?" (Florei, 1978); "Find similarities among objects!"; "Play with the dots!"; "How can you complete three elements?" (Gîrboveanu, 1978), "The golden window" or "The open window" (a model imagined by Șchiopu, *apud* Gîrboveanu, 1978). The teacher wrote on each drawing what each child wanted to represent.

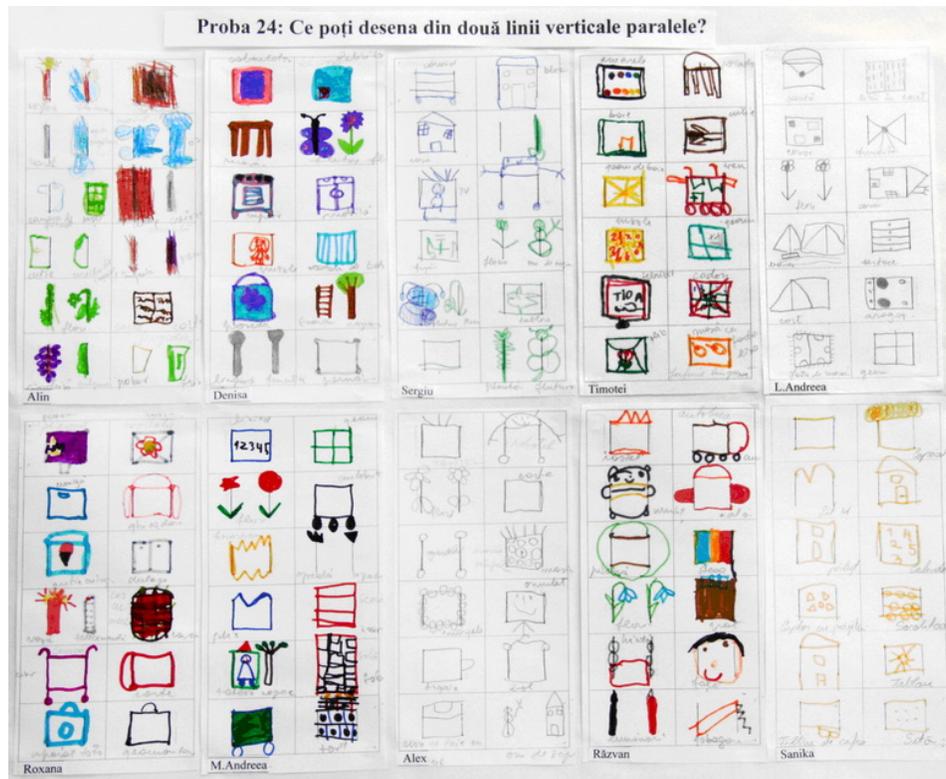
In the first five drawings we identified the representations that appeared in several of children's drawings and in the same child's drawings for several times, then we identified for each child her or his singular representations. For three drawings we analysed children's compositions as representations of the world they lived in or of an imaginary world.

4. Results

Children realised the drawings that we presented below (pictures 1 to 5).



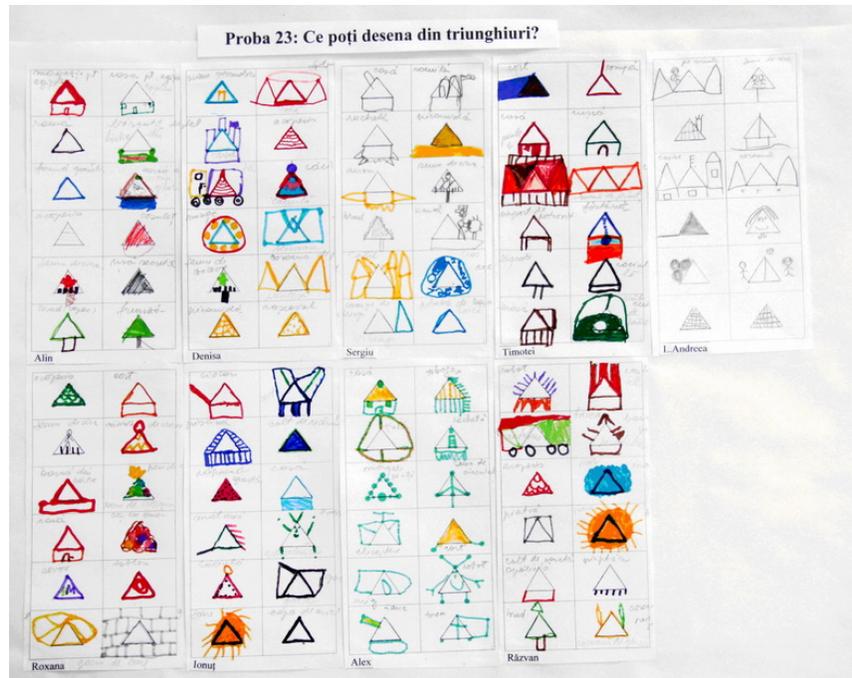
Picture 1. What can you draw using quadrates?



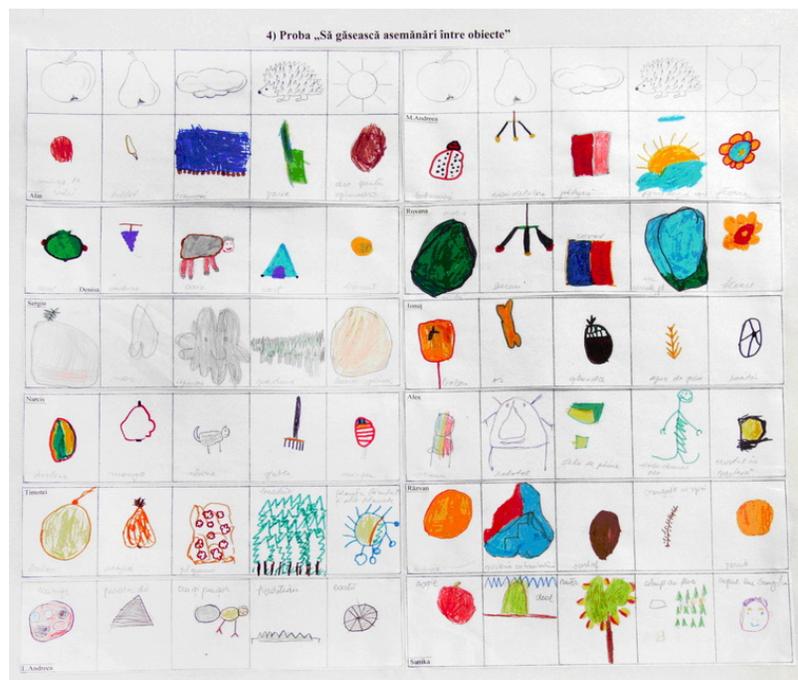
Picture 2. What can you draw using two vertical parallels?



Picture 3. What can you draw using circles and quadrates?



Picture 4. What can you draw using triangles?



Picture 5. Find similarities among objects!

We identified the representations that appeared in several of children's drawings and those that appeared several times in the same child's drawings and we completed the following table (able 1).

Table 1. Representations that appeared in several of children's drawings and those that appeared several times in the same child's drawings

Object	Alin	Denisa	Sergiu	Timotei	Roxana	M.Andreea	Ionuț	Răzvan	L.Andreea	Alex	Sanika	Narcis
House 21	•••	••	••••	•••	••	••	•		••	••		
Door 3	•••											
Window 16	•••	••	••	••	••				••		••	•
Chair 2							•	•				
Wardrobe 7	••	•			•••					•		
Refrigerator 2	•					•						
Painting 15	••	•	••	••	••	•••	••			•		
Recycle bin 2				•				•				
Stove 3		•				•			•			
Television set 6			•	•	•			•		•		•
Cage (dog house) 6		•		••••			•					
Pillow 3				•		••						
Block of flats 4			•			••		•				
Castle 5		•	•	•				•	•			
Pool 5							•	••				
Roof 4	•	•			•			•				
Spoon 2		•		•								

Plate 3		•		•					•			
Lid 6	••	•				••			•			
Book 10	•	•			••			••	•	••		•
Box 3	•	•		•								
Bag/purse 6		••			•				••			•
Ball 10	••	••		•		•	•	•	•		•	
Cap 3				•	•		•					
Cube 3			•				•				•	
Pencil box 6	•		•	••			•	•				
Ring 2					•					•		
Flag 2							•			•		
Sun 12				•	•		••	••	•		•	••••
Fir tree 5	•		•	•				••				
Butterfly 5	•	•	••							•		
Flower 12	•	•	••		•	••	•	••	•	•		
Apple 5		•	•	•		•						•
Cherries 2						•		•				
Traffic sign 2									•	•		

Rocket 4			••							••		
Boat 6	••		•		•			•	•			
Car 3				••					•			
Robot 3										•••		
Bus 3						••		•				
Robot 2								•		•		
Wheel 9				••	•		••	•••			•	
Tank 2										••		
Mig (airplane) 2										••		
Helicopter 2										••		
Pyramid 3		•	•			•						
Tent 5				••		•	•		•			

In the same drawings, we identified each child's singular representations and we completed the following table (table 2).

Table 2. *Children's singular representations*

First name	Singular representations
Alin	star, flower pot, street, leaf, bone, river, door, glass, steering wheel, hygienic paper, a tractor's disk, knife, tram, brush
Denisa	trolley, grill, PC, cheese, a princess's crown, drum, fork, furniture, stairs, mirror, button, T shirt, egg, sheep, bunch of grapes, coin
Sergiu	frame, chimney, balcony, bulb, plain, a Viking's horns, sheet, snowman, plant, beehive, ice cube, nose, little rabbit, forest, full moon
Timotei	sandwich maker, fountain, a bird's nest, terrace, pump, support for shoeing, arrow, bathroom, present, water colours, eraser, grapes, pan, satchel, onion, quilt
Roxana	blanket, bag, carpet, basket with eggs, Christmas tree, remote control, basket with apples, suitcase, photo camera, padlock, bulb, flower pot, bulbs
M. Andreea	shovel, drawer, ruler, jigsaw, rake, brush, cake, bucket, chandelier
Ionuț	pizza, stable, box with horseshoes, watering can, spider web, hammer, broom, fence, T shirt, radish, balloon, acorn, wheat ear
Răzvan	TIR, stone, greeting card, skateboard, hairbrush, a queen's crown, a little bear (cub), pot, candles, swing, toboggan, cap, plug, potato
L. Andreea	crown, table cloth, carpet, knot, bear, chicken
Alex	monster, satellite, airport, target, rocket, toboggan, weights, beads, pan, bowl, bracelet, mouse for the PC, keyboard, PC, support for pencils, slices of bread, cave crystal
Sanika	oven with cakes, sieve, coffee maker, little bed, little tree, the letter M, visor, ladybird, flag, hill
Narcis	cup, snowball, dog, pumpkin, mango fruit, rake

Children realised drawings in picture 6 by linking the dots already drawn on a piece of paper.



Picture 6. *Play with dots! (a little pig, a fish, a hurt and bandaged little rabbit, castle with a pool, dinosaur, crocodile, horse, trousers, fox, boot, recycle bin)*

Children realised drawings in picture 7 by completing three elements already drawn on a piece of paper.



Picture 7. *How would you complete the three elements?*

Children realised drawings in picture 8 by drawing a composition where they represented what each of them wanted to see through an open window.



Picture 8. “The golden window” or “The open window”

5. Discussions

In Picture 1 – “What can you draw using quadrates?” – we noticed that kindergarten children completed all quadrates by adding to their exterior and interior and represented diverse objects: a house, a book, a painting, a blanket, a window, a bag, a poster, etc. They represented most objects in a transversal plan (a house, a stove, a bag, etc.) and only some of them in a horizontal plan (a book, a carpet, a pencil box, a pillow), observing their position towards those objects. Several drawings included all essential features and starting from those drawings we could identify those features and that proved that kindergarten children possessed the concept and could represent it through drawing (a house, a sprinkling can, a chair, a bag, a window, a trolley, a stove).

As representations were schematic, we could correlate some of them with objects from reality only because the kindergarten children mentioned what they drew, otherwise we could give another name to that drawn object (for instance, we could not differentiate between a painting and a pizza, between a calendar and a window, between a poster and a bag, etc.). Most drawings stand for known objects (a house, a pencil box, a painting, a wardrobe, a bag), but there were atypical representations, such as a skateboard, a robot's head, a sandwich maker, a star. They proved that they noticed rectangular and quadrate shapes in reality. Still, we noticed that they paid no attention to proportion, that they represented in the shape of a quadrate objects that in reality had a rectangular shape: the book, the door, the wardrobe, the pencil box.

In Picture 2 – “What can you draw using two parallels?” – we noticed that kindergarten children solved the task in two ways: they either included the two parallels in a single drawing similar to the shape of a quadrangle (a house, a stove, an envelope, a photo camera), or realised two distinct drawings (flowers, a spoon and a fork, a plant and a butterfly, a tree and a butterfly, candles). They used the parallels as stalks for flowers, as legs for a robot. In several cases they doubled the lines in order to represent a glass, a vase, candles, a trunk for a tree. Two children drew starting from a line a snowman and that was not an appropriate choice.

In Picture 3 – “What can you draw using circles and quadrangle?” – we noticed that kindergarten children completed all quadrangles the same way they did with previous drawings. If previously, in each box the teacher had already drawn the quadrangle they had to complete, in this case the teacher drew quadrangles and circles in a column and children did not complete those boxes with drawings. As those lines were not imposed ones, children changed the size of quadrangles and circles without taking into account the size of the models. In several cases they multiplied the form of a circle in order to represent a bunch of grapes or cherries, they drew concentric circles (a wheel, a lid on a pot), smaller circles inside a larger one in order to represent a ball. Several representations were not correct (a mouse, a little rabbit, an airplane) if we took into account that they started from a circle.

In Picture 4 – “What could you draw using triangles?” – the task to draw diverse objects starting from triangles was more difficult as compared to previous tasks as the shape of the triangle was rare in reality. Children represented correctly the fir tree, the tent, the pyramid, the house with a roof, the cap, the traffic sign. Starting from triangles, some children did not represent appropriately the following: the sun, the carpet, the train, the hammer, the ball, the bird’s nest, the Mig (airplane), the robot.

By realising the drawing “Identify similarities among objects!” (Picture 5), we tested children’s capacity to identify through drawings similarities between objects (an apple, a pear, a cloud, a hedgehog, a sun), their capacity to make analogies, to do the transfer between features of one geometric figure to objects from reality. Children drew for each object other elements that looked like the model. They identified the following similarities:

- an apple: pumpkin, balloon, ball, tomato, kiwi, ladybird, chair (two circles); all representations were correct as shape;
- a pear: bunch of grapes, nose, a mango fruit, pyramid, bone, little robot, hill; several children represented wrongly the chandelier and three bulbs starting from a pear, as they associated pears with bulbs; one of the children drew a yellow bone, so that the child “transferred” the colour not the shape, although the pear was not coloured; another child drew a shape similar to that of a pear (“a pool with springboard”), but one could not say what that child represented if he did not say it himself; one child drew a knife with a yellow contour, but the shape was different from that of a pear;
- a cloud: children’s representations were hardly similar to the model, maybe because they did not identify the drawing as representing a cloud; two of their drawings were similar in shape to the model (an apple tree and the face of a little rabbit), while in the other drawings there were no similarities in shape (tram, sheep, little rabbit, dog, quilt, an egg and a little chicken, carpet and blanket with rectangular shapes, acorn, slices of bread, potato);
- a hedgehog: children did an analogy not with the shape of the drawn hedgehog’s body, but they transferred the shape of its thorns (brush, tent, fir tree forest, rake, jigsaw, a little branch with thorns, a field with flowers, pin pillow, wheat ear, sun behind clouds); very interesting was the analogy with Tyrannosaurus rex that they represented as having an edgy body; valuable from a cognitive point of view was the comparison between the hedgehog and the fir tree forest and the field with flowers (with grass blades);

- a sun: children compared the circle shape with diverse objects: a gymnastic circle, a coin, full moon, a ball, a wheel, a pillow, a flower, Sanyka's own head; one child represented the Earth as a body with blue rays and other planets linked to it with lines and that proved that that child had erroneous representations; one child represented transversal sections through a cave crystal.

In the first five drawings, we noticed that they represented several objects more frequently than others and that meant that kindergarten children knew them better and could draw them easily (the house – 21 drawings; the window – 16; the painting – 15; the sun and the flower – 12; the book and the ball – 10). We also noticed that kindergarten children preferred to draw known objects that they had drawn before. In table 2 we noticed that children had very diverse representations. Ionuț who lived mainly in his grandparents' house drew plenty of objects characteristic of the rural area and Alex cared about cars, especially about public transport ones.

The drawings that children realised by linking the dots on a sheet of paper (Picture 6: "Play with dots!") were complex. We could group them in two categories: drawings that we could give a title after identifying their essential features (a boot, a fox, a fish, a castle with a pool, a pair of trousers) and drawings that we could give no title (the recycle bin did not have the shape of a real one; the crocodile had a mouth with tongue but with no teeth; the little pig had mostly the shape of a fish; "the hurt and bandaged little rabbit" did not have the right body shape; the drawn horse looked more like an orangutan; the dinosaur had no characteristic features; the boat looked like a play ground). In order to make children link the previous drawn dots on a sheet of paper, the teacher determined them indirectly to establish the link between the obtained shape and an object from reality, a task with a high difficulty degree. That way of solving a task proved that 6 and 7 years old children's representations were strongly connected to reality, a reality that had an objective and concrete character. An adult maybe would have created a rather abstract drawing starting from the respective dots and would not have looked for similarities with the reality, especially if he or she was not asked to do that.

In Picture 7, we noticed that the task of integrating the three elements in a drawing was a difficult one, first of all because children had to identify in reality two winding parallel lines and three broken parallel ones. They used the winding ones appropriately in order to represent a road, the stalk of a flower, a vase, a bunch of grapes, part of the tail of a kite and, less appropriately, in representing a toboggan, a rocket, a traffic light. They integrated the broken lines into a traffic sign, into a fence, into the tail of a kite or one could take them for flying birds. The third element looked like a house and children completed it with details and integrated it in another object (a locomotive, a trailer, a van). Children completed the house both on the interior and on the exterior, by colouring areas and completing the lines. Two children completed only the three drawings, one added another drawing near the one of the house and did not give a title to their composition. The others completed the empty area with all kinds of elements and gave a title to their composition, observing the task ("Tell me the name of your drawing!"): *At the farm, Transport means, Travelling, The street, In the country, Autumn*. A girl managed to have a unitary drawing including all three elements into a kite, maybe the best drawing of the group.

In Picture 7 – "The golden window" or "The open window" – the teacher asked children to draw whatever they wanted to see through a window they opened. Children realised drawings on different themes: *The Pirates of the Caribbean, The amusement park, Ducks on the water, Fairytale scenes (Over the limits mission), The Police car, Sanyka in the rain, Travelling by train, Happy spring, Andreea and her friend playing in the yard, The street, The dog protects the sheep from the wolf, The princess's castle*. Children approached themes they were interested in (films, the environment they lived in – in the country, playing with friends). There was a clear connection between the title they gave to their composition and what they drew.

6. Conclusions

After analysing children's drawings we realised that it confirmed the hypothesis that 6 and 7 years old children's drawings were influenced strongly by their environment. We also drew the following conclusions:

- 1) Kindergarten children's representations were very diverse, but they were characterised by a certain peculiarity of the place they inhabited (for instance, one child represented a lot of objects characteristic of the rural area, and another one cared a lot about cars);
- 2) Some objects appeared more often than others, and that meant that kindergarten children knew them better and could represent them graphically more easily (a house, a window, a painting, a sun, a flower, a book, a ball);
- 3) Kindergarten children preferred drawing familiar objects that they had drawn before;
- 4) Some drawings included the essential features of the represented objects and that proved that kindergarten children had the respective concept and could represent it in drawings (a house, a watering can, a chair, a bag, a window, a trolley, a stove) while one could not identify other objects without writing down what the child said he or she meant;
- 5) For children it was easier to represent objects starting from quadrates, parallels and circles, than from triangles as the form of a triangle is not a frequent one in reality;
- 6) In some of their drawings children ignored proportions as they represented, using quadrates, objects that in reality had the form of a parallelepiped: books, doors, wardrobes, pencil boxes;
- 7) When the teacher did not previously draw the frame of the quadrate or of the circle within the work frame, children changed the size of the respective geometric figures, they multiplied circles in order to represent grapes and cherries, they drew concentric circles or smaller circles inside a bigger one;
- 8) Children represented most objects on a transversal plan (a house, a stove, a bag, etc.) and only several ones on a horizontal plan (a book, a carpet, a pencil box, a pillow), according to their position towards those objects;
- 9) Children identified easily similarities between *the form* of an apple and that of the sun, but they had difficulties with the forms for clouds and pears. Two children noticed that there was a similarity between the yellow *colour* of pears and of other objects, although pears were not coloured in their drawings. For hedgehogs they looked for similarities between those animals' spikes and other objects having the form of "spikes";
- 10) As children had to link the dots on a sheet of paper, they identified the relationship between the shape they obtained and objects in reality and that proved that their representations were connected strongly to reality, they had a concrete character, in opposition to adults that in these situations would have created rather abstract drawings.

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