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PRESCHOOL LEARNING THROUGH PLAY FROM THE PERSPECTIVE OF THEORY OF CONCEPT-HOLES

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Abstract: *In 2012 we launched the fundamentals of a theory called 'theory of concept-holes', polarizing previous conceptions about language seen as structure of holes culturally shaped and transmitted to all members of the language community (Saussure, 1916; Benveniste, 1966; Coşeriu, 1996). In the same year, we proposed the first opportunities for fractal modelling of the theory of concept-holes, aiming at testing one of the basic statements of the theory: 'Communication within a linguistic community involves correspondence of the same structures of concept-holes (communicative patterns) and different contents (individually connoted) of the same structures of holes' (A. Lesenciuc, 2012). Through this paper, we propose to focus on a different statement of the theory that refers to learning within language implicitly learning of creation within language, by interpreting the results on an experimental study aiming at communicative competence development at preschool ages (S. Lesenciuc, 2012). Learning by playing for children, understood as a way of learning within language and, therefore, as a way of developing the subsumed communication competencies: grammatical, textual, illocutionary, sociolinguistic, strategic, and nonverbal, could be correlated to the previously mentioned theory. Filling the language's concept-holes with signified content in ostensive learning, practiced through play, is specific to particular ages in all theories of development (Freud, 1905; Erikson, 1950; Bandura & Walters, 1963; Bowlby, 1969; Piaget, 1977 etc.). Our paper aims at correlating the sentences resulting from the experimental study with the theory of concept-holes sentences (its statements).*

Keywords*: communication, language, theory of concept-holes, learning through play, preschool age*

1. INTRODUCTION. THEORY OF CONCEPT-HOLES

The French engineer Abraham Moles (1974:59) identified in 1967 two possibilities of words' 'collision' in language: a) an inelastic one, similar with the contact between pieces of Lego that can be assembled in various ways, and b) an elastic one, due to the fact that the words are perceived as having dough consistency, and therefore allow infinite flexible combinations. Moles' perspective, influenced by the types of collision in physics, is not very satisfactory. He proposed a manner of understanding the language functionality in relationship with combinations of solid, non-deformable words in an inelastic collision, or with combinations of partial deformable words, used in sentences at a temperature higher than in the previous case. In fact, understanding words at a higher temperature is due to Benoît Mandelbrot's (1970/1983) perspective on the deep logic of so called 'chaotic' structures, which was further developed in Alice Fulton's (1986:2001) perspective on 'fractal poetics':

> Consider water. At low temperatures, it is fully ordered in the form of ice; at higher temperatures it becomes fluid and will not retain its shape. The stage between ice (order) and liquid (chaos) is called the transition of temperature. Fractal poetics is interested in that point of metamorphosis, when structure is incipient, all threshold, a neither-nor. […] While retaining the term "fractal poetry", I hope to suggest ways in which complexity theory might amplify the possibilities of such a poetics. (A poem is not a complex adaptive system: the comparison is analogical, not literal.) (Fulton, 2001:111-112)

Words at a higher temperature mean a higher degree of liquefaction. In the 2012 essay 'Linguistic fundamentals of the theory of concept-holes' (A. Lesenciuc, 2012), we proposed to enrich

the perspectives of Moles, Mandelbrot and Fulton, considering that a combination of words is not a particular case of inelastic or elastic collisions between words in language. We considered language could be seen "as a structure of concept-holes, culturally shaped, and partially filled with a signified concept" (A. Lesenciuc, 2012:170). Therefore, Fulton's non-binary *in-between* temperature of words used in language is the effect of cooling the words that were shaped at the highest temperatures within the language matrix or pattern; Moles' elastic collision of words is, in fact, a collision of words that gained in liquefaction; the Mandelbrot perspective on the 'chaotic' structures (as language, for example) is the perspective of analyzing language in terms of fractal geometry.

In essence, the theory of concept-holes refers to the culture's state of aggregation. Shaped in a long time and due to numerous pressures, interventions, and collective experiences at very high 'temperatures', the matrix of culture (that could be associated, in linguistic relativism's terms, with a matrix of language) permits its holes to be filled with liquefied words (significant content) that are about to solidify, resulted from personal experiences, after passing through different perceptual filters, a part of them being ideologically or dogmatically deformed. Perhaps, the culture matrix shaped in centuries or millennia is not suggestive enough in our intention of defining the theory of concept-holes. The most suggestive image associated with this word shaping is the one of coral atolls – an amount of calcareous skeletons, deposited over time in reefs, which has fractal relief. After a long journey, each individual (polyp) is connected to other individuals by calcareous channels and by bridges of living tissues. They adapt continuously to the predefined shape of reef-culture. After death, each polyp is added to the reef-culture and allows other polyps, therefore, to settle on their own skeleton. In a particular language, the process of emergence and development of words is similar: each word, shaped within the cultural matrix, after a long journey in sentences, is added to the language reef and allows other words to settle on them.

In 2012, we set up a system of statements of the theory of concept-holes, grounding it in Karl Popper's (1963/2002) manner of formulating the theory statements, in order to test them in relationship with facts and observation statements, even if a more appropriate perspective on this theory could be drawn from Thomas S. Kuhn's (1976) epistemological perspective. The theory of concept-holes was detailed and expressed in a system of statements:

> **i.** Language is a structure of concept-holes.
> **ii.** The concept-holes are culturally shaped and transmitted to all members of a linguistic community;
> **iii.** In the process of language learning (including the process of learning the creation within language), the holes of the language are filled with signified content according to the language user's experience, his scale of values or his Weltanschauung.
> **iv.** Communication within a linguistic community involves the relation between the same structures of concept-holes (communicative patterns) and the different contents (individually connoted) of these structures of holes.
> **v.** Intercultural communication involves the relationship between different structures of holes and different contents.
> **vi.** Common communicative patterns can be found in different cultures; therefore, intercultural communication can start with the setting of common concept-holes structure. (A. Lesenciuc, 2012:174-175)

The theory of concept-holes has both metaphysical and scientific fundamentals. Some particular schemes of metaphysical organization of the language's concept-holes were discussed both in academic and non-academic contexts. The metaphysical openness facilitated the exploration of diverse possibilities of understanding language in accordance with pre-Socratic dichotomies 'vacuum/hole' / 'fullness' of the atomists Democritus and Leucippus, or with Aristotle's discrimination between substance (*hyle*) and form (*eidos*). Very fertile and exploitable from an academic perspective is Nae Ionescu's (1991:42) prospect; the Romanian philosopher identified in the process of knowledge accumulation a certain emotional orientation towards the object by relating knowledge to a framework, or grid, or matrix for setting up and structuring. This cultural and linguistic perceptive matrix is made up of the 'experience' thrown forward, i.e. of previous, direct or indirect, conceptions and perceptions. Knowledge is achieved through the effective openness towards outside, by 'depriving us of ourselves', while the matrix is filled with content that both belongs to us and is our being itself. Filling the matrix of knowledge with signified content is filling with ourselves. The coral atoll metaphor fully finds its application in Ionescu's perspective.

From a scientific viewpoint, the Saussurean equation rewritten: language (*le langage*) = language (*la langue*) + speaking (*la parole*) (Saussure, 1972:44) and Benveniste's inter-determination: culture → language (*la langue*) →

language (*le langage*) → culture (Benveniste, 1966:13) are the starting points for the theory of concept-holes. Eugenio Coşeriu's perspective on the language is fully adequate to our theory: a language is the result of balancing the structure of its potentialities (the concept-holes, in our terms) and the negotiating contents, individually connoted. Therefore, language could be understood as being a vivid and creative entity, in direct relationship with the entire culture. Moreover, we not only learn a particular language, but also learn to create within a language, says Coşeriu:

> (…) it is not a language that one learns, one learns creating within a language, that is, not only what has already been said is learned, but also what can be said, what the language's possibilities are (Coşeriu, *in* Saramandu, 1996:13)

From this point of view, to create within a language, to learn its possibilities is to learn the limits of concept-holes, within which each word is created. A case-study, 'Possibilities of fractal modelling of communication based on theory of concept-holes', focused on the analysis of the previously-mentioned fourth statement of our theory (A. Lesenciuc, 2012:175-182). In the present paper, we intend to focus on a different theory statement, namely the third one.

2. THE POSSIBLE USE OF THEORY OF CONCEPT-HOLES IN PRESCHOOL EDUCATION

In education, the child approach should be holistic and the education services require an integrated approach. Education at preschool ages should not be performed separately for each knowledge area in part. The (scientific/pragmatic) atomism cannot be a reference point in the educational design at these ages. Focusing on the child and his interactions was and still is the reason for the functioning of the educational system, capable in these conditions to offer the possibility of complex physical, cognitive, socio-emotional, health development of the child, including, largely, linguistic acquisitions and effective communication. Structuralism adequately tackled atomism and maintained, at least at preschool education level, through the influence of the constructivist perspective of Jean Piaget's research in psychology and genetic epistemology of Gaston Bachelard's philosophical works, the holistic approach of children and the integrated approach of educational services. From Piaget's perspective, knowledge is built on social interaction. At preschool age, learning is largely ostensive, resulting from interaction with the environment and mediated by the social interactions. The source of learning is the so-called 'socio-cognitive conflict', where the intrapersonal and interpersonal processes are succeeding each other, as follows: observation or interpersonal dialogue – intrapersonal engagement (representation or filling with signified content the holes of language) – interpersonal engagement (language use). Piaget's structuralist perspective is not the only one to validate the third statement within the theory of concept-holes. Numerous other theories of development contribute to understanding (with different nuances) the peculiarities of language acquisition in preschool age, validating the theory of concept-holes.

2.1 Theories of learning/development. Numerous directions of study regarding the psychological theories of child development and, hence, regarding communication peculiarities at preschool age, are well known in the light of numerous schools. One of these schools produced the social learning theory, which is based on the principle of observing and imitating the behaviour of others (Bandura & Walters, 1963). In broader sense, theorists belonging to this school considered the social interaction as being fundamental in child behaviour and personality development; therefore, the child's learning can be done in accordance with the behaviour of adults in his proximity: in the early years, by imitation, then by copying the pattern of behaviour, and in accordance with external motivations (rewards, punishments), adapting to the expectations. Regarding language acquisition and communication skills development (including nonverbal communication), social learning theorists have raised this issue later (Whitehurst, DeBaryshe, 1989), considering that learning is based on modelling, reinforcement and feedback. Subsequently, models of forming/developing communication skills have been improved under the influence of the social learning theory (and of other theories, too).

Another important school that deals with children's learning and development, implicitly with language development, is the psychoanalytic school. Regarding preschool age, the role of Sigmund Freud (1905/1991) is very important as for the Austrian neuropsychiatric the life cycles rewrite the childhood phases. Continuing the Freudian studies, the Danish neuro-psychoanalyst Erik Erikson (1950), the father of the psychosocial development theory, identified eight stages of human development. One of the distinct stages in Erikson's theory, the preschool age (3-6 years), is characterized by conflict between initiative and guilt. The child begins to take risks and becomes more responsible taking into account both the fear

of punishment and the sense of guilt. At this time, the child may develop a strong sense of initiative or may feel guilty for failing to accomplish his responsibilities. With regard to language acquisition and communication skills development in this stage, Erikson considers that learning mental habitudes from the adults around them, mainly from parents, includes patterns of speech, written language and other forms of symbolic knowledge, through which children build their meanings and knowledge. A distinct direction of the psychoanalytical school development is the one launched in 1969 by John Bowlby, called the theory of affection or of attachment. Analyzing the baby's affection, seen as a result of parental competency and responsibility, Bowlby (1969) developed the previously mentioned theory, considering the attachment as a behaviour responding to the environment, as a form of adaptation and survival.

Aiming at future development in areas of linguistics, semiotics, anthropology etc. the structuralist theories also influenced the psychology of age. From the perspective of the most important representative of the psychological structuralism, Jean Piaget (1970/1973, 1977), the 'shape' of a structure characterizes the cognitive functionality, representing a distinct stage or period of development. Piaget's later perspective on structures and stages was extended to all areas of human development. Even if stages of development could be found in Freudian studies, too, within the structuralist design the 'stage' is defined differently. The stages suggested by Piaget are: the sensory-motor stage (0-2 years); the preoperational stage (2-7 years); the stage of concrete operations (7-11 years); and the stage o formal operations (starting from 11 years, till maturity). The development of language and communication skills and the most important acquisitions in language occur within the preoperational stage. At this age (the preschool age), the egocentric speech is transforming gradually into a reported, not centred speech. The similarity between psychoanalytic and neo-psychoanalytic theories is that the preoperational stage is important, ultimately preparing the ground for the next stages. The Piagetian theory of cognitive development stages was continued by the moral development theory (Piaget, 1932/2006), which assumes that moral judgment develops during the transition from the preoperational to the operational stage, i.e. in the period that is the subject to our study: late preschool age. This theory was followed by the theory of moral development drawn by Kohlberg (1963) that took into consideration a pre-moral stage, a stage of conventional morality and a stage of autonomous morality.

Lastly, an important school in the study of stadia development, focusing on preschool age, is the Russian constructivist school. Its most important representative is Lev S. Vygotsky (1972), who analyzed the human psyche in relationship to the continuous interaction with the environment and with each individual's own conduct, by means of semiotic mediation. Considering that the social environment and the biological maturation are equally important, the Russian psycholinguist focused on the sign. Furthermore, the sign is the one that makes the difference between mankind and the animal world, leading to the possibility of internalizing what is happening in the social and the individual life. Semiotic systems, with their dual role of externalization and internalization, lead, in the Vygotskian perspective, to duplication of mental development functions, both as externalization: social, collective, inter-psychical functions, and as internalization: thinking, intra-psychic functions. This perspective is directly applicable to the stages of children development, completing the Piagetian theory by pointing out the differences between the levels of actual and potential development. The constructivist perspective is important because it underlines the fact that the mental development is conditioned by the affective one. Therefore, by synthesizing Vygotsky's theory, we can understand the theories of social learning, of psychosocial development, of affectivity, of social development etc. as a whole, as long as the principle of unity of intellect and affectivity is the most important principle in the Russian constructivist psychology. In accordance with the same perspective, the adult (parent, teacher etc.) plays a fundamental role in mediating learning, supporting the child to a greater extent in the first stages (on the potential development side), and to a smaller extent in the last stages. From this perspective, a new theory of learning emerged: it is the historical-cultural theory of learning, with Vygotskian origins, stating that education should not be child-centred, but centred on the interaction between the child and others (adults, experienced peers). This kind of learning should precede Piaget's child development by training the previously acquired knowledge. The theory of historical-cultural learning, derived from Russian constructivism, practically unified the seemingly distinct perspective of the main school in the area of the so-called 'learning theories', especially of those oriented towards society (socio-cognitive, psycho-social, and social theories). This synthesis situates the child in the context of his interactions. Some criticisms mention that the theory

of historical-cultural learning aims more at adults than at children. In fact, the theory aims mainly at the first two proposed levels within the design: culture – interaction – individuality, but it is exactly this situation that allows the integrative approach of the theory of concept-holes. Even if nowadays, 'interaction' in education changed dramatically, the historical-cultural perspective still remains valid (see Ciupercă, 2011).

2.2 Learning through play or exploiting the concept-holes. In our design, we deliberately stayed away from the theories focused on knowledge (behavioural, technologic, academic, epistemological), from the theories strictly targeted to the student (cognitive, genetic, humanistic), and from the spiritualist theories. In this case, the simplest way to understand the concept-holes of language is to place them alongside the cultural theories of learning. It is enough to look at the contents of education to understand that what is learned is culture itself: "When asking: which is the content?, the answer seems very simple: what is learned is culture itself". (Antonesei, 2002:46)

In the 2012 paper aiming at identifying directions for the development of preschool children's communication skills for future adaptation to school requirement (S. Lesenciuc, 2012:126-135), we raised the issue of developing strategies to improve preschoolers' communication skills in relationship with their culture. The paper was the result of a mixed research strategy (quantitative and qualitative) on an experimental group (22 preschoolers, aged between 5 years and 6 months and 6 years and 9 months in pre-testing period, from Kindergarten No. 29 of Brasov) and a control group (21 preschool children, aged between 5 years and 5 months and 6 years and 8 months in the pre-testing period, from the same kindergarten). In that research, we pursued two objectives: (1) configuring the communicative profile of preschool children; (2) comparing the educational effects produced by the implementation of classical curriculum with the educational effects gained as a result of designing strategies for developing communicative competence. The working hypotheses were: (1) If preschoolers are subject to a set of specific methods for developing communication skills, then they will have a higher degree of communicative competence and a balanced distribution of subsumed competences, and (2) If within the 'Language and communication' curriculum, pre-schoolers learn only training units derived from national pre-school curriculum, then in their communication profile the grammatical/linguistic skills will prevail. Therefore, we made recourse to a standard research strategy, combining research based on interaction with population with the study of documents and external observation. In this respect, the chosen method was the participant observation (with full participation), complemented by a teaching experiment, designed with the purpose of deliberately controlling certain variables for detecting optimal paths of communication competence development at preschool age.

After completing the research, all objectives were reached and all hypotheses validated (S. Lesenciuc, 2012: 133-134). In the pre-test phase, we found that communication competence scores were low, indicating an insufficiently outlined communication profile. At the same time, we found that the tested groups had almost identical scores and an almost similar profile of homogeneity. Subsequently, after training the experimental group through play-exercises for developing skills subsumed to communicative competence, the results were radically changed. Firstly, the experimental intervention focused on implementing a formative program aiming at improving the average scores for previously mentioned competences that are not taken into consideration by the national preschool curriculum (see Bachman's model, 1990:85). During the intervention (the implementation of play-exercises for developing the communicative competence), an important progress was noticed in preschool competences profile, especially in terms of skills that are not developed through national curriculum. The final measurements confirmed that the resulting communicative profile revealed a noticeable difference between the experimental group and the control group, due to the pedagogical intervention. Finally, an increase of dispersion values in the experimental group was found in post-test stage, equivalent to natural heterogenization due to the implementation of the ameliorative educational program.

The pedagogical intervention aiming at stimulating the communicative skill began with a set of play-exercises for language development, during the school year 2011-2012. Unlike the pre-schoolers aged 3-5, whose communication is often limited to class and contexts, the late preschoolers from the experimental group succeeded to enrich the communicational contents depending on the context and on the communication partners. Therefore, during the experiment, we continually tried to offer the children more activities to stimulate communication skills, even within experiential activities included in curriculum, or within freely chosen activities, but especially within activities of personal development. We have planned a stronger development of communication

skills of the children from the experimental group, necessary for successful future scholar integration. Many primary schools teachers noticed that some preschool children have difficulties or fail in communication at the beginning of the first school year. They also noticed that a high level of communication could be reached only in the case of children that easily express their thoughts, intentions, feelings in relationship with teachers and classmates. That was the reason why we have organized the experiment in such a way that the modalities of stimulating children's communication skills should be applied gradually, to offer many learning experiences, both in formal and informal contexts, in accordance with the age, and psychical and individual particularities of each preschooler.

The experiment consisted in a set of play-exercises to familiarize children with correct speech, regarding phonetic, lexical, grammatical and expressive aspects. We selected a number of language play-exercises in order to improve some deficiencies encountered in the pre-test stage. Throughout these play-exercises, children observed images (entailing their spirit of observation), made discoveries, analyzed images (by recourse to thinking operations: analysis, synthesis, comparison, and generalization), communicated impressions (improving their lexis and other communicative skills), employed previously acquired knowledge (their memory), and interpreted images (improving their imagination and expressiveness).

The roles of these play-exercises consisted primarily in language learning and learning of creation within language, by means of methods specific to summative theories of learning, oriented towards society/culture. They were strongly related to the study design, focused on the development of both linguistic skills (phonetic, morphological, syntactical and lexical) and also of the nonverbal ones. In this respect, we put into practice a set of 45 play-exercises. Through these, we planned and implemented: the correct pronunciation of language sounds; the development of phonologic analysis capability; the improvement of phonemic hearing; the activation of latent vocabulary; the development of the ability to correlate the orally pronounced word, its written representation and image; the strengthening of the skill to formulate simple and complex sentences, with subject–predicate agreement; the activation of logical thinking by means of appropriate words; the enhancing of skills for gender and number agreement between the noun and the adjective that accompanies it; the activation of vocabulary with adjectives that refer to character traits; the consolidation of the skill to use in speech the correct sequences of tenses; the development of the skill to use words and phrases that convey the positions and spatial relationships between objects; the development of the spirit of observation; the development of the ability for the correct semantic use of words; the consolidation of the skill to use synonyms in casual speech; the development of the capacity to relate a concept to the integrative corresponding category; the strengthening of the skill to make connections between two words that belong to the same notional category, and a various number of other specific objectives to develop textual, illocutionary, sociolinguistic and strategic competences.

3. CONCLUSIONS

The play-exercises were designed to enable learning through play and were meant to engage preschoolers both cognitively and affectively. Learning through play enables the interpretation of language as a structure of concept-holes, at least in terms of intention of grammatical competence development. Basically, learning language through play at the preschool age, in line with all the society-oriented learning theories, therefore with all theories that focus on interaction, enabled the enrichment of children's vocabulary at an increasing rate. This was achieved not only as a result of the quantitative purpose of the teacher (a number of words and their associated denotative meaning, seen as solid words in Moles' perspective, as pieces of Lego), but in qualitative terms too (the use of words with their connotative meanings, therefore as words in an elastic interaction, at a higher temperature of use). The qualitative dimension of the experiment has been exploited through play, as long as the emotional/affective dimension of learning, specific to preschool education, was activated. Each new word received, therefore, a connotative meaning that could be highlighted in utterances, in further contexts. Even if the play-exercises and learning through play are useful tools, regardless of the dominant learning strategy selected by each teacher, there are no particular elements designed and implemented through a certain theory in language learning. From an educational perspective, the Piagetian and Vygotskyan theories enabled a teaching approach appropriate to preschool-age needs and, moreover, learning in enjoyable conditions, conducive to children development at that age. But this educational approach would probably not have led to a suitable development of preschoolers' communicative skills if our experiment had not employed an appropriate linguistic approach, based on the

structuralist studies of Saussure (1916/1872), Benveniste (1966), and Coşeriu (1996). The reinterpretation of the experimental phase results, achieved through this paper, is supported by the unifying approach of the theory of concept-holes (A. Lesenciuc, 2012), which enables the understanding of language learning and of learning the creation in language based on linguistic, communicational, sociologic and anthropologic theories, and on (psycho-) pedagogical ones. Or, to put it in other words, atomizing sciences cannot help learning at preschool age. Learning through play, which is properly implemented, is therefore a didactic method necessary not only in the case of the cognitive-affective approach to children, but also in the case of qualitative and quantitative approach to language acquisition, possibly due to the theory of concept-holes.

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