

From Space Representation Towards the Space of Representation: Ecopsychological Approach to the Educational Environment Researches

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Abstract—The article analyzes the abilities of the ecopsychological approach in modern psychology to identify a number of the educational environment organization features related to the of the educational system effectiveness that define students' satisfaction with the educational process. The authors highlight the main theoretical constructs used in the modern educational environment ecopsychology: psychological (mental) representation and psychological space. The article presents variants of empirical researches dedicated both to the psychological representation of the university spatial environment and to the system analysis of the educational environment psychological representation's spatial properties.

Keywords—*psychological (mental) representation; psychological space; educational environment; ecopsychological approach; spatial aspects of representation; valid methodological tools*

I. INTRODUCTION

In modern psychology, focused on the search for principles of effective educational environment organization, suited to subject's needs, there's a theoretical-methodological space aimed at identifying certain aspects of the educational environment and creating system-structural models allowing to take into account the influence of educational practices organization on subjects' psychological well-being.

II. ECOPSYCHOLOGICAL APPROACH TO EDUCATIONAL ENVIRONMENT RESEARCHES

Ecopsychological approach is one of the distinct methodological approaches providing a format to interpret the representation of the university educational environment. [1] [2] [3] In the mid-1990s, in the context of this approach Russian psychologists made an attempt to include in the sphere of psychological analysis not only the social environment, but also, for example, the physical environment, which practically never served as the subject of system analysis in Russian psychological science. As an example of this approach operationalization, we can cite the

article by G.A. Kovalyov "A Child's Mental Development and Environment", where the author implements the concept of a "socio-ecological system", and considers such "loci" of the subject's life activity as family environment, educational environment, etc. as independent socio-ecological systems, proposing certain analysis "units" for analyzing them. The first attempts at the approach empirical validation were associated with studies dedicated to analyzing students' understanding of the school environment space [4]. The studying of places in school preferred and rejected by schoolchildren allowed to identify the system of characteristics pupils endowed these or other places with. This system of characteristics proved related to the direction of these places emotional evaluation. It was found that apart from the characteristics of the places, gender and age of the educational process subjects also influenced the degree of their preference, rejection. To systematize the ideas about the requirements the space should meet from the students' point of view, the authors analyzed a wide range of interdisciplinary studies, at the time, performed mostly by foreign psychologists and systematized in the context of searching for psychological effects [5]. Such a view of research was not typical for psychological and pedagogical studies in Russia in the late 1990s. The conclusion that the spatial organization of educational environment, first of all, should take into account the subject's needs for privacy, control over the environment, autonomy, etc., seemed rather unconventional. Accounting for these needs assumed the presence in interior solutions for school buildings a range of spaces that allow a student to move freely, change activities, use different school spatial "niches" to have a chance for seclusion, etc. As for the current situation in analyzing psychological foundations of the educational environment organization, both in schools and universities, it demonstrates the necessity to take into account the subjects needs for spatial environment organization. The study dedicated to the comparative analysis of national policies in the research universities campuses development, emphasizes that the impossibility to take the students needs into account, and commitment to the outdated requirements by supervisory authorities controlling the architectural and interior solutions

for universities, leads to the absence of students in uncomfortable, uncomfortable rooms, and reduced efficiency of educational spaces [6].

The information obtained at the stage of studying schoolchildren's perceptions of school environment became the basis for further researches in the field of the characteristics' operationalization for the spatial environment accommodating the subject's activities. Psychological (mental) representation has become the key methodological construct that we used as a formative one.

III. PSYCHOLOGICAL (MENTAL) REPRESENTATION

The concept of psychological (mental) representation is a classical concept in psychology, it's interpreted primarily in cognitive psychology and is defined as "representativeness", "impersonation", "reflection of one in another or to another," that is, it is about internal structures being formed throughout a person's lives and representing his view of the world, society and himself. In the analysis cognitive paradigm, attention is focused on the epistemological component of the image generated, and the domain of discourse includes special aspects of surrounding reality sensory reflection by subject. Along with the epistemological paradigm, there is also an ontological perspective of the psychological representation analysis, focusing on the semantic component of the reality image constructed [7] [8]. Our reasoning is implemented in the ontological paradigm format, allowing us to refer to the space-time and content-related aspects of vital space representations. The system analysis of these representation features allows both to determine the theoretical principles underlying the vital space image designing by the subject and to obtain empirically valid indicators allowing studying the characteristics of vital space representation by the subject.

As the authors of the fundamental research dedicated to the problems of mental representation note [9], the model of mental representation is, in essence, a variant of examining the problem of mental reflection, including the subjective image issue, but emphasizing the cognitive aspect or the cognitive function of mind. One of the aspects of mental representation analysis includes information coding methods, that is, subjective means harnessed by an individual to represent (display) the surrounding world in his experience and used for organizing this experience for the sake of his future behavior. The researchers emphasize that the system of these methods was proposed, in particular, by J. Bruner, who allocated effective, imaginative and symbolic methods of representation; A. Paivio, who offered two systems of representation: verbal (through verbal label) and imaginal (through visual impression); L.M. Vekker, who expressed the idea that the brainwork is provided by three "languages" of information processing — sign-word, image-spatial and tactile-kinesthetic, etc.

Since "representation" as a concept refers to the internal structures, we should note that cognitive (mental) structures are not copies of samples, but generalized abstract representations of a scheme, and they include not only possibility of obtaining knowledge, but also a method for

obtaining them. There're several stages distinguished in the perception of ideas about the cognitive sphere structural characteristics; within one of the stages, there were indicated the presence of special mental entities-mediators - cognitive structures involved in the information reception, transformation and storage. Such structures include "mental maps", "prototypes", "anticipatory schemes", "hierarchical perceptual schemes", "schemes complex", "frames", "scenarios", "underlying semantic and syntactic universals", etc. [10].

The concept of "anticipatory scheme" understood as "... part of the internal perceptual cycle internal in relation to the perceiver, it is modified by experience and is specific in some way in regard to what is perceived" [11] is considered to be the closest to the concept of representation. As for the "scheme" theoretical construct, it has the concept of "cognitive map" as its historical predecessor or a specific analogue. [12] A classic example of the content explication of the "cognitive map" concept in the context that concerns us is the study by K. Lynch analyzing the city image, where "milestones", "paths", "districts" and "edges" were used as units of analysis or mental map substantial characteristics[13]. In Russian psychology, subjective ideas about the surrounding space were analyzed through selecting units of space representation and then researching the problem of the accuracy in space representation [14] [15].

Mental structures play the role of specific mental mechanisms underlying the "unfolding" of particularly organized "mental space", "subjective reflection space" as a dynamic form of mental experience actualizing in the context of the subject's cognitive interaction with the world. This category has not yet become the subject of detailed psychological research, however, according to M.A. Holodnaya, it can be the missing theoretical link that will allow to move from the concept of mental structure to the concept of mental representation.

A brief overview of cognitive representation phenomenology, and the statement that, by interpreting the information embedded in the representation analysis units (verbal and figurative-graphic), we can obtain information about the peculiarities of the subject's picture of the world, himself, and the aspects of the relationship between "world" and "self", formed the basis for developing theoretical model for psychological representation of the subject's spatial-objective livelihood environment [16]. The theoretical model includes representation levels, components and parameters, and implies the identification of the analysis operational unit – "the place – the situation". To study psychological representation specifics for different "environments" of the subject's vital activity (residential, urban, natural, recreational, professional), a "spatial" semantic differential [17] was developed and used. With this methodological tool, we analyzed both the structural aspects of the everyday life spatial environment psychological representation, and the individual psychological correlates.

Modern ecopsychology of consciousness in Russia is based on the provisions of the ecopsychological approach towards the mental activity analysis formulated by G.A.

Kovalev and subsequently systematized and arranged by V.I.Panov into a holistic methodological paradigm stating that "... psychological problems of studying human consciousness and individuality, mental development and learning, experiences and behaviors, psychological, mental and physical health should be considered in the context of the relationship "human - environment" [18].

Ecopsychological approach provides specific focus to the personal psychological space analysis: the "subjectification" of the subject's surrounding environment elements and their "inclusion" into the livelihood structure becomes the study object. Studying the characteristics of this "inclusion" may be appropriate, in particular, for diagnosing the living environment "psychological safety" for the subject or his psychological well-being within the environment in terms of whether the environment provides opportunities to meet the subject's needs.

IV. EDUCATIONAL ENVIRONMENT AS PSYCHOLOGICAL SPACE

In accordance with the above, in modern ecopsychology, the "psychological space" construct becomes more and more practical. The construct is actively operationalized in modern psychology, although variations in its comprehension are quite diverse and are in the process of being defined [19] [20]. The question of the relationship between "representation" and "psychological space" constructs requires separate consideration, and in this article we only state the possibility of their complementary use.

There are several key points related to the definition of "psychological space" as a theoretical construct, and to the designation of its empirical validation directions most relevant to our agenda. Taking into account the variety of "units" being applied for "psychological spaces" description (verbal, figurative-graphic), it can be noted that the majority of researchers include the following indicators into the array of personal psychological space formal characteristics: dimensions (number of elements), structure (central — peripheral position of elements), borders (inclusiveness — non-inclusion of elements of different content characteristics), and dynamics (changes of dimension or structure). Content-related characteristics include mental activity indicators (values, meanings, interests, focuses, motivation, etc.) based on their semantic vector and emotional connotations, as well as the psychological space sovereignty.

Considering the above options for interpreting the "psychological space" phenomenon of representation and construct, we consider it possible in our work to consider representation as an integral system of significant "elements" related to the educational environment that can be analyzed by referring to its formal-dynamic and context-related features. As for the representation formal characteristics — directions, structure, borders and dynamics, they were mentioned above in details. As for the context-related aspects, they include the actual "components" of the living environment. Following G. A. Kovalev, we refer to "physical", "social" and "value" components, or, as in V.I.

Panov, "spatial-objective", "social" and "psychodidactic" components.

It is assumed that a formal and context-related system analysis of university educational environment representation aspects can become psychologically informative, that for, it will allow obtaining data on the "elements" of the educational environment psychological space "significant" for the subject. To differentiate psychologically relevant indicators of the "spatial" representation features for the university as the subjects' living environment, we turned to the analysis of the most valid methodological tools' indicators applied to analyze the "psychological spaces" in various types of environments. In particular, these types of instruments include Kelly's repertory grids and "thematic" semantic differentials [21], variations of the "Sociogram" graphic technique, originally developed by E. Eidemiller and V. Yustickis [22], and then adapted to various studies in different areas of mental representation. [23] [24]

Sufficiently detailed indicators analysis made in accordance with the methodological tools mentioned above allows us to systematize the perceptions concerning the psychologically relevant "spatial" features of the educational environment representation by subject.

First, they're characterized by formal indicators reflecting "volume", "structure", "centrality" and "limitation" of the educational environment psychological space. These indicators can be defined using the dichotomies "simple — complex", "one-dimensional - multidimensional", "centered — sparse" and "open-closed".

The second group includes context-related indicators characterizing psychological space "personification", "thematic load" and "emotional connotations". These indicators can be qualified according to the scales "personified-depersonated", "physical environment — social relations — studies" and "positively connoted — negatively connoted".

Apart from general characteristics of the educational environment representation, the subject of self-analysis can be the formal and substantive aspects of individual "elements", in particular, physical, social and value, the educational environment "mental model" comprises. The analysis of environmental and individual- psychological determinants of the educational environment psychological space structural and content aspects is also a theme of great interest here.

V. CONCLUSION

Appealing to the mental representation construct traditional for cognitive psychology from the ecopsychological approach perspective provides an opportunity to formalize a new direction in the educational environment humanitarian expert studies aimed at researching the environment "mental model". Interpretation of the environment spatial characteristics will enable educational institutions psychologists to reveal the spheres of

the “environmental psychological well-being — ill-being” for all the educational process subjects.

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