The Visual Thinking in Education by Art[1]

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The term "education through art" refers to a multi-faceted impact of art on the individual involved in the process of co-creation. Education by art includes activities in which active participation in the process of creation, which is a component of artistic situation and is arranged by the artist, leads to the subjective - cognitive and emotional - development of the individual; the opportunity for development consists in the educational dimension of art.

The term *"education by art"* is the alternative to another one - *"art therapy"* that is used for educationally oriented art therapy.

The need for a new term results from the fact that artistic activities, whose example is the creative workshop, do not fall within the scope of the previously operating concepts. The term therapy promises therapeutic intervention that is treatment, elimination or mitigation of problems with help of art, which is not consistent with the spirit and objectives of the described actions. Although the therapeutic dimension is inscribed in the arts, since it is always present in artistic activities, one cannot accept the equivalence of art and therapy suggested within art therapy, or therapy, because in them it is just a side effect, it does not constitute the main purpose of action.

The use of the term "education through art" solves the existing inconsistencies in terminology and misunderstanding it may be causing[2].

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[2] The cause of confusion lies in the two sources that lay the ground for art therapy: medicine and the arts. Established in the UK as a medical practice, hence the term; however, the creator of this concept was an artist (Adrian Hill), moreover, until today people involved in art therapy in many countries are artists. Poland has

The essence of artistic influences on education by art is fully represented by a creative workshop. It is treated as an contemporary art form, which places it in the area of aesthetics. This treatment results from the assumptions of the original concept of the workshop developed since the 1980s by Eugeniusz Józefowski (2009, 2012, 2014) – the author of this study. The concept of creative workshop requires finding oneself in the middle of the arranged artistic situation and partaking in the activities. The participant is both consumer and participant in the creation of the work of art, constructs it, particularizes it during the activity, fills with content.

The creative workshop meets the requirements made on an activities included to education by art. It is the simultaneous action of a few individuals engaged in artistic creation, focused on intensification of subjective experience. It is an artistic situation arranged by the artist, a process organizing an aesthetic field, understood as a functional connection between all participants of the aesthetic events (creator, viewer, object) generating the aesthetic experiences (Berleant, 2007). The structure of workshop entering the participants private sphere, causes their experiences and reactions.

Hence, the essence of activities classified as education by art is the concentration on the participation in the experience itself as the most important quality in the space of art.

The role of visual thinking in education by art

Visual thinking, which is characteristic of visual arts, seems to be of particular importance in the case of references to the past due to the mental images generated in the mind that are embedded in memory. This occurs in the original creative workshop discussed here, which, having the goal of developing subjectivity, refers to past experiences, on the basis of which the representation of reality is constructed.

For this reason, in the latter considerations the visual thinking was discussion.

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witnessed a great flexibility in the use of the term, too often it is used to refer to educational activities, developing artistic or creative competences that are not therapeutically oriented. On the other hand, in environments referring to the medical roots of art therapy the problem is the narrow understanding of art, often resulting from insufficient knowledge, especially in the field of contemporary art and the lack of understanding of art. This is due in no small part to psychiatrists and psychologists who have reduce the role of artistic activity role to painting and drawing, in order to reach a diagnosis.

Human learns about the surrounding reality through the stimuli received through the senses. Information contained therein forms the basis for the representation of the world created in the mind, constituting its subjective reflection. Literature lists the three most frequently occurring forms of encoding information based on different processes: visual (figural) which is a product of the imagination, symbolic, created on the basis of association, and semantic, accompanied by processes of thinking (Maruszewski, 2002; Młodkowski, 1998). Given the subject of undertaken research, further discussion focuses on visual encoding of information and image as their medium.

In the line of reasoning adopted here, image is a visual representation in the mind of the elements and phenomena occurring in reality, and the links between them. It can be generated in contact with the object, which it represents, or in its absence. In the first case it is the result of sensory cognition, formed on the basis of observations or sensory integration from a single object. Sensory cognition is the most primary; it always takes the form of images that can be corrected (modified and supplemented) based on the knowledge and emotional assessments constituting the previous experience associated with it (Maruszewski, 2002; Młodkowski, 1998).

In case of physical unavailability of the object, i.e. remaining beyond the reach of the senses the induced image associated with the stimulus is generated in the imagination in the form of an idea[3]. The basis for its creation is the knowledge stored in memory traces, which are the sensory image - a reflection of the properties of the past phenomenon.

All of the abovementioned properties of the image have been included in the definition formulated by Jean-Jacques Wunenburger:

> "Image is called a concrete presence and sensory representation (like a reproduction or a copy) of a given object (model), material (chair) or ideal (abstract number), present or absent from a perceptual point of view, which remains in such a relationship with its reference that it can be considered representative, and therefore allows to recognize, know, or think" (Wunenburger, 2011:9).

Images, in the meaning adopted here, are thus representations of reality. Depending on the type of image taking part in their creation - specific or general – the representation refers to reality, recalled or

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[3] Images can also be generated as a result of hallucinations or delusions (Młodkowski, 1998), but these psychic phenomena lie outside the sphere of the issues considered here.

the created in the imagination. Reality recalled reflects the elements (objects, events, relationships) which have counterparts in the world and time. They consist of images which are representations of reality, specific replicas of real objects stored in memory. They create concrete images mapping a number of details, which recalled from memory are subject to active perception, providing them with information[4] - they are experienced as if they were objectively given to the subject (Arnheim, 2013).

The created reality is based on the so-called general images, which are the result of the selective operation of the mind through: (1) extracting images from their context, (2) recalling only fragments of images, (3) depriving the image of detail (Arnheim, 2013).

Operation of mind leading to the formation of a general image comprises the process of thinking with images. Its essence is to release the content from the physical nature of the object, its objective characteristics. These physical characteristics in the image are only general suggestions, which allows for their organization independent of the objective, original characteristics of the object. The generated images are no longer representations of the physical world, but ideas.

- Image provides broader information compared with verbal representations contained in strict conceptual categories, as part of the visual elements does not have conceptual references. This enables their flexible transformations based on any arbitrary connection of elements, which expands the range of generated information, also that of creative character.
- Hence, image becomes the basis for creating reality, updating it in ever new contexts, which could potentially contribute to the identification of new content or regularities:
- "*visual cognition, far from being marginal, random operation of thoughts is even capable of revealing to us some principle or hidden motor of the activity of the mind*" (Wunenburger, 2011:162).

The overall conclusion is that the essence of visual thinking boils down to generating mental images, their types have different roles – concrete images represent specific material for thought, their transformation leads to generating general images, giving rise to the creation of new mental images. The property of the mind to form mental images expresses the metaphorical statement Stanisław Vincenz: "*Images are the roots of thought*."

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[4] They correspond to the "eidetic images" that make up the photographic (eidetic) memory occurring mainly in children (Arnheim 2013)

Visual thinking is also based on the mechanisms of the imagination, especially its tendency to transform the content of representations appearing in it. The nature of change is dependent on the initiated imaginative operations (reintegration, multiplication, perseveration, schematization, metamorphosis, penetration)[5]. This creates new images, which have no reference in the memory, therefore also in the experiences of the subject, thereby generating new meanings (Młodkowski, 1998).

- Visual thinking is ontogenetically earlier than conceptual thinking, which occurs at a higher level of intellectual development[6], hence the relationship between the image and thinking is sometimes perceived in terms of atavism, pushing the image to the margins of knowledge. The argument of the earlier occurrence in ontogeny, however, does not provide sufficient justification for the inferiority of image-based thinking, because the fact of the dominance of formal operations in information processing at higher stages of development does not prove its inferiority, but reveals a tendency to abandon this form. This trend does not apply to all persons, to some, specifically artists involved in the visual arts, visual thinking occurs in parallel with the conceptual, regardless of the stage of development. This assertion is reflected in the conclusions formulated by Francis Galton:

- "*even if intensively thinking people once had the ability to see such images* [mental - EJ, JF], *it is likely that it disappeared as a result of non-use*" (Arnheim, 2013:136).

It seems that the cause signaled distrust for the treatment of image on a par with concept stems from the awareness of the difficulties in determining strict interpretative framework - algorithms which allow for the unambiguous assessment of the symbolism contained in the image. This approach to the interpretation of the image is typical of iconography, in which conventional interpretation patterns were developed for the western figural representations used in the art of the period from the sixteenth to the eighteenth century (Rose, 2010), however, it does not apply either in contemporary art,

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[5] Only some of the operation on imagination are given here, their holistic description can be found in the book by J. Młodkowski, *Aktywność wizualna człowieka* [*Visual activity of humans*], PWN, Warszawa-Łódź 1998, pp. 255-256.
[6] Piaget's concept of thinking in images is identified with the concrete-imaginative thinking typical of the preoperative period, while the verbal dominance of formal operations is attributed to the formal operations developed at the higher stages of development (Piaget 1981)

in which symbolism is created by artists according to their subjective feelings and concept of the "work," nor in the interpretation of the representations. The images generated in the imagination do not yield to any imposed models, they are the result of subjective experiences of the subject, his or her motivation and preferences in terms of thinking with images, understood as a specific, individual style of visual thinking.

As a result of the reflections on visual thinking the question arises: *What is the role of visual thinking in the activities and operations of the subject aimed at the description of reality (internal and external), that is creating them narrative knowledge about the world and about themselves?*

This question directs attention toward statements, therefore aiming to fully clarify the issues of the role of visual thinking a bit more attention is paid to forms of expression.

Our statements can take two forms - verbal and non-verbal. There exist views according to which thinking is based only on words, which reduces it to verbal language - among others, Martin Heidegger wrote: "*Language is the house of Being, in its home man dwells*." Developing the cited thought, we can say that some languages, due to their structures, are more amenable to thinking or philosophizing than others. Analyzing the development of philosophy, and especially taking into account that the peak period of Greek philosophy, which is the basis of the Western world, coincides with the peak period of the philosophy of the East, one can venture to say that the emergence of the cornerstones of philosophy was conditioned by the stage of language development, i.e. it occurred in similar cultural conditions. In the fourth, fifth and sixth centuries BC lived Socrates, Plato, Pythagoras, Aristotle, and many others. Exactly on the same period of time falls the largest rate of growth of Chinese and Indian philosophy. At the time lived some of the greatest thinkers, creators of great theories, including Shakyamuni Buddha, Lao Tzu, and Confucius.

The development of language in the indicated cultural areas was accompanied by the development of art, which is associated with non-verbal statements. Confidence in verbal language was not identical between the West and the East, which in probably the most extreme and perverse form was expressed by Lao Tzu: "*He who knows does not speak. He who speaks does not know*" (Lao Tzu, 2010:129). This is clear discreditation of verbal expression as evidenced by another statement proving the ascribing of primacy to images: "*Who understands the large images, attracts all beings. They gather around him and do not suffer harm because in him they find peace, security and happiness*" (Lao Tzu, 2010:85).

Nonverbal statements based on the image are much older than the verbal ones, because they are "pre-linguistic". They dominate in the

early stages of ontogenetic development, later they are replaced by verbal statements. This does not mean their complete disappearance in culture; their use is restricted to the area of visual arts, in which they are the main form of communication. Non-verbal statements take varied forms in them: images created from the human body (pantomime, ballet, dance, and performance art), images created with pigments imposed on different grounds (painting, tattoo, and graffiti), and forms shaped from a variety of materials (sculpture, ceramics, and installation), and images created by the traces of tools (drawing, graphics), registered in the transfer of light (photo). Non-verbal statements also include simultaneous or interpenetrating combinations of word, image, body language, sound, color, photography, that is theater, film, performance, multimedia presentation, video, show, and spectacle.

The essence of non-verbal statements boils down to two aspects: the presentation of ideas, translating them into visual models and solving problems (Arnheim, 2013). Content forming thoughts are different because of the use of references to reality, thus the images expressing contain two types of representations: mimetic, mimicking elements of reality - objects and events and non-mimetic, containing abstract shapes. Visual representations perform three types of functions: sign, icon, and symbol. Signs represent specific content without reflecting it visually, icons are representations of objects or phenomena, while the symbols represent meanings not directly, their visual character does not mimic meanings, but includes their suggestion, often becoming a carrier of a metaphor.

The metaphor is of great importance in the statements, particularly visual, due to their suitability for transfer of meanings, which allows for immediate understanding of their content in a variety of symbolic systems. It is defined as the ability to perceive similarities between various phenomena, objects and meanings, indicating their relationship with visual perception.

These features of visual representations are involved in the creation of visual expression, the same statement can be seen in terms of a visual model of thoughts, mapping specific objects and situations existing in nature or suggesting them in abstract patterns of shape and color.

In turn, problem solving in visual expression takes place in the course of creating the composition - intermediate stages in the development of its forms are an expression of accompanying creative thought process, in which each new "version" of the composition includes cognitive suggestions, enabling one to see the various aspects of the problem under consideration, which increases the subject's knowledge about it.

Another aspect of visual thinking involves reading of visual statements. It occurs differently than in the case of a philosophical or

literary text. The images creating the visual statement are assigned subjective meanings, therefore, to understand its meaning a large role is played by associations and intuition. In the case of images which make use of literary narrative a discursive model of reading images is often used. Convention of their description is suitable for literary confabulations, but even this type of presentation requires the completion of read meanings with comments of their authors revealing the content attributed intentionally to the utilized visual symbols.

The multi-dimensional visual composition (defined by technique, means of expression and the intentional message) hides a cipher - a personal code, which is often different than the meaning attached by the cultural context. It is worth discovering, as learning it allows insight into oneself, which helps to deepen the understanding of biographical events, especially their unconscious determinants.

Reading the personal cipher can be done in two ways. The first results from the spatial relationships between the forms contained in the image that are representatives of the internal contents, symbolic, and sometimes take the form of specific narrative similar to the literature. The form and color, which are the primary means of visual expression, become the language of the cipher, and the subject of the viewers' cognitive explorations. From the forms, or as some define them, the compositional order stems information which can be read. The second way of reading the code is by identifying intentional meaning of the message contained in the image and its confrontation with other viewers, as there are discrepancies between the contents and meanings communicated by the author and readable by the public.

Summary

Summarizing the reflection on visual thinking the following conclusion is reached: We feed on and live with images. Our experiences are stored in us, in our memory in the form of images. They affect our lives very much, of which we are most often not aware. Their discovery, extraction from the images of memories, experiences that have taken place in the past is in part a conscious message on a specific topic. The information contained in them is a representation of the internal content, forming self-knowledge.

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