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From Environmental Psychology to Subject-Environment Interactions

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***Abstract*—The following article describes the concept of the basic types of eco-psychological interactions proceeding from analysis of the key areas of environmental psychology: object-object, subject-object, object-subject and subject-subject types of interactions. The latter includes standalone subjects, conjoint subjects and subject-generating interactions. Examples of such interactions for the system "human being – natural environment" are provided. The article shows that such types of interaction are not only subject matters for scientific research but are also theoretical constructs for empirical data interpretation and for defining the methodological position. That is why the more correct term for them would not be eco-psychological interactions but subject-environment interactions.**

Keywords*—*Environmental psychology; key areas; "human being – natural environment"; eco-psychological interactions; subject; object; subject-environment interactions; interspecies group; "human being – pet"; gnoseological paradigm; ontological paradigm

I. INTRODUCTION

The need to classify interactions between the components of "human being – natural environment" relations emerged during theoretical analysis of the key areas of environmental psychology: psychological ecology, the environmental approach to perception introduced by J. Gibson, environmental psychology, environmental consciousness psychology, global change psychology, the environmental concept by Bronfenbrenner. This analysis made clear that, despite the differences in the object and subject of studies in various areas of eco-psychological research, they are united by a common methodological position, i.e., using "human being – natural environment" relations as a basic premise for explaining physic phenomena as objects and subjects of psychological studies [1].

In this context, psychological aspects of interactions between the components of the "human being – environment (natural or social)" relations/system constitute the object of environmental psychology – the same for different areas of research. These aspects may relate to both the psyche of a human being interacting with the environment, and the psychological or quasi-psychological properties and features of the environment, and this sets the differences in the subject matter of eco-psychological research. In addition, the differences in the subject matter of various areas of eco-psychology are initially determined by the type of interaction between the components of "human being – environment" relations. Initially, we reviewed these interactions using the example of interactions within the "human being – natural environment" system, so we used the term of *eco-psychological interactions*.

II. ECO-PSYCHOLOGICAL INTERACTIONS: BASIC TYPOLOGY

Proceeding from the position of each component of "human being – environment" relations (it may be proactive or passive/reactive position) with respect to the other component, six basic types of eco-psychological interaction were identified: object-object, subject-object, object-subject and subject-subject including standalone subjects, conjoint subjects and subject-generating interactions. These types of interaction are referred to as "basic" for two reasons. First, these six types of interaction are of a universal (figuratively speaking, "topological") character, i.e., they do not depend on the content and type of the environment. This makes them applicable for analysing the interactions between a human being and various types of environment, i.e., for various types of interaction between a human being and the environment. For example, they may be used for studying communicative interactions in such dyads as "student – teacher", "client – notary public". Second, interactions within the "human being – environment" system may be represented by other types that are derivative of the above-listed six basic types of interaction. For example, a forest (natural environment) may actively affect a human being psychologically, and a human being accepts such impact. In this case, we need to speak about a "quasi-object – quasi-subject" interaction between a human being and the natural environment because the forest performs a quasi-subject role, and the human being – a quasi-object role [2, 3].

Below is a description of various eco-psychological types of interaction between the components of "human being – natural environment" relations (Ibid.:

- *Object-object type of interaction* is the basic premise for psychological ecology, when the environment (understood as the aggregate of chemical and physical factors and conditions) is psychologically neutral (indifferent) to the human being, its properties

do not bear any inherent psychological load. Interaction between the environment and a human organism remains at the physical and chemical level and is mechanistic (object-type) in character.

- *Object-subject type of interaction*, when the environment actively affects certain spheres of the human psyche and performs subject-type functions in relation to a human being. At the same time, a human being accepts such impact remaining relatively passive and, in fact, performs the role of an object (quasi-object) of environmental impact. This logic underpins the psychology of environmental effects (environmental psychology), when the subject-matter is, for example, environmental impact on a human being resulting in rehabilitation or suppression of his/her mental status or performance capability.
- *Subject-object type of interaction*, when a human being purposefully affects and changes the environmental parameters for a specific reason: uses natural resources to satisfy human needs or, on the contrary, is engaged in environment protection activity, etc. For example, an anthropocentric type of environmental consciousness [4], designing park landscape or wildlife reserve.
- *Subject-subject type of interaction*, when each component of "human being – natural environment" relations actively affects the other, i.e., performs a subject role in relation to the other component. For example, the eco-centric type of environmental consciousness (ibid). At the same time, one should not equate the property of being alive with that of subjectness, because a human being is capable of attributing subjectness to environmental objects that are not alive (ibid). Even so, this type of interaction may be of different vectors and characters, i.e., there may be various sub-types of interaction co-existing and substituting for one another or, on the contrary, being mutually exclusive. In particular:

A. Standalone Subjects

When each component of "human being – natural environment" relations actively affects the other but, at the same time, each is pursuing its own interests and actively counteracts the effect of the other component. Owing to this counteraction, such an interaction may have no results or even damage one of the subjects or both of them. For example, the global environmental crisis: a human being causes damage to nature and nature, which evolves in its own course, begins to "take revenge" on human beings;

B. Conjoint Subjects

When interactions between a human being and the natural environment share a common goal. For example, if we want to preserve our planet as a natural habitat, we need to target the co-evolution of humankind and the planet. At the same time, the "subjectness" of each of them (being the co-existing forms of natural being) remains changed. The eco-centric type of environmental consciousness is a precondition for that because it targets the co-evolution as one of the options for interactions between a human being and the world of nature;

C. Subject-Generating Type of Interaction

Subject-generating type of interaction is intrinsic to the "human being – natural environment" system ("human being – world of nature", "human being – planet"), when joint development of the components of this system results in transformation of the system into the aggregate subject of coordinated development of both human beings and the natural environment. Each of the system's components *(subjects) in relation to the other performs the role of facilitator of their joint transformation and integration into a single whole and, together, they become an aggregated subject of such joint development*. The systems "humankind – the planet" and noosphere (anthroposphere) as products of such aggregated development serve as examples of generation of such an aggregated subject of joint development. Other examples are the systems "mother – child", "psychological training group", "ethnos", etc. [5, 6].

One the basis of the above, definition of the subject of eco-psychological study requires preliminary definition of the type and kind of interaction used to detail the "human being – environment" relations to be reviewed in this study.

In our further studies, we identified that the eco-psychological typology of interactions between the components of "human being – natural environment" relations is applicable for analysis and studies of interactions between human beings and various types of environment (educational, professional, information, etc.), as well as to interactions of interpersonal relations and in the cross-species group "human being – pet" [7, 8, 9].

III. ECO-PSYCHOLOGICAL INTERACTIONS IN THE CROSS-SPECIES GROUP "HUMAN BEING – PET"

Let us review the possibility of applying eco-psychological interactions as a theoretical construct for analysing the conditions required for cross-species group formation (human being – pet" [10, 11]:

- An object-object type of interaction takes place when a human being and an animal (pet) are objects of the environment for each other and do not demonstrate purposeful behaviour with respect to each other. There is no psychological contact within this type of interaction; no cross-species group is formed.
- An object-subject type of interaction can be observed when a dog is sniffing around a human being with which it is unfamiliar. The dog (as the subject of perception) is sniffing around the human being as an unfamiliar object ("a thing"), as if it would smell around a stone lying by the road. It is obvious that, given this type of interaction, we cannot speak about the human being and the dog forming a cross-species group.

- A subject-object type of interaction can be observed when a human being acts upon an animal that submits to such acts without snarling or demonstrating any other aggressive response to the human being. In this sense, in such interaction with the human, being the dog accepts the role of the object. Such interaction within "human being – animal" relations is traditional for classical zoo-psychology and behaviourism. From the group interaction standpoint, (interaction between the members of the micro-group "human being – animal"), two options are possible. If the human being and the animal meet for the first time, this type of interaction cannot serve as psychological grounds for them to form a micro-group. A different situation arises when the human being and the animal have already developed some relationship, based on mutual trust, uniting them into a cross-species group (dyad). Then the animal accepting impact from the human being (subject-object type of impact) may assume the role of the object within such interaction. Yet the required pre-condition is the existing psychological phenomenon of "trust" between the human being and the dog and the human being performing a certain function for the animal, e.g., that of satisfying its need for food. A steady cross-species group may develop within such a sub-type of interaction, as long as each participant in the interaction satisfies the needs of the other participant in that form or another.

- A non-conjoint subjects type of interaction takes place when the human being demonstrates positive actions towards the animal, e.g., wishing "to make friends" with a neighbour's cat or dog. However, the animal (without any aggressiveness) avoids this kind of contact and does not wish to interact. A one-way psychological contact emerges from the human being towards the animal. No group is formed within such a type of interaction because the animal has no need for it.

- A standalone subject type of interaction is characteristic of the situation when the animal and the human being are purposefully inducing certain psychological states in each other (e.g., a state of fear), each pursuing their own purposes, due to which communication between them is of a strongly pronounced aggressive and confrontational character. A two-way psychological contact emerges that, however, turns out to be nonconstructive and does not result in forming a steady cross-species group. A standalone subject type of interaction is possible in a situation of conflict between a human being and an animal, which can emerge even in a steady group. In this case, complaints by the animal's owner about the animal "not obeying" or "being aggressive" are common.

- A subject-generating type of interaction takes place at the formation stage of a cross-species "human being – animal" group and its transformation into an aggregate subject of joint activities and life sustenance. It is essential that this happen by way of changes to the subject properties of each participant in such a group (figuratively speaking, they are adjusting to each other). At the same time, the human being and the animal interacting with each other gradually develop a set of communicative interaction elements (verbal and non-verbal [body] language) supporting the psychological contact and mutual understanding between the human being and the animal as representatives of different biological species, i.e., they develop cross-species communicative interaction. This jointly generated "special language" mastered by each member of the group is the premise for their steady interaction, opening up prospects for transforming the newly generated cross-species group into a group subject of an on-going joint life sustenance of the human being and the animal, with its own rules of interaction.

- A conjoint subjects (poly-subject) type of interaction is characteristic of communicative interaction between a human being and an animal in an already developed, steady cross-species "human being – animal" group characterised by joint activity of its participants. In this case, the group is an aggregate subject of their joint life sustenance. The distinguishing feature of such a group is availability of a jointly generated "special language" mastered by each member of the group for verbal and non-verbal communication. This language performs the role of a means of communication and is the premise for constructive communication between the group members. Availability of such a language and the relevant rules of mutual behaviour permits it to be stated that, in this sense, such a cross-species group is, indeed, the aggregate subject of joint life sustenance. For example, when the animal was acquired a long time ago owing to the environmental or personal deficiency need on the part of its owner. In such a case, the human being, at a minimum, satisfies the animal's needs for food, warmth, safety and acceptance into the family. In turn, the animal satisfies the human being's need for removal of his/her deficiency need. Two-way psychological contact may be observed within such interaction and a steady group is formed. In certain conflict situations, the participants in such group may interact differently: as standalone subjects or as subject-object.

IV. Eco-psychological Interactions as the Basic Premise for Determining the Methodological Position of the Study

In addition to the listed options for using the basic typology of eco-psychological interactions, they may be used for analysing the methodological premises for a psychological study. Let us demonstrate this using the example of choosing the methodological paradigm: the gnoseological versus the ontological paradigm.

The gnoseological paradigm is based on the subject-object method of discourse, according to which the "human being" and the "environment", as the components of "human being – environment" relations, inherently confront each other and may be described through gnostic determinacy of their features and similar determinacy of the type of interaction with the other component of these relations [12]. A "human being" may take both a "subject-type" (proactive) and an "object-type" (reactive/passive) position with respect to the "environment". Likewise, we can view the "environment" as being in the "object-type" position when it accepts the impact of the "human being" as the "subject", but also as being in the "subject-type" (or quasi-subject type) position when it actively impacts on a "human being". In such case, the "human being" passively accepts and reacts to such impact and he/she is in the "object-type" position within such a type of interaction. By applying the gnoseological paradigm of discourse to the interactions between the components of "human being – environment" relations, we fix such interactions in the cognitive form, treating them separately from the reality of their existence, including from their dynamics within specific acts of interaction.

The gnoseological paradigm inevitably leads to discursive, analytical decomposition of the "human being – environment" relations into three separate elements and to their contraposition. In particular, such elements are as follows:

- perceptions of a "human being" (as an individual or a group or a community or humankind as a whole) as the subject of psychic activity (or passivity);
- determination of the type and features of the environment (natural, information, educational, etc.). Those may be inherent features of the specific environment or anthropogenic features – either attributed to it by a human being or resulting from the transformational activities of a human being;
- determination of a certain type of interaction between a "human being" and the "environment" (object-object, subject-object, etc.).

This analytical method for constructing the subject matter of eco-psychological studies inherent in the gnoseological paradigm resulted in emergence of such areas of eco-psychology as:

- psychological ecology: "human being – physical and chemical properties of the external environment" is underpinned by the object-object type of interaction and, respectively, the object-object type of discourse;
- the environmental approach to perception introduced by J. Gibson [13] is based on "the individual as the subject of perception – habitat as the object of perception" relationship. It represents the subject-object type of interaction between a human being and its habitat and, respectively, the subject-object logic of discourse;
- environmental psychology represents "human being – environment (spatial, natural, educational, information, etc.)" relations, and interactions between the components of these relations may have opposite vectors, i.e., both object-subject (environment affecting human beings) and subject-object (human beings affecting the environment);
- global change psychology is based on "the human being as a subject of perception and cogitation – global changes to the planet's conditions as an object of perception and reflection" relation representing the subject-object type of interaction;
- environmental consciousness psychology: "human being – natural environment (world of nature)", where the subject-object type of interaction underpins the anthropocentric environmental consciousness and the subject-subject type of interaction underpins the eco-centric consciousness, when human beings attribute subjectness to the "world of nature" and "natural objects representing the natural environment", i.e., attribute the abilities to perform subject functions [14]. Because, in this case, we mean co-evolution of humankind and nature, in our terminology it would most likely be the "conjoint subjects" type of interaction between a human being and the world of nature.

It is of material importance that the cognition (gnosis) is the psyche feature under the gnoseological approach.

The ontological paradigm views formation (i.e., procreation of the effective form of existence) as the psyche feature. That is why the psyche is understood not as a feature or a function of the human being but as a phenomenon acquiring its genesis in the process of and by means of interaction between the "human being" (or, taken more broadly – a "living being" ["individual"]) and the 'environment". Eco-psychological interactions are viewed here not as a characteristic feature of "human being – environment" relations but as a precondition (and even a premise) for transition to the next formation stage of the "human being – environment" system. Moreover, the "human being – environment" system under such an approach is an ontological subject of procreation of new psychic formations in the process of and by means of interaction between the "human being" (or "individual") and the 'environment" as components (co-subjects) of this system.

That is why, within the ontological paradigm, psyche explication as the object and the subject matter of the study requires accepting and understanding of the fact that, in real life, interaction between a human being and the environment is not limited to just one type of interaction: object-subject, conjoint subjects, etc. On the contrary, in the process of formation of the "human being – environment" system, interactions between its components undergo certain changes. In particular, the "environment" gradually turns from the object of perception into the object of transformation by a human being. This also turns the environment into the precondition and the means for development of the

subjectness of a human being as a component of the given "human being – environment" system in the process of formation. It means that. in the actual genesis, interaction between a human being and the environment starts from the object-object type of interaction, when the physical and chemical properties of the environment perform the role of external agents affecting the sensory receptors of the human being, causing different experiences as the initial form of procreation of psychic reality. During development of the subjectness of an individual (understood as the capacity to be the subject of psychic activity and of the higher mode of activity), items and people of the environment gradually become an object for purposeful activity on the part of such an individual. Accordingly, the type of interaction changes and becomes the subject-object or subject-subject type of interaction (the latter being in the form of the standalone subject and, potentially, the subject-generating type of interaction eventually turning into the subject-generating type). In particular, this is confirmed by the fact that mastery of cultural historical methods of human activities by an individual takes place by way of joint-distributed activities of this individual and other individual/individuals [15]. Using our terminology, the subject-generating type of interaction is characteristic of such activity. Consequently, the ontological approach implies viewing the types of interaction between the "human being" and the "environment" not separately but integrally – as a dynamic system of interactions between the human being and the environment, i.e., as a system of eco-psychological interactions.

V. CONCLUSION

This resulted in understanding that the above-mentioned types of eco-psychological interaction have a much broader range of applications, not just for describing the interaction with the natural environment. During our research, these types of interaction were identified in three contexts:

- as the subject matter of theoretical or empirical studies;
- as a theoretical construct for studying interactions, e.g., in interpersonal relations within a group of students or for interpreting empirical data on communicative interactions in the professional activities of a notary public;
- as the basic premise for determining the methodological position, i.e., choosing between the gnoseological or ontological paradigm for the study.

Consequently, it is more correct to call the above-described typology of interactions between the components of "human being – environment" relations using a more general term not linked to interactions only with the natural environment, i.e., not eco-psychological interactions but subject-environment interactions.

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