Editors

Gianina-Ana MASSARI

Florentina-Manuela MIRON

HANDBOOK ON LEARNING SPACE

PEDAGOGICAL GUIDELINES FOR EDUCATORS

[Text]

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LATVIA

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CHAPTER 1

LITERATURE REVIEW ON LEARNING SPACES

Cristina, MESQUITA[1], Gianina-Ana MASSARI, Florentina-Manuela MIRON[23]

1.1 EVIDENCE ON THE QUALITY OF EDUCATIONAL ENVIRONMENTS

Research on learning conditions suggests that the physical, social and organizational environments in which teaching and learning processes take place play a central role in children's educational success. There is evidence that the design and management of educational spaces are fundamental in the learning, health and well-being of children, especially in childhood education and in primary school (OECD, 2018a). More specifically, the studies of Martin (2019), Barrett et al. (2015) Barros et al. (2016) and Oliveira-Formosinho and Andrade (2011) have revealed that quality educational environments foster learning and that poorly promoting environments can be disruptive for children.

In the Technical *Report A place to learn: lessons from research on learning environments* (UNESCO, 2012), the learning environment is defined as the holistic physical, social and pedagogical context in which learning is intended to take place. The term most often refers to school activity rooms but can include any learning location such as science labs, distance learning contexts, libraries, tutoring centers, teacher rooms, gymnasiums, and non-formal learning spaces.

In this regard, Mesquita (2018) suggests that a learning environment will be one that considers in an interrelated way the conditions: policies (legislation, regulations, curricular options); organizations (human resources and dynamics of the organization, training); (spaces, furniture and materials); emotional effects;

[1] Research Center on Basic Education, Polytechnic Institute of Bragança, Portugal cmmgp@ipb.pt

[2] Faculty of Psycology and Education Science, Alexandru Ioan Cuza University of Iasi, Romania, gianina.massari@gmail.com

[3] Faculty of Psycology and Education Science, Alexandru Ioan Cuza University of Iasi, Romania, mironmanuela@yahoo.com

that affect the action of different actors (children, educators and auxiliaries, parents and community). In this accession, the learning-promoting environments are complex environments that intersect and where are considered the different contextual dimensions. The author also considers that enabling environments are those where children's experiences respond to their individual needs and interests, configured in a responsive interaction between educators, parents and the organization.

The pedagogical space should be designed to provide children with co-construction of their learning. In this sense, it is defined by Oliveira-Formosinho and Andrade (2011) as a place of well-being, joy and pleasure, a space open to the plural experiences and interests of children and communities. A pedagogical space that is characterized by the communicative power of aesthetics, the ethical power of respect for each, personal and social identity, made a safe and friendly port, opening itself to play and culture. In this sense, the space must be: (i) open and responsive to personal, social and cultural identities in order to integrate and respect diversity; (ii) have a flexible organization that the child knows in order to develop his autonomy and collaboration; and (iii) to promote the experiential learning and different forms of the child' expression.

The literature highlights the importance of spaces in learning, the well-being and educational success of children and young people.

1.2. THE CHALLENGES OF THE 21ST CENTURY EDUCATION AND THE RECONFIGURATION OF LEARNING SPACES

In the postmodern Era the new paths and new understandings about the learning of children and young people, the influence of technologies, and the demands of the knowledge society put pressure on and raise questions about the traditional way of teaching and learning. Several studies have revealed that sociocultural approaches (John-Steiner & Mahn, 2003), constructivists, contextual or ecological share similar ontological, epistemological and pedagogical principles and assumptions (Band, 2012). These approaches recognize that learning must be challenging, intentional, active, sensitive, constructive, responsive, and cooperative and include reciprocity between intention, action and reflection (Jonassen & Land, 2000).

Among other foundations, these approaches highlight that children should work in cooperation, but also autonomously, implying their learning with enthusiasm and genuine interest in issues that arouse their curiosity and lead them to build knowledge holistically. In this perspective, Piaget (1970) argued that learning reasoning skills is more important than the content of knowledge since the skills allow children to have an independent mind and continue to learn beyond the classroom. Considering social learning in curricula implies taking into account the design of the space and how it provides different types of interaction, in order

to ensure moments of cooperation between peers, between students and teachers and between the educational community and the culture where they belong. From this perspective, Bruner (2003) stressed the idea of learning as a collaborative process, which involves the construction of knowledge through cooperation and action between peers. According to the author, space is an opportunity to act, think and communicate. It is a "starting point that allows the development of an effective sense of participation in an enabling community" (Bruner, 2003, p. 109). However, the learning space is not conceived by the author as something merely physical. The empowering action depends on the existence of social space. For Bruner (2008) the artefacts suggest differentiating actions and, because they are impregnated with culture, they constitute vehicles of appropriation of this same culture. The author considers that thinking involves learning to use cultural, symbolic and material instruments taking into account the specificities of their use.

Dewey (1997a) also took a perspective that continues to inspire educational issues. The author, by valuing the experience as a source of learning value the activity, recognizing that all education is an action performed by the experimental subject, in a learning process in action. It also emphasizes the idea that the educational experience, like the whole experience, is a direct manifestation of life itself (Gambôa, 2004). In this sense, it recognizes the need to transform the school space into a physical and social environment that allows the growth of the child. However, it considers that the development of dispositions and attitudes, necessary for social experience, does not occur only by the beliefs, emotions and knowledge of the subject. They develop a relationship with the environment (Dewey, 1997b).

This perspective led Dewey (1997a) to transform the classroom space into a place of action and experimentation, where carpentry and weaving workshops, workshops, kitchens, sewing, laboratories and the library were constituted as areas where children could recreate fundamental activities of life, acting and communicating their learning. And because he considered that the school aimed, first of all, to live and learn through and in interaction with this experience, it stressed the importance of using the resources of the environment, contact with the natural environment, as a locus of discovery that would expand the experiences and knowledge of children (Dewey, 2010).

However, it is important to consider, the time distance that is part of these conceptions and recognize the differences that the society of the first half of the twentieth century presents in relation to the society of the 21st century.

Although, these principles continue to remain current, even if they have never been able to sufficiently influence the dynamics of the school and the methodological conceptions of most educators and teachers.

In fact, the new societal configuration, defined by Bauman (2007) as a 'liquid' and 'pointillist' society, challenges us to rethink learning methodologies, the role of children, the action of educators and teachers, the influences of society, technologies as well as their integration, in an educational space where the word oral and written, continues to be predominate. In recent decades, policy makers, educators, designers have been considering the physical space of learning as a fundamental factor for educational transformation. The *School User Survey, Improving Learning Spaces Together*, developed by OECD (2018b) points out that the design of physical environments can promote or hinder the teaching and learning of the skills required for the 21st century.

The emphasis placed on sociability, collaboration and independence highlights the need for redesigned learning environments that allow children to learn differently by participating in group work, or autonomously or with peer. In addition, informal 'learning areas' can help children develop other skills (communication, resilience, autonomy, inclusion, respect, solidarity, flexibility, among others), as their learning can extend beyond the rigidity of formal classroom hours. Technology also has a role to play in the development of digital skills, promoting not only its technical use, but the construction of literacy that allows children to use, find, verify, choose and disseminate information in a responsible and enlightened way (Band, 2012).

1.3 CHARACTERISTICS OF THE SPACE IN A PARTICIPATORY APPROACH

Over the past two decades, different working groups have taken on this challenge, seeking to modify the static configuration of the "stage sage" in a dynamic arrangement that involves children and educators, in open and active dialogues, in environments that promote the development of complex knowledge for solving problems and the construction of the critical thinking (Rud, 2008). In this sense, the shift from learning focus to place and space issues linked design and spatial function to improving the learning experience. Examples of this are the work developed by FuturLab (Rud, 2008), VMDO Architects (VMDO Architects, 2016) the European Schoolnet (Bannister, 2017) the Salford Centre for Research and Innovation in the built and human environment [SCRI] (Barrett & Zhang, 2009), the Transforming Croydon Schools Team and the Centre for Effective Learning Environments [CELE] (Guldbaek et al., 2011; Kotnik & Shmis, 2011; Moore, 2011) among others. These reports provide information on the development of new ideas on space design and provide useful guidance for the schools that are creating or adapting learning spaces to enable the development of innovative pedagogies.

The educational theory related to space and place recognizes the importance of these two dimensions in the functioning of society and in the development of

personal and group identity, considering that these contributed to the redefinition of the concept of spatiality (Jonassen & Land, 2000; McGregor, 2004) There are some criteria that educational spaces must incorporate, in order to respond to the demands of education today and which are challenges for managers, policy makers, designers and educators, who are explained below:

(a) the flexibility of spaces

As mentioned above, the adoption of more interactive learning models places children and educators/teachers at the center of the educational process. The design of educational spaces plays an important role in promoting these pedagogical methods. In this sense, educational spaces should be flexible to accommodate a possibility of learning scenarios and experiences, the use of technologies and different types of interaction (Kariippanon et al., 2019). A place where the natural and the technological, the scientific and the emotional interact. Thus, the space should enable social experience and plural and holistic learning (Mesquita, 2016).

b) holistic vision

Spaces should translate a holistic view of learning. Holistic approaches focus on the child as a whole, with body, mind, emotions, creativity, history and social identity, assuming all their development (Mesquita, 2018). Thus, it is stressed that the child's learning takes place in the cognitive, social, cultural, physical and emotional dimensions, interconnected and that act together, which implies that all their forms of expression are valued. The holistic view also highlights that the child should be understood as one of the actors who are part of society and who participate in it. Educational spaces must meet this vision, focusing on their design and organization as a whole, avoiding excluding any significant aspect of the human experience. The focus of space is to enable interconnection between experience and reality. Everything that exists in space must be articulated in a context of interconnection and meaning. This means that the set is composed of relational patterns that are not contained in the parts and, therefore, learning experiences cannot be understood in an isolated way (Mesquita, 2018). This perspective contradicts the fragmented views, which marginalize various forms of expression of the child and the reductive visions of knowledge and learning, in order to assert itself in a concept of praxis as practical intentionality for change and an ethical commitment to action (Elliott, 2010).

c) a space that responds to all

It should also be emphasized that a space responsive to the interests and necessities of children should consider different areas of work, with multiple possibilities. In this perspective, it is important to consider the organization of the

physical space, the resources that potentiate multiple challenges, the change of roles of children and educators of children and teachers and the various forms of support to different learning rhythms. It should reflect social plurality in various ways, ensuring that all children and adults have the sense of belonging (Oliveira-Formosinho & Andrade, 2011).

(d) an area of cooperation and active learning

Learning areas are a way of integrating different learning experiences that can be developed in more circumscribed spaces or throughout the school, ensuring that everyone is interconnected, involved and challenged. These areas reflect not only formal, multidisciplinary, but also informal learning modes, incorporating cooperative, individual work modality and ensuring personalized support.

Bannister (2017) suggests creating a specific area for research, designed to encourage children to discover things for themselves and to be active participants rather than passive listeners. Childhood educators and teachers can use this space particularly to explore the modalities of inquiry-based learning or experiential-based learning, or the development of projects that, as Michalopoulou (2014) suggests, support the development of critical thinking of children.

In this sense, the furniture must be adjustable and flexible allowing the quick reconfiguration of spaces to enable group work, in pairs or individually. The mix of different technologies should be understood as a support for the research that children are conducting, providing rich and real-life data.

e) a technological space

Stimulation demands for the use of technological tools and devices (including robots, microscopes, online laboratories, 3D models, etc.) that encourage learning and promote the development of autonomy (Band, 2012).

The existence of areas for creativity allows children to exercise their imagination to plan, design and produce their own work, integrating technologies such as digital cameras, microphones, video editing software tools to create podcasts, animations and streaming media (Bannister, 2017).

f) a cultural and humanist space

It should be noted that technology alone does not guarantee meaningful learning. Considering this space areas should also value different forms of artistic expression – plastic, musical, dramatic, dance – building with structured and unstructured materials or with what nature offers. This space, or areas, aims to encourage children to develop their social skills through different forms of collaboration [see in this regard the proposals of The Fugi Kindergarten (Gregory, 2007; Takaharu Tezuka & Tezuka, 2016; Takahau Tezuka & Tezuka, 2011) St. Francis of Assisi Catholic Primary School, Kensington and Chelsea, United Kingdom and Ballifield Community Primary School, Sheffield, United Kingdom

(OECD, 2006) or the Reggio Emilia *ateliers* (Edwards et al., 2016).] In this sense, it is important that spaces are organized in smaller units to facilitate group work and transdisciplinary learning and, at the same time, respect the rhythms, styles and characteristics of each child. According to this perspective, the organization of the space must incorporate the cultural sense of learning and the agency and participation of all actors' children and educators/teachers at all times of the day.

g) a space that articulates indoor and outdoor, nature and culture

The positive effects of children's relationship with nature are widely documented in different studies. Literature reviews by Adams & Savahl (2017) and Gill (2014) indicate that when children play in nature, they are more likely to have positive feelings between themselves and the environment, with the first experiences with nature positively linked to the feeling of admiration, curiosity and discovery that are important for lifelong learning. They also point out that by playing in nature the child discovers the meaning and relationship between things, expressing respect and affection for the natural world that surrounds them, developing processes of greater equity. Moreover, as Delia and Krasny (2018) highlight children have become concerned about the environment, creating ways to ensure their sustainability, with their peers and adults.

Educational spaces should allow indoor and outdoor connectivity, so that children can access materials that are inside the room, either for leisure (such as blankets and cushions to sit, books, and dolls...) or to explore the science of things (such as magnifying glass, tweezers, jars...), to play and explore existing materials outdoor (Sand, water, soil and plants...).

1.4 LEARNING OUTDOOR: TWO APPROACHES

As mentioned above, the outdoor environment should appeal to children's curiosity, stimulate their imagination, invite them to explore and support their developing skills. Sand, water, soil and plants provide configurations for open play that emphasize unstructured creative action with loose parts. Children need tools, open space and the opportunity to interact with the outdoor environment. Outdoor spaces should be designed so that children can test their skills in an environment that offers many types and levels of challenges and stimuli.

This line assumes the importance of the connection between indoor and outdoor spaces, between nature and culture. In this context, in recent decades two innovative approaches emerged: the sensory gardens and the loose parts project.

a) Sensory gardens

A sensory garden can be defined as an independent area that concentrates on a wide range of sensory experiences. The creation of these spaces is a valuable experiential resource for different audiences (see this website the projects

developed by the Sensory Trust team, https://www.sensorytrust.org.uk). According to Sensory Trust director Jane Stoneham, a sensory garden cannot be designed without considering the human element. They must attract people by sound, touch, smell, and vision, through the active experimentation of the garden with all the senses (Stoneham et al., 1996)

The approach of sensory gardens seems to have emerged in the UK in the 70s of the last century from the horticultural therapy movement. The first sensory gardens were often located in public parks as a way of showing that municipalities were developing inclusion strategies. However, these gardens consisted of small areas, often marked as 'Gardens for the Blind', and consisted of a combination of fragrant plants, Braille labels and planters created (Hussein, 2012). Over time, society's attitude towards disability changed, giving rise to the idea that the stigma associated with disability could be overcome more easily if different audiences and facilities were integrated, rather than separated. Since then, these spaces, have been developed in an integrated way for disabled people, the elderly, children, and communities.

The construction of these spaces, on the line of Stoneham et al. (1996), integrates into a holistic and participatory approach, involving children or other recipients in their design and construction.

Several studies have highlighted the benefits of sensory gardens in motor development, social learning and children's well-being. For example, Westley's study (2003) indicates that there is a sensory garden in the school space, that allows children to make free choices and explore all their sensations. Titman (1994) identified four elements that the children were looking for in the school grounds: a place to do (opportunities for physical activity); a place of thought (opportunities for intellectual stimulation); a place to feel (to provoke a sense of belonging); and a place to be (to allow them to be themselves). His research focused on the value of improving school grounds as an educational resource to demonstrate how children's attitudes, behaviour and learning abilities could be enriched. Some authors stress that outdoor learning can give children a stimulating experience, as well as influence their behaviors and development in terms of social relationships (Chatterjee, 2005; Dyment & Bell, 2006; Nikravesh & Tabaeian, 2016; Nordström, 2010).

In Hussein's study (2012), it is highlighted that the existence of external spaces of sensory stimulation can encourage mental development, the quality of children's health, their emotional development and social integration. Stadele and Malaney (2001),in a study focused on children with autism, point out that this type of sensory stimulation helps to soothe and self-regulate their nervous system.

b) *Loose Parts Play*

The theory of *Loose Parts Play was* developed by the architect Simon Nicholson, who considers the connection that can be established between landscapes and environments. Nicholson (1972) stressed that we are all creative

and that the 'loose parts' in the environment will enhance the creativity of children. The architect assumed that "In any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables in it" (p. 6). According to Theresa Casey and Juliet Robertson ((2017) the integration of "loose parts" creates richer environments for children to play, giving them the resources to extend their play. Loose parts are not prescriptive and offer unlimited possibilities. According to the authors the list of possible loose parts is infinite, but can include:

- Natural resources – such as straw, mud and pine cones... ;
- building materials and tools - planks, nails, hammers... ;
- scrap materials - old tires, left over gutters... ;
- the floor can be both, a safe playground surface and a loose part;
- essentially, objects found (tires, pipes, boxes, woods (p. 6).

The interventions of loose parts introduce materials and mobile equipment in spaces where children recess to facilitate unstructured or oriented play (Gibson et al., 2017). As Flannigan and Dietze (2018) point out when children interact with *intriguing* loose pieces, they become curious. Children's curiosity is triggered when they see and experience new things and have unique experiences that may not be possible in the indoor environment. This curiosity is how children inspire themselves, engaging in new actions and discoveries. The study by Baines & Blatchford (2010) shows that recreational activities require more sophisticated skills than those needed in other school contexts, which supports the theory of the importance of creating outdoor intentional learning spaces.

In *Toolkit Resources for playing – providing loose parts to support children's play*, Casey et al (2017), based in several piece of research highlight the following positive impacts of loose parts (i) increase the creativity and the imagination through the play; development of cooperative play and opportunities to make friends, these are related to the sense of social identity and the well-being of children; (ii) physically more active children; (iii) the development of curricular experiences through informal play with loose parts; (iv) foster communication and negotiation skills, especially in outdoor spaces; increase the concentration and, consequently, cognitive abilities; (v) psychological well-being by spending time in nature; (vi) availability to visit green spaces with adults; and (vii) prone to develop of pro-environmental behaviors and attitudes.

However, some studies indicate the importance of creating different types of learning opportunities in a balanced way during the day, either in spaces that allow concentration and spaces that enhance creation and inventiveness. (Pellegrini & Bohn, 2005).

1.5 CONCLUSION

Educational spaces can be considered as 'physical spaces that support multiple learning and various actions. In a broad sense, the educational space involves actions that combine moments of formal learning and informal learning moments, inside and outside the classrooms and the school.

The literature seems to show that participatory approaches support the need to reconstruct the learning spaces of schools. The Fugi Kindergarten, the St. Francis of Assisi Catholic Primary School, Kensington and Chelsea, United Kingdom and Ballifield Community Primary School, Sheffield, United Kingdom are an excellent example of situated learning, where sustainable *ethos* is founded in the spaces. Outdoor learning is not only a novelty, but a commitment to a philosophy of learning inside and outside the classroom. Many of these schools use furniture that can be moved to encourage sociability, collaboration and learning.

While these spaces are good examples of classroom design, using new technologies and simple design solutions, successful implementation is based on human factors. For example, the integration of technology in spaces remains unintentional and can only be achieved by the commitment of educators and teachers. The same is true of outdoor spaces.

Considered this, all actors, children, educators, teachers and families must be involved in the process of reconfiguring spaces, realizing their possibilities.

The external environment should involve children's curiosity, stimulate their imagination, invite exploration and support their developing skills. For that, it is important to implement more significant pedagogical approaches that develop the child's action, enhancing their well-being and their development and learning.

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