

Material and Non-Material Qualities of the Space Created by the Child in the Preschool Classroom

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Abstract

The space is an important and peculiar field of research. Although its geometrical characteristics remain stable we can't conclude that space is an unchanging and "objective" reality because it contains influences of human presence. In this article we present the three dimensions of space: psychological, social and pedagogical and how these dimensions function in the educational process. We also present how the children at the preschool classroom use the space according to their needs and create new places through their participation in educational action researches. These new places include both material elements (architectural spaces, structures, objects) as well as a set of non-material elements (relationships, practices, experiences) that function as material educational fields. The results of these researches has shown that children's interaction with their classroom space help them to create cohesive relationships with their classmates and to acquire experiences and knowledge through active learning.

Keywords: space qualities, place, educational process, preschool classroom, active learning

1. The Context: The Human-Centered Approach to Space

The space, as built and shaped by human, is a peculiar field of research. This is because, despite the fact that it is including constructions and objects, its geometrical dimension and technical characteristics are not alone sufficient to interpret its origin, features, function and significance. Nevertheless, if we considered space only as a geometric structure, then we would approach it in line with the rules of Euclidean geometry, which study dimensions and relationships referring only to some *stable* standards of length, area, volume, shape, etc. These standards are based on units (such as, for example, the measure of length) which *by definition* are not affected by external factors and therefore remain unchanged. Could we, however, conclude that space is an unchanging and therefore "objective" reality because its geometrical characteristics remain stable?

The problem of such a conclusion, which examines and defines space *only* through its geometrical characteristics, is that it *disregards* the dynamics being developed in space thanks to the presence of human. The person designs, constructs, uses and evaluates the space, individually or collectively, within the framework both of subjective views and social conventions. The space, therefore, contains influences of human presence and cannot be studied by simply approaching it as a geometric structure. This close relationship between human and space is of great importance for the design of the built environment. For example, the architect studying a building should think about the objective, the procedures and desirable conditions of human's stay in it, and relate them to the organization of the space, specifically the layout and (often) the aesthetic aspects of the building. In other words, he tries to design a space adapting it to those forms of behavior and interaction, which he *expects* that people using the building shall develop (Germanos 2006a). This effort brings designer into confrontation with a complex material reality that goes beyond the geometrical characteristics of space, since it is linked to the human presence. On the word of Wallon, space is not primarily an order among things, but rather a quality of things in relation to ourselves, in which the existence of emotion is significant (Wallon 1999). The anthropocentric quality of the space thus covers its material quality and refers to social dynamics, social relations, culture, behavior, communication and interaction processes. For this reason, two other qualities, a psychological and a social one are attributed to the space (Germanos 2006b).

1.1 The psychological dimension of space

Space surrounding the individual is a material reality that is also *psychologically* structured, based on the interdependence that exists between the characteristics of the individual and those of his surroundings. The connection of space with human behavior has systematically initiated by Koffka, who distinguishes two types of space.

The first one, is the "geographical space", corresponding to the physical dimension of space and includes indoor and outdoor spaces, objects, vegetation, other categories of the environment of nature etc. The second one, which he has metaphorically called as "space of behavior", is encumbered with symbolism and values and corresponds to the experiences of the individual being developed in the particular "geographical space". Both types of space coexist and *correlate to relationships of interdependence* for the reason that the individual reacts according to the stimulus received from the material elements, he is influenced by them but influences them too (Koffka 1999).

By embracing the study of the relationship between space and behavior, other researches stressed the importance of a spatial and psychological structure called "*personal space*". Their common characteristic is that the interdependence between the data of space and the characteristics of the subject-person contributes to the formation of human behavior (Cresswell 2013, Hall 1990, Moles and Romer 1998).

Further expanding the human-centered approach of space, Lewin starts from the point that a space cannot exist in the person's perception only with its material dimension. Instead, it exists through the interactions and situations that the individual experiences by living in it and to which the characteristics of the space are connected. The complex relationship of his experiences with space creates a field of experience for the individual, whose characteristics are in a state of interdependence and lasting interaction (Lewin 2015).

In the context of this relationship, the activity of the individual is related to the mechanisms of perception and mental representations. Conception is stimulated by the presence of material elements recorded by the senses and associated with the characteristics of the immediate surroundings of the individual. The mental representation of an element of space uses data from perception and memory and is structured with values, interests, mental images and other representations (Chombart de Lauwe 1988, 1982).

The operation of those mechanisms is closely linked to the individual's practices in the space, allowing him to explore, capture, evaluate and internalize the data of his environment. Particularly in childhood, they feed the individual with both information and space-related criteria and are used for cognitive development, interacting with others, and shaping behavioral patterns and attitudes of the individual (Piaget and Inhelder 2003). These associations focus on the characteristics of the person and sometimes on those of his environment and are impregnated with emotions, symbols, representations, relationships. In this complex spatial and psychological reality, the practices of the individual in space are the articulation around which the interaction connecting it with its environment is developed (Germanos 2006a).

1.2 The social dimension of space

The interdependence between the material and non-material features of the space connects the space with the standards, values, attitudes, social representations and, in general, the parameters of the subject's relationship with his environment, which contribute to the shaping of person's behavior (Kaufmann 2002). According to Mead, the environment has both a material and a symbolic dimension. As the person is activated, he creates, with the help of symbols, the importance of his actions and the situations that he is experiencing. The connection between the symbolic level and the actions lies in the fact that individuals, acting individually or in groups, share the same cultural context, whose symbols, referring to standards, values, etc., are perceived by everyone and affect their actions. From a simple social unit, the person is now considered as the protagonist in his life events. Its forms of behavior are governed by a "*space logic*" affecting social interactions, forms of social organization and processes of change in the environment (Mead 2015).

In this context, space is perceived as a "reflection" and a "product" of social processes developed by individuals and social groups. In particular, the built space can contribute to the reproduction of the predominant forms of behavior and practices, which are expressed through its layout, size and other characteristics. These positions have shown that the *practices* developed by the subject in the field are important for the formation of behavior and social relations, both in functional and symbolic aspect. Consequently, practices in this field should be treated as the essential "tool" of a social interaction procedure being developed between the subject (individual and / or group) and the predominant characteristics of its social environment (Germanos 2015).

Chombart de Lauwe put the phenomena associated with space within the framework of the relationship "person-group-society". This relationship is characterized by the *dynamic culture* that is being developed between the organized form of society and the everyday life of the subject (individual and / or group). The first one, society, is equipped with institutions and mechanisms supporting its operation and aiming at its reproduction. The second one includes conditions and lifestyles which in practice govern the social environment function and which often escape or overturn the models and values expressed by the organized form of society. Through this dynamic, the tensions, conflicts and convergences that characterize the life of a society, at a specific place and time, are expressed (Chombart de Lauwe 1982).

According to Chombart de Lauwe, the built space has two faces. In the first, the arrangement and the aesthetics of the space express the predominant views of *how* an environment of social activity (for example a residential area or a school) *should be*, as well as of the "approved" ways of its use, through social accepted practices and forms of behavior. In the second, the subject understands and experiences the object-space in its own way, linking it to personal elements, such as needs, values, expectations, interests. Thus, the second aspect expresses the subject-space relationship, as it is organized by *the aspect of the subject*.

The subject, therefore, uses the space and under the influence of values and models, determined by the potential of a society at a specific place and time and which influences the formation of its behavior. However, the effect of the environment on the subject is not a one-sided process. This is exactly the opposite. The individual (or group) that accepts these influences internalizes them on the basis of their own criteria and values, formulated in the context of his personal history and through his interactions with others. Thus, in the end, his behavior is shaped by the filter of his own characteristics, adopting only part of the "suggestions" of his social environment. As a result of its psychological and social quality, the layout and aesthetics of the space transfer to the subject (individual or group) values and patterns that dominate the social community. The *organization* of space is "contradictory" to the *use* of space, for the reason that a certain material environment is, as we have seen, an important field of shaping behaviors and practices, which often reach interventions changing the original form of space (Germanos 2006a).

1.3 The pedagogical dimension of space

This potential expresses with material size the factors of the interaction developed between the subject and its social environment. Space is the material basis of this interaction, which aims to coordinate the attitudes of the individual or group with the characteristics of its social environment. In practice, this potential is of great pedagogical importance. On the one hand, the information provided by the space is a potential learning stimulus, since the information resource contained in the space is related to the subject's life and experience and, therefore, could be integrated into a learning process. In practice, the stimuli coming from the place provide the child with information about the aesthetics, social values and culture of his social environment. On the other hand, they might encourage them to develop activities associated with social learning processes (Fisher and Khine 2006, Spencer et. al 1989). On the other hand, the possibilities it provides for interaction with the social and material environment lead to the acquisition of skills and the formation of behavioral forms. Space is the material basis of a complex process of education, which connects the subject *simultaneously* with himself and his social environment, both direct and extensive. Thus, *space can be a field of education that teaches* "what is", "how it is explained", "how can I act", "what behavior could I have", for any object or condition that the subject meets. Especially with the changes that it brings to the place, either real or symbolic, the child is projecting to it its personal choices, which are also a response to the influence of the social environment. In this case, the built and configured space becomes an interaction field that could lead to modification of the space itself (Germanos 2015, 2006a).

2. The place: a space inside the space

The process we describe before, may lead to the creation of a *place*. The place is a real space inside the space. However, it has the peculiarity of being adapted to the subject and redefined by the subject, which has been invested with meanings referring to its expectations, relationship with others, but also the world of its imagination. The concept of place allows us to study the interaction between what we are and where we are and finds its application especially in social psychology, environmental psychology and geography. Here, we use it so as to point out a) the subjective nature of the child's relationship with the space, and b) the links between space and the world of imagination, two elements which, paradoxically, contribute to the cultivation of the child's relationship with the reality. The place, therefore, is a microenvironment, a subjective version of space, linked to the wishes, choices and capabilities of the subject (Fischer 1997, Hague and Jenkins 2005, Piaget 1998, Proshansky and Fabian 1987). In this microenvironment, the subject develops communication and interaction practices, organizes his relationships with others and forms his representations using the space within the educational process. According to Lévy and Lussault, place includes both material elements (architectural spaces, structures, objects) as well as a set of non-material elements (relationships, practices, representations, experiences) that link the subject to his immediate environment. In other words, the place is "the smallest compound unit of space in society" (Lévy and Lussault 2003).

Subsequently the psychosocial characteristics of the site outweigh its material dimension, the research addressed the question of measuring the sizes at one place. Euclidean geometry units are not sufficient because their stability cannot capture the variable nature that the attached psychosocial factors put on a place. In response, Lévy and Lussault delimit the place through a changing "formative limit", which is linked to the practices and representations of the subject and refers to the values and rules that he adopts and enters in the place through his activity (Lévy and Lussault 2003).

In any case, research has shown that the study of the place requires its simultaneous approach to two levels. These are, on the one hand, the "objective" reality, which corresponds to the living conditions and material space existing independently of the subject and, on the other hand, the reality formed by the subject itself (Cresswell 2013).

2.1 The importance of creating educational places in the school environment

The creation of educational places in the classroom is of great pedagogical interest. As far as the organization of space is concerned, the flexibility and the use of stimuli and references related to the world of child imagination encourage frequently change the space. These changes may result in the creation of micro-environments of educational and cultural interest. As far as the use of space is concerned, the freedom of children to intervene in the surroundings and to adapt them to their own centers of interest complements the possibilities offered by the space in the classroom.

The use of the place is of particular interest from a psychosocial point of view for the reason that the subject forms emotional bonds to his surrounding area. These links affect the communication and interaction processes in which the subject participates and create meanings in his daily life. The process of using the place by the subject personifies the place, gives it a place identity, and ultimately helps to shape the identity of the subject (Manzo and Devine- Wright 2014).

The teacher, on his own or with the children, may take advantage of the ways that open up in the classroom due to the freedom of association with the space so as to form educational places related to classroom activities. Children create places spontaneously, during their play, formulating a field of expression and constant interaction with the social environment (Gkloumpou 2015). Researches related to this issue, conducted in Greek kindergartens, have shown the advantages of this process for teaching, especially if educational places operate in a play environment. The educational places that have been observed consisted of a module of spaces and activities, which included

- a temporary layout of the place, based on changes that were mostly symbolic, such as "changing" the identity of the objects: a fabric laid on the floor "was" a river, a seat on a table "made" a hill, ... etc.
- an educational play activity, the content of which was linked to the concepts of teaching.

Linking space relationships to the educational process has allowed children to gain a space experience that was related to the new concepts. The educational site has become a *material field* of education, linked to the active participation of the child and his pleasure in participating in this form of educational process. The creation of educational places in the classroom gives another dimension in the educational process, since it "builds" the process of learning on the pleasure and centers of children interest (Germanos 2015).

3. The characteristics of the space created by the child at school

But how likely is this to happen to the reality of the Greek school when the classroom space in many cases functions only as a "framework" within which the educational process takes place? And what is the relation of the child's place/space with the stereotyped educational version of the space for the child where there are many rules which define only an appropriate predetermined organization and use of space, which is the same for all students regardless of gender and characteristics of their personality? And what are the characteristics of the space that the child itself can create based on his / her own criteria at school?

In order to answer these questions, a series of educational action researches were organized to examine the process interdisciplinary by comparing architectural, pedagogical and psychosocial parameters that allow the formation of a global assumption. Educational action research is a transformative process that, in addition to producing knowledge, focuses on the transformation of the student, the group, the educational framework and the upgrading that can arise from all these transformations to all the factors involved (Titchen and McCormack 2010). In all cases the educational action researches were focused on the recording and evaluation of children's practices, combined with the forms of communication and interaction they develop in the pedagogical framework of this particular class.

3.1 Methodology

According to these, children of a public kindergarten in Thessaloniki Greece, aged 4-6 years, participated in three educational action researches, as participants (Germanos and Gkloumpou 2018, Gkloumpou and Germanos 2016), but also as participants and researchers too, according to the "Mosaic Approach" (Gkloumpou and Kakana 2018). In these researches the children created their own places according to their personal interests and the requirements of the educational process, redesigning in a practical and symbolic way the area of their class both during the duration of their play in spontaneous activity and also in the directed / organized activity and compare the characteristics of the spaces that arise with those of their classroom. In all the researches, alongside with the pedagogical use of space, we also implemented the cooperative learning in order to create a "cooperative learning environment". Such an environment requires new pedagogical concerns and different and higher types of interactions between the children (Baudrit 2007) that are very important for the improvement of the social and cognitive abilities of the children at preschool age.

The research tools used were an observation guide, a diary, a children's interview guide and photo shooting. The kindergarten teachers were also researchers and there was also an external researcher / facilitator of the Aristotle University of Thessaloniki. The observation guide was planned by the researchers especially for the recording of data of the classroom's material and social structures, where the co-researchers had a basic role in the process.

The diary was used as a dynamic and creative tool because it offers the capability for the personal experience to be developed and also can contribute to the development of the participants' reflection (Pine, 2009). The children's interview guide was semi-structured and was focused on children's opinions and emotions about the learning activities, the group working and the flexible use of space. The photo shooting was an additional tool for the observation guide, that was helping the researchers to acquire more clear and holistic view of the process.

The main objective was to investigate whether the data configuration and use can be incorporated into the architectural design of the school space so that the latter is unleashed by existing architectural and pedagogical stereotypes. The results refer to a system of architectural, pedagogical and psychosocial criteria which, if applicable, the "space for the child" can integrate the "child's space" and coexist with it at school. In this context, preschool areas are a case of environmentally rich environment of symbols and routines in which material, emotional and social factors are closely and *dynamically* linked (Clark 2010). Relationships between children and adults are structured, rebuilt and redefined continuously, with processes that are directly related to the formation and use of space. They are a meeting place with peers, a space of communication, exchange of views, interactions and, of course, expression of emotions and transferring cultural, social and economic information (Dahlberg and Moss 2005).

4. Results

These researches, which were carried out in the context of a human-centered vision of space, based on the relation of materials with the non-material qualities of the built space, showed both the cooperative characteristics of spaces arising through the creation of places by the children in the classroom, as well as their connection to the educational process, a conclusion that is consistent with previous action researches (Germanos 2015, 2016, Gkloumpou 2014). The spontaneous creation of places by children is pedagogically interesting because it can lead to the formation of microenvironments that favor the active and creative participation of children in the educational process. At the same time, the adaptation of the educational environment to the child is intensified, because the place is linked to the initiative and expresses its own characteristics both in material and non-material level (Germanos 2014). The important thing is that the new places formed by the children offered a range of alternative possibilities that enriched the interest and creative quality of the educational process as to:

- Formation and use of space (architectural criteria)
- Participation, communication and interaction (psychosocial criteria)
- Teaching and learning processes that lead to different possibilities of cultivating and expressing knowledge, involvement and experiences (pedagogical criteria).

A basic finding is that the *child's place*, that is, the one created by *the child itself* at school, operates in three basic directions:

1. *In relation to learning*, because it can link learning with the pleasure of the child from his participation in the educational process
2. *With regard to the integration of the child into school and classroom*, because it can enhance the child's feeling of place belonging and, therefore, to contribute to the cultivation of a positive psychological climate in the classroom and
3. *The child-space relationship* with the formation of a model of living space in school. The creation of children's places / spaces is based on a combination of symbolic and real interventions that cancel the restrictions of the architectural space

5. Conclusion

These findings have shown how important is for the children to interact with the classroom environment and to adapt it to their needs and wishes. They also have shown that when children function freely in the educational process, both in terms of their relationship with the space and their peers during a cooperative way of working and learning, they acquire what Clark defines as *environmental / spatial literacy* (Clark 2010).

This occurs because the places, created by children, function as *material education fields* and *learning environments* that lead children to active participation and learning and to cognitive and psychosocial development, rather than as empty spaces, including standardized forms of organization and operation that lead to limited, predetermined and inelastic educational practices.

References

- Baudrit, A. (2007). *L'apprentissage coopératif. Origines et évolutions d'une méthode pédagogique*. [Cooperative learning : Origins and evolutions of an educational method]. Paris: De Boeck.
- Chombart de Lauwe, P.-H. (1988). *Culture-action des groupes dominés. Rapports à l'espace et développement local*. [Culture-action of dominated groups. Reports to space and local development]. Paris : L'Harmattan, coll. Changements.
- Chombart de Lauwe, P.-H. (1982). *La culture et le pouvoir*. [Culture and power]. Paris: Calmann-Levy.
- Clark, A. (2010). *Transforming children's spaces: children's and adult's participation in designing learning environments*. London: Routledge.
- Cresswell, T. (2013). *Place: A short Introduction*. Oxford, UK: Blackwell Publishing.
- Dahlberg, G. and Moss, P. (2005). *Ethics and politics in early childhood education*. London: Routledge.
- Fischer, G.N. (1997). *Psychologie de l'environnement social*. [Psychology of the social environment]. Paris: Dunod.
- Fisher, D.L. and Khine, M.S. (2006). *Contemporary approaches to research on learning environments*. London: Word Scientific.
- Germanos, D. (2006a). *Οι τοίχοι της γνώσης*. [The walls of knowledge]. Athens: Gutenberg.
- Germanos, D. (2006b). Χώρος και συμπεριφορά στο κοινωνικό περιβάλλον. [Space and behavior in the social environment]. Στο Ε. Συγκολλίτου, *Περιβαλλοντική Ψυχολογία. Σύγχρονες τάσεις στη Ελλάδα*. In: Ε. Syngollitou, [Environmental Psychology. Modern trends in Greece], 43-64. Thessaloniki: Kyriakides.
- Germanos, D. (2014). Reforming the school space: from the normative space to a space for children. In M. Tzekaki and M. Kanatsouli (Eds.) (2014). *Proceedings of the national conference with international participation: Reflections on childhood*. Thessaloniki: School of Early Childhood Education, Aristotle University of Thessaloniki, 448-467. <http://www.nured.auth.gr/congress2014/>.
- Germanos, D. (2015). The Place as factor of the pedagogical quality of space. In D. Germanos and M. Liapi (eds). *Places for learning experiences. Think, Make, Change*. Digital proceedings of the symposium with international participation, Thessaloniki, 09-10 January 2015. Athens: Greek National Documentation Centre, 46-55. <http://epublishing.ekt.gr/el/12239>.
- Germanos, D. and Gkloumprou, A. (2018). Το παιδί δημιουργεί το χώρο του: αρχιτεκτονικές, παιδαγωγικές και ψυχοκοινωνικές παράμετροι. [A child creates his own space: architectural, pedagogical and psychosocial factors]. In K. Tsoukala, D. Germanos, A. Gkloumprou, G. Katsavounidou, P. Panteliadou, P. Tomprou (eds) (2018). *Conference Proceedings 'Children's Spaces or Spaces for Children? When education intersects with the everyday life in the city'. [Χώροι του παιδιού ή χώροι για το παιδί; Όταν η αγωγή τέμνεται με την καθημερινότητα της πόλης]*. (In press). Available at <https://eproceedings.epublishing.ekt.gr/index.php/childspace>
- Gkloumprou A. and Kakana D. (2018). Τα παιδιά αναδιοργανώνουν τον χώρο της τάξης τους: μία έρευνα δράση στο νηπιαγωγείο με την «προσέγγιση του Μωσαϊκού». [The children reorganize the space of their classroom: an action research at kindergarten based to the "Mosaic Approach"]. In K. Tsoukala, D. Germanos, A. Gkloumprou, G. Katsavounidou, P. Panteliadou, P. Tomprou (eds) (2018). *Conference Proceedings 'Children's Spaces or Spaces for Children? When education intersects with the everyday life in the city'. [Χώροι του παιδιού ή χώροι για το παιδί; Όταν η αγωγή τέμνεται με την καθημερινότητα της πόλης]*. (In press). Available at <https://eproceedings.epublishing.ekt.gr/index.php/childspace>
- Gkloumprou, A. and Germanos, D. (2016). Η συμβολή του χώρου της τάξης στη συνεργατική διδασκαλία μαθηματικών εννοιών στο νηπιαγωγείο . [The contribution of classroom space in the cooperative teaching of mathematics, in kindergarten]. *Conference Proceedings of the 3rd International Preschool and School Pedagogy: Contemporary Trends in the development of Curriculum and Teaching*. [Σύγχρονες τάσεις στην ανάπτυξη προγραμμάτων σπουδών και στη διδασκαλία]. Nicosia, 23-24 April, 2016. (In press).
- Gkloumprou, A. (2015). Δημιουργώντας τόπους σε συνεργατικά εκπαιδευτικά περιβάλλοντα στο νηπιαγωγείο. [Creating places in cooperative learning environments in kindergarten]. In D. Germanos, and M. Liapi (eds). *Places for Learning Experiences. Think, Make, Change. [Τόποι για Εμπειρίες Μάθησης: Έρευνα, δημιουργία, αλλαγή]*. Digital Proceedings of the Symposium with International Participation, Thessaloniki, 09-10 January 2015. Athens: Greek National Documentation Centre, 108-119.
- Gkloumprou, A. (2014). Η παιδαγωγική αξιοποίηση του σχολικού χώρου στη διαμόρφωση συνεργατικού εκπαιδευτικού περιβάλλοντος. Εφαρμογή σε ένα πρόγραμμα μαθηματικών δραστηριοτήτων στο νηπιαγωγείο. [The pedagogical development of the school environment in the configuration of a cooperative educational setting.

- Implementation in a mathematical activities program in kindergarten]. (Phd Diss.) Aristotle University of Thessaloniki. Greece. Available at <http://www.ekt.gr/el/library/didaktorika>
- Hague, C. and Jenkins, P. (ed) (2005). *Place identity, planning and participation*. New York: Routledge.
- Hall, E. (1990). *The hidden dimension*. USA: Anchor Books.
- Kaufmann, P. (2002). *Kurt Lewin, une Théorie du Champ Dans les Sciences del' Homme*. [Kurt Lewin, a Field Theory in Human Sciences]. Paris: Vrin.
- Koffka, K. (1999). *Principles of Gestalt Psychologie*. New York: Routledge.
- Lewin, K. (2015). *Principles of topological psychology*. London : Read Books.
- Lévy, J. and Lussault, M. (2003). *Dictionnaire de la géographie et de l'espace des sociétés*. [Dictionary of Geography and Space of Societies]. Paris: Belin.
- Manzo, L.C. and Devine-Wright, P. (2014). *Place Attachment: Advances in Theory, Methods and Applications*. New York: Routledge.
- Mead, G. H. (2015). *Mind, Self and Society*. The definitive edition. Chicago: University of Chicago Press.
- Moles, A. and Rohmer, E. (1998). *Psychosociologie de l'espace*. [Psychosociology of Space]. Paris: L' Harmattan.
- Piaget, J. and Inhelder, B. (2003). *Psychologie de l'enfant*. [Psychology of the Child]. Paris: Presses Universitaires de France.
- Piaget J. (1998). *La formation du symbole chez l'enfant*. [Child's formation of the symbol]. Paris : Delachaux et Niestlé.
- Pine G. J. (2009). *Teacher action research: Building knowledge democracies*. USA: Sage.
- Proshansky, H.M. and Fabian, A.K. (1987). The Development of Place Identity in the Child. In C. S. Weinstein and T. G. David, *Spaces for children*. New York: Plenum Press, 21-40.
- Spencer, C. et al. (1989). *The Child in the Physical Environment*. G. Britain: J. Wiley and Son.
- Tichen A. and McCormack B. (2010). Dancing with stones: critical creativity as methodology for human flourishing. *Educational Action Research*, 531-554. 18 (4).
- Wallon, H. (1999). *De l'acte à la pensée*. [From act to thought]. Paris: Flammarion.