

CONCEPTUALIZATION, COGNITIVE PROCESS BETWEEN IMAGE AND WORD

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Abstract: *The study explores the process of constituting and organizing the system of concepts. After a comparative analysis of image and concept, conceptualization is reconsidered through raising for discussion the relations of concept with image in general and with self-image mirrored in body schema in particular. Taking into consideration the notion of mental space, there is developed an articulated perspective on conceptualization which has the images of mental space at one pole and the categories of language and operations of thinking at the other pole. There are explored the explicative possibilities of the notion of Tversky's diagrammatic space as an element which is necessary to understand the genesis of graphic behaviour and to define a new construct, graphic intelligence.*

Key words: *conceptualization, mental images, body schema, diagrammatic space, graphic intelligence.*

1. Considerations on the Concept-Image Relation

The basic unit of thinking is the concept and its fundamental activity is conceptualization which represents “the process of organizing concepts” [1]. The remarkable power of human intelligence results from the fact that essentially it is a mechanism of getting into relations: the content of concepts with reality, some concepts with others, and all of them with the formal exigencies of logics. Therefore, we can state that the articulation of the basic units of thinking subjects to a triple system of constraints: of language (observing the syntactic-morphologic rules of generating valid enunciations), of logics (observing the rules of producing valid enunciations) and of reality (observing congruency with reality and thus verifiability of abstract enunciations in the real plan).

Some of the fundamental features of concepts must be mentioned here as basic postulates of our approach, in order to subsequently develop the idea of visual-spatial conceptualization. Thus: concepts simultaneously involve informational level and operational level, namely memory and thinking. Concepts have a strong operational nature, involving both correlative operations (analysis-synthesis, abstractedness-generalization), comparison and logical concretization. Concepts are the outcome of the differentiation and integration process [2]. Concepts are correlative, they exist only ones through others and define themselves only ones through referring to the others. Concepts tend towards a systemic-hierarchical organization (pyramid of concepts), the relations between them being of ordination, subordination and superordination. Concepts have a dynamic and

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evolutionistic nature. The evolutionistic nature of concepts results from the fact that they are permanently open units of thinking. Concepts have a sphere and a content, their defining assuming the specification of proximal gender and specific difference, namely the process of determining the sphere and content. Mental operations are initially external operations, which are internalized by exercising and settled in mental schemata [12].

In the tradition of classic psychology, the concept or notion constitutes the element that links thinking with language (Rubinstein), the beneficiary of the conceptualization process – the basic activity of thinking – being the language. Moreover, the most eloquent expression of the degree concerning the development of somebody's verbal intelligence is firstly given by his or her capacity of defining concepts, the tests of definitions included in the classic batteries of intelligence being the most saturated in *g* factor.

The present study proposes to approach conceptualization from another angle, emphasizing less its relations with word and language and more with mental images, “a ubiquitous presence of our psychic life” [11]. From our point of view concepts are at one of the poles of thinking, at the other pole being mental images. In their quality of linguistic representations, concepts are the smallest meaning units of thinking that can be aggregated by using adequate linking elements, in super-ordination structures (clauses, sentences, discourses) which convey knowledge and have value of truth. Oppositely, mental images can be indefinitely decomposed without reaching a last meaning unit, they do not have linking elements between parts and do not have value of truth, consequently they do not convey knowledge [5]. They belong to an intelligence that is preponderantly implicit, concrete and basic, in contrast

with concepts which belong to an intelligence that is preponderantly explicit, they are abstract and superior as instrumental value. The image-concept relation is equivalent to the fundamental-superior relation in philosophy. If, through conceptualization, thinking summarizes itself and shapes itself in the language frameworks in order to be useful for settling and communicating its results, and to efficiently act upon reality as well, the function of mental images offers concrete support to psychic life and gives inner coherence to the subjective world.

In accordance with Freud [7], images are products of an unconscious thinking, therefore they bear the sign of personal subjectivity but they can also be products of human species' functioning as an entirety like archetypes [9]. In their quality of products of unconscious mind, they are always empowered with a quantity of affect, their role being not that of communicating but of obscuring the significances which the unconscious mind disguises under the form of the images appeared in the nocturnal or diurnal dreaming, appealing to the mechanisms of unconscious symbolism. Moreover, images are present in the infrahuman world, too, as an expression of unconscious thinking or implicit thinking.

In terms of cognitive psychology, mental representations are the product of descending processing (appeared secondarily as a result of activating the database), being cognitively penetrable. In psychoanalytical terms they are affectively penetrable because in image the affective and the cognitive coexist, the image offering, through the process of symbolizing, a satisfaction which is substitutive for the dissatisfied desires in the real plan. That is why mental images have simultaneously a role of knowledge but also of unconscious purgation of undesirable impulses and thus of

preserving the unity and coherence of the person with itself. The mental image is little differentiated, syncretistic and archaic as the cognitive and the affective are amalgamated in it. The way in which dream operates is centred preponderantly on image because – being independent from the constraints of the rules generating logical enunciations and also the constraints of reality (among which the most severe is the one of verifiability) – it has an unlimited combinatorial freedom. Images reading is analogical, holistic and closer to intuition rather than logical thinking. Through its syncretism, the image is closer to creativity than to logical thinking. This is one of the reasons for which Jung [9] considers the unconscious, in its quality of images keeper, an “incomparable guide” in terms of creativity.

The semantic contents do not exclude image and based on the above affirmation we mention the fact that a little child comes to understand a significant situation even before having the concepts or representations that are adequate to the respective situation. This means that the elementary forms of intelligence get ahead of the symbolical function [12].

2. Visual-Spatial Conceptualization

“The most characteristic element of man’s intelligent behaviour is his aptitude of developing and integrating concepts”, Delay and Pichot state [4]. For these authors there is no clear distinction between the genesis of intelligence and the one of organizing concepts in a coherent system through the activity of conceptualization. If Galton proposed a model of notions forming which is preponderantly grounded on images, the notions being a kind of collective photography which would result from images superposition, Vygotsky emphasized the integrating verbal nature of concepts, their organization on the vertical

being made in accordance with levels of generality, which is a fact that is also found in the theory of semantic networks of Collins & Quillian [ap. 11]. Vygotsky overvalued the role of word in this process because he considered it the key element in notions forming.

In his turn, Galperin moved the weight centre of concepts forming from word to action. For him, action, image and orientation in task are the elements that are capable of explaining the process of conceptualization Collins & Quillian led the process of notions forming at infra-verbal level because each time thinking remakes the synthesis of the defining characteristics of the concept, displayed at various levels, in accordance with their degree of generality. Miclea appreciates that the model of semantic networks is available only for the knowledge belonging to well structured fields which are neutral from the affective point of view. The affectively coloured knowledge does not organize in accordance with purely semantic relations, but they are structured all around some “emotional knots”, being closer to image and affectivity rather than concept.

To sum up, we can make the following synthetic considerations: conceptualization is not exclusively imagistic-figural or verbal because image and word find, in variable proportions, in the structure of any concept. The empirical concepts are closer to the holistic and undifferentiated unit of image, the scientific ones progressively decant from the intuitive elements and from those of image, becoming “purer and purer”, as they are more abstract.

In the absence of verbal language (at the ages of small childhood or at the deaf-mute) conceptualization remains preponderantly visual-kinesthetic, abstracting being strongly quartered in figural and image. The relation of complementary between image and word

is equivalent to the relation implicit intelligence – explicit intelligence.

A theory of intelligence, conceived as an activity of forming and organizing concepts, will have to start from the first image which is the one of the own body through the body schema [14]. Due to the fact that image gets ahead of word and understanding ahead of its linguistic expression, the process of the Self incarnation and building the body schema, the first co-ordinations in action on the horizontal (between pair-organs such as eyes, ears or hands), or on the vertical (between perceptive organs and effectory-motor in integrate actions) are at the basis of intelligence building [12].

The first cognitive crystallizations due to conceptualization are rather libidinally invested images [7] or “emotional-affective knots”. Thus the emotional intelligence (understood in psycho-analytical sense as a capacity of the Self to manage the unconscious conflicts and to bring the principle of pleasure into accord with the principle of reality) gets ahead of the cognitive-rational one. At the beginning of the process of concepts building, therefore of intelligence, there was not the action (as the representatives of the active school claim), but the own body which, being involved in carrying out activities, was the starting point of the first image (the self-image through the body schema).

The man’s first language does not refer to word, it is the emotional and mime-gesture language which, as Ribot showed, is the last to disappear. The child’s first “reading book” is his or her mother’s face because this is the place where the first affective meanings emerge. Prosopagnosia (the inability to recognize familiar faces) is an important indicator concerning the severity of some types of neurological disorders. The image-concept dichotomy does not have to be generalized and

similarly neither does the terminological couple explicit intelligence – implicit intelligence. In each word there is a variable border, whose limits are hard to mark, between denotation and connotation that produces effects of meaning reverberation which the poet or the man of letters uses deliberately. Through metaphor, metonymy or synecdoche he produces artistic images. In its turn, the mental image becomes explicit and gains the full attributes of the concept when it is empowered with the schemata, operations and way of producing of the latter. Geometrical representations stand for the ideal case in which image fully expresses the attributes of concept. This occurs because they have explicitly integrated in their own structure elements that were initially implicit (symmetry, proportion, geometric place, etc.) [6], [13].

3. Primordially of Space in the Genesis of Cognitive Structure. Mental Space

As genesis, image is obviously closer to the spatial framework than the temporal one, while concept, which is so tightly bound to the discourse structure of language, is carried out rather within a temporal framework. As Predescu & Ionescu showed [8], almost all psychic diseases are preponderantly diseases of time and less of space, because the latter is perceived as being concrete, perceptible, controllable and reversible while time is immaterial, uncontrollable, irreversible and anxiety generator.

Because images are anterior to concepts and intelligence for space precedes the one relating to temporality, the first of images being that of the own body [14], the external space is more quickly interiorized and turned into mental space. We summarize below some of Tversky’s conclusions about mental space, which are very useful with regard to the purpose of the present study. Thus, although it has a

multitude of similarities with linguistic knowledge, space knowledge does not reduce itself to that (“speaking in evolutionistic terms, space knowledge precedes language knowledge” [15]). Both of them are, in variable proportions, explicit and implicit, having a lot of cerebral locations. Both are the result of differentiation and integration that produce the co-ordination of the characteristic elements in a hierarchical structure. The mental space does not reduce itself only to images because they refer rather to the memory of objects, while the spatial memory aims at the relations between objects. Therefore, it supposes a structuring through integration. The mental language and space are the result of some various forms of conceptualization: “the conception of space is often schematic, simplified and categorical [15].

Space organization has in view three systems of reference, successively integrated, which are the dietic one (centred on the own person), the allocentric one (centred on the object) and the one which is centred on the environment. The space memory prioritizes the memory of places that has characteristics which no other form of memory shares, its organizing being fundamentally guided by the gravitational vertical. A fundamental role in the conceptualization of mental space is kept by the space around the own body which is a tri-dimensional one. The most important axis, which has a correspondent in the gravitational vertical, is the head-legs axis, followed by the head-back axis (in which the front part is super-represented) and the left-right axis, which super-dimension the left part of the perceptive field.

4. Diagrammatic Space and Graphic Intelligence

A category taken into a special consideration by Tversky is diagrammatic

space, namely the two-dimensional space of the sheet of paper. This is a space of an overwhelming importance for the entire period of time which marked man’s jump, through writing, from prehistory to history. The diagrammatic space can equally refer to the plates of burnt clay belonging to the cuneiform writing or to the papyrus leaves belonging to the hieroglyphic writing. Once the alphabet was invented by Greeks during the Socratic period, this space became a two-dimensional one. This fact have been generalized on a mass scale after the appearance of the printing art and Gutenberg era [10].

The space of the sheet of paper is vectored just like the space around the body, but its essential component for the western culture is the horizontality and secondarily its verticality. The perceptive pointing to a sheet of paper or a photography lays stress upon the importance of the upper left corner and exploration from left to right. To control this special type of space means whole years of exercising, the fundamental elements for its taking into possession being infantile graphicness (drawing), followed by the most refined and intellectualized human motor behaviour which is writing. Moreover, as graphology approaches of writing or drawing analysis have shown, this space has its own symbolism: the left side of the sheet represents the past, the right one the future, the upper side represents the conscious mind, the lower side the unconscious mind. The diagonal line left-low – right-up symbolizes the rising and development, while the reverse orientation signifies the decay, decline etc. The full development of graphic behaviour, and especially of writing, means years of training under the control of a qualified person, the stake of this skill being inestimable, because it is its development on which depends the access to the huge fund of knowledge which

constitutes the patrimony of the humanity's written culture. The importance of the diagrammatic space tends to be overtaken only by the computer display which is more capable to suggest the third dimension and the movement. The real window towards the virtual space, cyber-space, moves the humanity's evolution on the coordinates of another epoch in which only reading-writing cannot constitute sufficient adaptive elements any longer.

The conclusion of our study is convergent with the one of Tversky's: "the spatial knowledge is rather seen by many authors as representing a basis for the linguistic acquisition than vice versa" [15]. The external space is at the origin of the mental space, the place where thinking becomes the "eye of mind", making possible the vision of ideas and launching the real actions or the resolute-creative process. Due to the fact that in phylogenetic and ontogenetic order, it is constituted before image and word, its starting point being the gravitational vertical and its inner correspondent being the body schema, the mental space can be considered the mysterious element from before action, image and word. It offers the expressing framework for building relations between these structures, getting itself structured in the same time with all the others.

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