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Developing visual perception as a stimulator of plastic activities of children - creation through play

Activity of children, which is characterized by originality, searching, an attempt to imitate, dramatic verbal and non-verbal behaviour, is regarded as creative behaviour. They develop the will to create, imagination, cognition, motivation and desire to search for the essence of things known and unknown to the child. Play and all forms of its creative activity, including plastic activities, are manifestations of creative behaviour. Plastic activities of children are also peculiar manifestations of play. Stages of its development are characterized with such features of play as more or less inspired spontaneity, directed, controlled with time, more and more goal oriented, which is the work of the child and its result and developing the ability to plan creative work. These activities give the child emotional and cognitive pleasure and at the same time ensure the development of its perception, general agility, thinking, and imagination. Play through stimulation of plastic creativity is an essential factor contributing to development of the child, motivating him to get to know himself and to develop his abilities. It is connected with the influence of a wide range of stimuli including stimulation of his visual perception in a planned but open way, which means that the child selects and shapes them on the basis of his needs. The child develops his skills in the field of perceptive knowledge, his ability to use it in plastic activities, what is completed with getting familiar with plastic techniques and means of expression. The child becomes free in the act of creation. He decides about it and about the form of his composition. He begins to ask questions, to look for answers, to experiment, and this means to think independently and creatively. He creates his own creative, not reproductive world. These were some of the assumptions of the studies carried out in the field of developing visual perception as a stimulator of plastic activities of children. I would like to present the hypotheses and results of pedagogical experiment in the field of art education of younger school children - 7 to 9 years old.¹ The existing psychological and pedagogical literature on development of plastic creativity of children does not give unequivocal answers concerning factors of this development.

Psychological works of S. Baley (1948), T. Witwicki (1948) and S. Szuman (1927) present knowledge of the development of perception in children and their sensitivity to colours, shapes, sizes and proportions between them; however, they do not indicate any connection with plastic representation of perceived objects. In the works of art educationists, perhaps because of the lack of methods for studying the relationship between vision and plastic activity, there are also only general remarks on this subject. This is one of the reasons for choosing this subject of studies. The second one resulted from my experience in working with children. I was looking for agents of development of plastic activities of children and, at the same time, of their general development. As a result of observation and analysis of plastic activity of children in younger school age and pilot studies carried out earlier, I formulated a hypothesis that the factor of development of artistic activity of children is the competent shaping of their visual perception.

I differentiate between the terms: *plastic activity* and *plastic creativity* of children. Plastic activity is plastic action of children conditioned by their psychological and physical development specific for their age. However, plastic creativity of children is the result of their experience and visual

¹ I wrote this experimental and theoretical considerations in the book: U. Szusćik: Kształtowanie percepcji wzrokowej jako stymulator działań plastycznych dziecka. UŚ Filia w Cieszynie. Cieszyn 1999. (Developing visual perception as a stimulator of plastic activities of children).

awareness of children in the field of learning and experiencing material and technical possibilities of various techniques, which is demonstrated by their plastic works that go beyond characteristics of works typical for a given age of children and accepted in the psychology of creativity.

I assumed that developing visual perception in the field of arts on specified visual qualities is a process, during which there is distinguishing, recognition and naming phenomena and objects found in the range of perception and their presentation in plastic works. These qualities are: colour, line and solid. I assumed that there is a relationship between the number and quality of visual stimuli, the quality of visual perception and value of plastic products of children. The following research hypothesis was formulated: Shaping visual perception with "visual qualities" causes the development of artistic creation of children in the early school age and contributes to forming plastic activities as independent and conscious activity.

The natural pedagogical experiment consisted in carrying out art education program aimed at developing visual perception of children on "visual qualities", i.e. colour, line and solid. Only perceptual ability shaped in this way stimulated plastic activities of children.

The programme of the experiment included 45 plastic exercises. It consisted of three parts. Each part comprised 15 exercises in each form (the first, second and third). Particular parts included five exercises for colours, lines and solids. These visual qualities constitute children's plastic "ABC". Exercise 5 was the control task for all the groups (i.e. experimental group and control group). I ran the classes in the experimental group myself, as an art teacher. Control exercises (no 5) in the control group were conducted by a teacher of this subject, who ran the remaining classes in accordance with the current programme of art education in the first forms of primary school. The level of difficulty of plastic exercises was growing.

Plastic tasks set for children are plastic problems, which a child solves individually through developing his visual perception on a given visual quality. The visual quality comprised in the perceptual visual model was a set of visual stimuli. Perceptual model (standard) was a record of the idea of classes and did not represent objects known to children earlier. Thus abstract, and at the same time open arrangements were created; this gave the children a possibility of creative perception and plastic interpretation of them.

There was a form of multi-code transmissions in the experiment. After J. Bruner, the following codes were distinguished:

- icon codes - experiments with arrangements of visual qualities not only in nature, but also supplying children with certain perceptual standards;
- symbolic codes - descriptive, verbal categories concerning differentiation in the scope of visual qualities;
- enactive codes - planned manipulations connected with painting, drawing and sculpture.

Instructions for classes were important elements that enabled children to perceive abstract perceptual models in children's categories of mental development, on the level of concrete operations. I wanted a perceived perceptual model to stimulate children to independent search of solutions in the field of problems of colour, line and solid and to set free all their possibilities, of which they were not aware.

When I was thinking how to translate multitude of perceived visual qualities, abstract in character, into values that were close, well-known and individually experienced by each child, I asked myself - what has got the qualities of being multitude, open and emotionally significant? - this is a family, for sure. Family, that is to say multitude. Each child has got his imaginary and emotional picture of a family. It is also open because of great variety of experiences of children. Therefore I used the word "family" to name the multitude of colours, lines and solids perceived by children. Children perceived in perceptual models, that is in compositions consisting of colours, lines and solids - for individual exercises - families of colours, then families of lines and families of solids. It turned out that this semantic key for translating abstract visual qualities into understanding and interpretation of plastic tasks by children was clear for them.

- In painting exercises the children painted on big sheets of paper, with flat bristly brushes no 20, with poster paints, using palettes for mixing colours.
- As for the painting technique, the children did not use white and black colours, but they tried to achieve various colours by mixing the colour with other chromatic colours in order to obtain the reds identical with those they perceived.
- In drawing exercises the children drew on big sheets of paper with brushes of various shapes and thickness.
- In sculpture exercises they were modelling in clay.

Plastic activities of children consisted in free activity and plastic interpretation of perceived "visual qualities" I prepared.

The first part of the experiment the children learned about the basic visual qualities and produced free plastic interpretation of them. These exercises were aimed at shaping and developing of conscious perception and plastic experience in the range of: colour (visual perception of chromatic qualities of various paleness of colours), line (visual perception of the quality of lines of various shapes, length, width, directions) and solid (visual perception of the quality of solids of various shapes, thickness, sizes).

In the first class these were:

- painting exercises:

ex. 1 - red colour family ²	ex. 2 - blue colour family ³
ex. 3 - yellow colour family	ex. 4 - green colour family

ex. 5. – control exercise on the subject: "Red and green balloons at a ball with yellow and blue balls"⁴

- drawing exercises:

ex. 1 - straight lines family	ex. 2 - curved lines family
ex. 3 - broken lines family	ex. 4 - compound lines family

ex. 5. – control exercise on the subject: "The world of the stick insects"

- sculpture exercises:

² One more explanation: in class I in painting exercise the children painted perceived "red colour family" - they perceived 13 reds, different in respect of paleness and saturation. I did not tell them whether they should paint all the reds they saw - anything they painted was OK. I did not tell them whether the reds should be circles, squares or any other shapes; the children could have also paint red people, when they heard the word "family", but it did not happen. This proves that task instructions were properly formulated.

Each child individually decided about the shape, size and number of reds in his works on the basis of the perceived colours.

In the perceived model there was not any white background. I did not draw their attention to white backgrounds in their works on purpose, hoping that along with the development of their plastic perception and experience they will cover all the sheet of paper with the perceived colours, without any white patches. My assumption proved correct, as in the second exercise, when the children were painting "the family of the blue colour", most of them covered the whole surface of paper with blue colours and not leaving any white background.

³ The children perceived 13 blues, 13 yellows and 13 greens different in respect of paleness and saturation and painted them.

⁴ Exercise 5 was control exercise checking the so far acquired visual and artistic experiences of the children. They painted their works without perceptual model. The same exercise was also conducted in the control group, in which the children were not presented any perceptual models. The children from the experimental group painted interesting works, abstract in character, while children from the control group painted works typical for school children of that age: there is the base line, the sky line, personification of balloons (painted eyes, lips, nose, eye-lashes), decorations of the ball room, poor colouring of the works. The children from the control group treated the topic of the classes in a descriptive way.

- ex. 1 - cuboid solids family
- ex. 2 - rounded solids family
- ex. 3 - cylindrical solids family
- ex. 4 - pyramidal solids family
- ex. 5. – control exercise on the subject: “A castle”

In the second part of the experiment the plastic problem of **contrast** in the above learned visual qualities appeared:

- for colour - visual perception of arrangements composed of contrasting chromatic sets;
- for line - visual perception of the quality of contrasting lines;
- for solid - visual perception of arrangements of contrasting solids

In the second class the perceived "families" from class I appeared in contrasted compositions [arrangements]:

- painting exercises:
 - ex. 1 - families of red and green colours⁵
 - ex. 2 - families of blue and yellow colours
 - ex. 3 - families of white and black colours
 - ex. 4 - families of warm and cold colours
 - ex. 5 - control exercise on the subject: “The battle of colours in Ungo world”⁶
- drawing exercises:
 - ex. 1 - families of long and short lines
 - ex. 2 - families of thick and thin lines
 - ex. 3 - families of curved and broken lines
 - ex. 4 - families of straight and compound lines
 - ex. 5 - control exercise on the subject: “The line in space”
- sculpture exercises:
 - ex. 1 - families of large and small solids
 - ex. 2 - families of rounded and cuboid solids
 - ex. 3 - families of conical and cylindrical solids
 - ex. 4 - families of concave and convex solids
 - ex. 5 - control exercise on the subject: “The house of a robot and the house of a magician”

During the third part of the experiment the children perceived the familiar visual qualities in relative relations.

- for colour - visual perception of chromatic qualities in a variety of colour surroundings;
- for line - visual perception of lines in various surrounding of lines;
- for solids - visual perception of solids in a variety of arrangements.

In class III perceived families of visual qualities appeared in relative compositions:

- painting exercises
 - ex. 1 - red colour surrounded by red, green, blue and yellow colours⁷
 - ex. 2 - green colour surrounded by red, green, blue and yellow colours
 - ex. 3 - grey colour surrounded by white, grey and black colours
 - ex. 4 - arrangement of ready-made elements for relativism of colours - with possibility to use colour backgrounds obtaining various reds in spite of using the same red element; the same with green and grey elements.
 - ex. 5 - control exercise on the subject: “The still life: Blue bottles surrounded by green colours”
- drawing exercises:
 - ex. 1 - relativism of the shape of lines
 - ex. 2 - relativism of the thickness of lines
 - ex. 3 - relativism of the size of lines
 - ex. 4 - linear illusions - perceiving lines exposed to linear illusions

⁵ In form II, while painting, most of the children tried to compose their painting works to represent the arrangement of perceptual model perceived in the class.

⁶ The world „ungo” is a neologism, so that the children do not associate it with any schematic drawings of people or places known to them, like Smurfs, Donald Duck etc., but use their imagination.

⁷ Elements of red were hung at various heights and differentiated in respect of shape, so that the rule of fixed perception of colours and shape could not work.

- ex. 5 - control exercise on the subject: "The battle of waves"
- sculpture exercises:
 - ex. 1 - relativism of the shape of solids depending on patterns on the surface and kinds of surface
 - ex. 2 - relativism of the shape of solids depending on the shape of surrounding solids
 - ex. 3 - relativism of the size of solids depending on the size of surrounding ones
 - ex. 4 - relativism of the shape and size of a group of solids in arrangements of similar and contrasting shapes
 - ex. 5 - control exercise on the subject: "The suspended town"⁸

In the experimental group after every completed set of exercises (that is, after each of the three parts of the experiment) for a given "visual quality", the children were presented examples of works of art in the form of slides. Their attention was drawn to the ways artists solved plastic problems, which they perceived in perceptual standards and represented artistically. This offered an opportunity to confront their own visual-plastic experiences with the "perception" and experience of artists.

Conclusions:

The experiment proved that the children, using their perceptual experiences in plastic activities created deliberate, interesting and plastically mature compositions. It is worth mentioning that plastic works of children from experimental groups are not typical of children in this period of development. They reveal high sensitivity to visual qualities and plastic values corresponding to them.

Observing great emotional and mental involvement of children during classes, I came to the conclusion that this kind of stimulation of creative activities may have therapeutic influence on their ability to concentrate, as well as on their mental and manual abilities.

The results achieved by experimental groups allow one to believe that the triad: perception - vision - visual perception is a gradual learning process. Shaping visual perception as a stimulator of plastic activities, which was the subject matter of the above described pedagogical natural experiment is a method of developing the ability of analytic perception of visual qualities.

The result of plastic activities of children in the experimental group stimulated in this way was creativity.

The experiment allows drawing the conclusion that there are unused creative abilities in children, thus indirectly it encourages stimulating their plastic activities during didactic classes.

The study that was carried out could make a good starting point for creating a new pedagogical concept of stimulating plastic activities of children. This stimulation "opens up" children a way to experimenting in the field of visual and plastic problems, ensuring them possibilities of developing their own structures of particular visual qualities. It can be supposed that it will still remain a structure functioning as a model comprising the three codes: enactive, icon and symbolic ones. Children will enrich it along with new visual experiences. Summing up, it can be said that "seeing" visual qualities developed in children will be transferred to objects known to them, which they will get to know anew. This will develop their aesthetic perception at the same time.

As visual perception determines the character and quality of plastic activities of children in such a significant way, it seems worth trying to revise the system of developing their plastic activities that has been used so far in art education.

⁸ The success of children from experimental group in sculpture exercises consisted in modelling full solids by adding or taking off the material. The children worked out correct method of modelling of the solid by themselves during the experiment.

It should be based on psychological knowledge concerning the relationship between visual perception of visual models, forming a specific alphabet of form and the elements of artistic creation.

Analysis of the results of the study was carried out with the technique of analysing the products, that is plastic works of children produced during the experiment - quantitative and qualitative analysis of the works. These products are documents intentionally produced by the children.