

Babies' spatial experiences based on free movement and autonomy in daycare*

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Abstract

The article is the result of an ethnographic investigation with babies that, based on contributions from the field of Childhood Geography Studies and discussions from the Pikler approach, had as its central objective to discuss the spatial experiences of babies based on free movement and autonomy in daycare. Methodologically, the research was developed with eight babies aged between 4 months and 1 year and 5 months, over ten months, in a daycare center that bases its educational project on the theoretical assumptions of the Pikler approach. The following methodological strategies were used to generate the research data: observation, recording in a field diary, and photographic and film records. Based on reading the field diary, the footage breakdown, and analysis of the photographs, episodes were written about the spatial experiences of the babies that occurred during the investigation. Reading the material generated in the field made it possible to identify recurrences present in the spatial experiences of the babies and to define three analytical units: 1) the movements of the babies through the spaces of the daycare, 2) the babies and the explorations of the materialities that constitute the spaces of the daycare, 3) the interactions between the babies in the occupation of the spaces of the daycare. The analyses show the importance of relational teaching based on the promotion of spaces, times, and materialities, which allows babies to enjoy free movement and have the opportunity to exercise autonomous activity through their spatial experiences.

Keywords

Daycare – Babies – Spatial experiences – Free movement – Autonomy.

* The authors take full responsibility for the translation of the text, including titles of books/articles and the quotations originally published in Portuguese.

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Initial considerations

The recognition of daycare as a *public right to guarantee the care of babies* (Guimarães, 2023) was consolidated in the Brazilian Federal Constitution of 1988 (Brasil, 1988) and reaffirmed in the *Law on Brazilian Education Guidelines and Bases (LDB)*, *Law No. 9,394, of December 20, 1996* (Brasil, 1996), based on the establishment of Early Childhood Education as the first stage of Basic Education. However, in relation to the care of children aged 0 to 3 years old in the national territory, Henrique Silva and Bernadete Strang (2020, p. 16, our translation) argue that there is still “a lack of daycare centers; the number of teachers is insufficient, [...] many of them are poorly trained; [and] in general, the spaces are inadequate [...]” for the qualified care of babies.

In daycare, teaching is often wrongly guided by the *imperative of stimulation* (Carvalho; Radomski, 2017). This imperative, of a propaedeutic nature, is associated with an organicist perspective of human development. It does not recognize the baby as a *subject of action* (Szanto-Feder, 2014) and projects him as human capital to be invested. Contrary to this perspective, we defend the care and qualified education of babies in daycare centers as “[...] the right to coexist in the collective and public space with an attentive, professional adult presence, in a pedagogical intentionality immersed in joint attention” (Guimarães, 2023, p. 9, our translation) and in respect for children.

In this sense, we agree with Chokler (2017, p. 40, our translation) when she states that “the child’s activity in the world is a shared action in a complex social relationship, in which the reciprocal bonds between the participants are not configured only by action and reaction, but by social relationships imbued with affective content.” Thus, “[the teaching] intentionality is placed in the teacher’s direct actions, in the ability to organize spaces, actively observe, act, and arrange contexts based on attention to movements [...]” (Guimarães, 2023, p. 12, our translation) and discoveries that configure the *spatial experiences* (Lopes; Paula, 2020) of babies.

Understanding that “[...] there is no spatial experience outside of the human verb” (Lopes; Paula, 2020, p. 6, our translation), we highlight that this article is the result of research with babies (Kelleter, 2020) that, based on contributions from the field of Childhood Geography Studies (Amadini, 2016; Lopes, 2021) and discussions derived from the Pikler approach (Pikler, 2010; Falk, 2011; David; Appell, 2013; Chokler, 2017), had as its central objective to discuss the spatial experiences of babies (Lopes; Paula, 2020) based on *free movement* (Szanto-Feder, 2014) and *autonomy* (Falk, 2011) in daycare. This investigative purpose implied the defense that “the baby’s movement, with its gestures and varied tonic languages, not only gives contour to the lived experience, [but can] be understood as a mode of communication [...]” (Cervo, 2022, p. 6, our translation) that materializes through its experiences.

We clarify that, in the sense of Vygotsky (1994, p. 342), “[...] an emotional experience [perezhivanie] is a unit where, on the one hand, in an indivisible state, the environment is represented [...] and on the other hand, what is represented is how [...]” this is experienced. For this reason, similar to Silva, Goulart and Neves (2023, p. 6, our translation), “we consider that [...] knowing the experiences (perezhivanie) constituted by the group of babies in the nursery space, requires special attention to the forms used by children when

establishing their approaches with other babies, adults, and cultural artifacts". Thus, the *spatial experiences* (Lopes, 2021) of babies in daycare refer to how they, through *free movement* (Szanto-Feder, 2014), appropriate spaces through their movements, discoveries, and interactions with their peers, adults, and materialities, attributing meanings to what they experience. Therefore, to conduct "the exercise of reading the unit [person/sociocultural environment]" in the context of the daycare center (Silva; Goulart; Neves, 2023, p. 6, our translation), we understand that the space is physical and also social and constituted through the relationships established by the subjects that inhabit it.

Methodologically, we developed ethnographic research (Graue; Walsh, 2003) over ten months with eight babies aged between 4 months and 1 year and 5 months in a daycare center that bases its educational project on the theoretical assumptions of the Pikler approach (Pikler, 2010; Falk, 2011; David; Appell, 2013). This approach was developed by Hungarian pediatrician Emmi Pikler in 1946 at the Lóczy Institute in Budapest, Hungary, and advocates promoting free movement and autonomy in babies through secure attachment and quality personal care. The Pikler approach focuses on a system of personal care for babies designed based on the following principles:

[...] the value of the children's autonomous activity based on their initiatives; the value of the privileged affective relationship and the importance of the particular form that should be given to them in an institution; the need to encourage the children to become aware of themselves and their surroundings; the importance of a good state of physical health, which serves as a basis for the good application of the preceding principles, but which is also a result of them. (David; Appell, 2013, p. 23, our translation).

Among the principles listed, we highlight the centrality of babies in the educational action developed in the daycare center. This centrality confirms the importance of the affective relationship, autonomous activity, and the "[...] attentive and non-predictive attitude [...]" (Guimarães, 2019, p. 53, our translation) of the adult so that the baby can exercise choices. It is an ethical attitude towards the care and education of babies in the institutional space, which is also present in the investigative process.

From this approach, understanding that *ethics in research with babies* (Alderson; Morrow, 2011) precedes methodological choices, we conducted the following actions: a) we obtained the consent of the daycare management team; b) we obtained authorization from the children's families and teachers to conduct the research by signing the Free and Informed Consent Form; c) we obtained the babies' consent, through a reactive entry into the field and the establishment of a bond with the investigated group; d) we used fictitious names to name the babies and their teachers; e) at the end of the investigation, we provided feedback on the research to all those involved.

We used the following methodological strategies to generate research data: observation, field diary recording, and photographic and film records. Based on reading the field diary, editing the footage, and analyzing the photographs, we wrote episodes about the spatial experiences of the babies observed in the investigation. Reading the material generated in the field enabled us to identify and define three analytical units: 1) the movements of the babies through the daycare spaces, 2) the babies and the explorations



of the materialities that constitute the daycare spaces, and 3) the interactions between the babies in the occupation of the daycare spaces.

This article is organized into six sections. After this introductory section, the second section presents the conceptual discussion. Respectively, in the third, fourth, and fifth sections, we will share the analyses of each analytical units. Finally, in the sixth section, we will present the final considerations of the article.

Free movement, autonomy and spatial experiences of babies: conceptual notes

Episode 1 – Babies inhabit spaces

Babies move around the reference room, crawling with ease. Encounters, interactions, smiles, and exchange of glances mark their explorations of the spaces in the room. The reference room is large and organized into circumscribed spaces – feeding, resting, and free play. The area with materials and furniture – ramp, tunnel – for free play is the most sought-after by babies. They move freely around the room and choose materials to play with, as well as furniture to explore, without the teacher or assistant educator directly intervening. I notice a baby crawling into the resting area, accessing one of the padded Montessori beds at floor level, and lying down. Within moments, the baby begins to sleep while the others in the group continue interacting with each other and the materials. My inference from the morning observation is that the babies' free movement and autonomy in the daycare center enable significant spatial experiences. (Researcher's Field Diary³).

As noted in the episode, we observed during the research that the teachers allowed the babies to have time and opportunity to experience the space through *free movement* (Szanto-Feder, 2014). Free movement, in the sense of Szanto-Feder (2014, p. 36, our translation), "it means allowing the child – whatever his age – to discover, taste, experiment, exercise and then maintain or abandon, over time, all forms of movement that may occur during his autonomous activity."

Intentionally, when organizing the routine, the daycare teachers allowed the babies to have the chance to exercise free movement and autonomous activity in occupying the spaces. As Gabriel (2016) argues, it is essential to provide the baby with the opportunity to become aware of himself and his surroundings based on the regularity and stability of everyday events.

In this sense, the routine must be organized "[...] in at least two moments: moments of personal attention activity and free activity" (Gabriel, 2016, p. 14, our translation). According to David and Appell (2013), moments of *personal attention* operate as a privileged means of building bonds between adults and children. When the teacher performs hygiene, diaper changes, feeding, and clothes changes, she establishes more intimate contact with the baby. The routine applies to both feeding and bathing and to the order in which the teacher will perform each of these actions.

3- The fieldwork was conducted by one of the authors; however, the research planning, analyses, and the article were co-authored.

According to Gabriel (2016), it is through regular and stable care actions that babies begin to recognize themselves, become aware of themselves, identify sensations, and perceive how their routine is organized. Thus, building a bond with the teacher based on stable relationships has the effect of gaining babies' trust and autonomy during *free play* times (Kálló; Balog, 2013).

The babies' self-awareness is also favored by free play, as this activity takes up a significant amount of time at daycare. According to Kálló and Balog (2013), while playing, they discover the properties of the materialities that surround them and learn through action on the objects what they can do with them. Playing fulfills different functions in the babies' lives, including the fact that it is during play that they satisfy their desire for movement and action.

As Tardos (2011) argues, from a very early age, playing enriches babies' knowledge and experiences and constitutes one of the instruments that allow them to know the world. The teaching role during free play is to organize the space and materials so the babies can move around and play independently. From this perspective, autonomy, within the scope of the Pikler approach, is understood as the children's ability, from birth, "[...] exercise his will, test his capabilities, efficiency, and limits [...]" (Szanto-Feder, 2014, p. 335, our translation) based on their free initiative.

For example, in the episode shared at the beginning of the section, it is possible to see that babies have the opportunity and time to decide with which materials and in which limited spaces of the reference room they will play. One of the babies decides to move to the rest area to sleep on his own initiative. Therefore, the teachers at the daycare center understand that autonomous activity is one of the *pillars of babies' motor development* (Golse, 2011) and that "autonomy allows children to enjoy feeling effective" (Szanto-Feder, 2014, p. 335, our translation).

For this reason, promoting the desire of the babies for independent activity is essential in daycare teaching. According to David and Appell (2013, p. 24, our translation), "for the baby's activity to acquire meaning, it must be born from his own initiative." Falk (2017, p. 114, our translation) "approaches autonomy not as an obligation, but as a right of the baby as long as its emergency conditions are ensured." Therefore, to promote babies' autonomy through free movement, the teacher should not interfere directly, impose their will, or even teach movements. Instead, adults must provide an environment that allows babies to experience free movement through experimentation with space, time, materialities, and relationships.

Given this logic, during the research, we realized that "[...] the bond [of babies] with spaces became rigorous, deep, continuous and not occasional at all" (Amadini, 2016, p. 102, our translation). Under the watchful eye of the teachers, the babies looked for their favorite objects and moved wherever they wanted and however they could, according to their intentions. Respecting their rhythm allowed them to act according to their possibilities. Based on a privileged emotional relationship (Pikler, 2010) with babies, the teachers understood that "freedom of movement for the child implies the possibility of discovering, experimenting, perfecting and living in each phase of their development, their own postures and movements" (Szanto-Feder, 2014, p. 83, our translation).

We understand that *free movement* (Szanto-Feder, 2014) of babies and the exercise of autonomy in their choices in the daycare routine operates fruitfully in promoting spatial experiences. We agree with Lopes (2021, p. 87, our translation) that “[...] every spatial experience is marked by the production of the nonexistent, even if it apparently contains what is commonly spread across the ground of life [...]”.

As for our investigation, the opportunity that babies had to move freely, explore materialities, and interact with their peers produced something new through the learning that emerged with (and through) the discoveries and social interactions established by them. During the research, we ratified the argument of Jerebtsov and Prestes (2019, p. 681, our translation) that “the person truly exists in moments of experiencing uncertainty, in an attempt to become aware and carry out an action to which they attribute meaning.” In other words, by observing babies, we understand that spatial experience “[...] has in the singularity of existence, its peculiarities [in each subject], which are forged from the social plane (the environment) and the individual plane (the person)” (Lopes, 2021, p. 103, our translation).

The following section will present the analyses focusing on the spatial experiences of babies through their movements in the daycare spaces.

Babies’ movements around the daycare

In the daycare center, babies were free to move around the institution’s internal and external spaces without direct interference from teachers. The presence of teachers monitoring the babies through observation was constant throughout the research. We noticed the teachers’ respect for the babies’ movement of wandering and rambling (Rodrigues, 2020) around the daycare spaces, as we will show in the following episode:

Episode 2 – Babies and their movements from the reference room to the courtyard

Sunny afternoon. The teacher invites the babies to go to the courtyard. Since using outdoor spaces is ordinary at the daycare, the babies show enthusiasm when they hear the invitation. The babies accept it and then head for the door. Pablo⁴ (6 months) smiles at the teacher and stretches his arms. The teacher immediately picks Pablo up, opens the classroom door, and announces to the other babies that she will bring the basket with wooden objects so they can play outside. Babies who are already walking enter the hallway from the classroom and move autonomously to the courtyard. I notice that, along this route, some babies walk uninterruptedly while others stop, touch the walls, and interact with their peers and older children walking along the hallway. The teacher closely monitors all the babies and talks to them along the way. Meanwhile, Carlos (10 months old), under the supervision of the assistant teacher, crawls at his own pace towards the courtyard. The babies gradually arrive at the courtyard and head to a restricted space where wooden objects are arranged on a mat and, in the center, the basket with the materials brought from the classroom by the teacher. Meanwhile, Fernando (4 months) remains in the classroom sleeping under the care of the intern. (Researcher’s Field Diary).

4- The babies’ names are fictitious.

From the episode, we highlight the following aspects: 1) the teacher's invitation to the babies to go to the courtyard, and not the imposition of her desire; 2) *the modulation of the teacher's presence* (Guimarães, 2019) when supporting the babies' actions; 3) the free movement and autonomy of the babies; 4) the *spatial experience* (Lopes, 2021) of babies through movement, interactions with peers, and occupation of daycare spaces; 5) the selection of materials by the teacher and the organization of a context for playing in the courtyard; 6) the support, presence, and respect of teachers for the time of babies in their movements and choices during the route taken.

In the episode, it is noticeable that the "autonomous activity initiated by the child is a source of multiple learnings [...]" (Falk, 2017, p. 92, our translation). As can be seen, the babies, while moving from the classroom to the courtyard, had the opportunity to stop, interact with children from other groups, and explore the path without the direct intervention of the teacher. The teacher acts in a relational but indirect way, based on observing and monitoring the babies in their movements.

Likewise, we can observe the shared teaching between the teacher, the assistant, and the intern in caring for the babies. The sharing of teaching among the professionals allows the assistant teacher to accompany Carlos (10 months) as he crawls to the courtyard. It also ensures that Fernando (4 months), accompanied by the intern, does not interrupt his rest.

According to Piva and Carvalho (2020, p. 9, our translation), babies in daycare "[...] need to be able to move expansively, freely and safely through all spaces, without having their field of action limited to the reference room." We agree with the authors and understand that the possibility of movement allows babies to *inhabit the spaces* (Amadini, 2016) of the daycare. During the observations, we noticed that the babies were intimate with the courtyard due to their recognition of the space and the emotional relationship they formed with the place. In other words, we realize that "the sense of place is fixed through the perceptions that the child [the baby] extracts" (Amadini, 2016, p. 102, our translation) through their *spatial experiences* (Lopes, 2021).

Given the above, we agree with Rodrigues (2020, p. 284, our translation) when she states that the external space in the daycare center "[...] guarantees access to a tactile, visual, odorous, auditory, and gustatory panorama whenever the natural elements are valued and guaranteed." Now, as the author argues, "[...] the daycare center can become a place for babies through movement and interactions with materialities" (Rodrigues, 2020, p. 174) and people. Based on this indication, we will now share an episode in which Paulo (9 months) moves autonomously from the reference room to the solarium:

Episode 3 – Paulo's movement from the reference room to the solarium

Paulo (9 months) is in the reference room with the other babies and decides to crawl to the solarium. During the crawl, the boy stops, sits down and, for a few seconds, feels the texture of the wall with his hands. Arriving at the solarium, Paulo carefully observes the objects located in the external area of the room – wooden toys, stainless steel basins, and colorful crochet balls. After exploring the objects, Paulo begins to play with his own body, testing his support points on the ground and his balance. I notice that the boy has his support points in both hands, as he leans his body forward, creating a situation of static balance. Thus, Paulo tries different movements,

placing his left hand in front, then his right hand, and so on, remaining in this game for some time. After a few seconds, the boy begins to move his legs – stretching them, flexing them, tensing them, and finally relaxing his muscles. Later, I notice that Paulo tries to stand up, holding on to the protective area of the solarium. In a few moments, the boy approaches the walls and touches them. After about 20 minutes in the solarium, under the watchful eye of the assistant teacher, Paulo returns crawling to the reference room. (Researcher's Field Diary).

The episode illustrates the relevance of free movement, autonomous activity, and the *sensoriality and corporeality* (Amadini, 2016) experienced by the baby. Paulo's spatial experience begins with his initial movement to the solarium, culminating with the exploration of objects, as well as body movements, until his return to the reference room. In this sense, Piva and Carvalho (2020, p. 12, our translation) argue that babies' learning to move "[...] from one space to another is complex since the production of spatiality involves a repertoire of experiences that allows the constitution of space as territory." To this end, the teacher's trust and the promotion of possibilities for babies to carry out autonomous activities are essential. However, this stance "[...] demands that teachers understand that children need to have their social action guaranteed through freedom of expression, interaction, and movement throughout all spaces" (p. 12, our translation) of the daycare center. It is clear that Paulo's spatial experience during his movement, stay in the solarium, and return to the room is configured based on a *spatial topology* (Amadini, 2016, p. 95, our translation) that "[...] arises from the body that relates to space."

Continuing the discussion, in the next section we will address episodes that narrate the spatial experiences of babies through the exploration of materialities present in the daycare.

Babies and explorations of the materialities that the compose daycare spaces

During the research, we demonstrated that babies' spatial experiences also occur through their actions on the materialities in the daycare center. Based on Rodrigues (2020, p. 17, our translation), we name materialities "[...] the furniture, objects, toys, natural elements (branches, stones, earth), which compose the daycare space, as well as the physical structure (walls, floors, and doors) and the furniture." From this approach, we consider that "[...] the first experiences that each child has are of physical contact with reality" (Amadini, 2016, p. 95, our translation). This means that "[...] it is essential for children to experience authentic perceptive situations, as protagonists who have the possibility of touching, feeling, seeing, and smelling [...]" (Amadini, 2016, p. 97, our translation). With that in mind, below we will share an episode in which Eduarda (1 year and 1 month) explores a basket in the daycare courtyard:

Episode 4 – Eduarda and her explorations with the basket of wooden stumps

In the reference room, I observe Eduarda (1 year and 1 month old) getting up and walking alone towards the solarium. Upon reaching the solarium, the girl slowly wanders around the space and observes the unstructured materials arranged on the floor. After a few moments, Eduarda sits on the ground, approaches a basket with a set of small wooden stumps, and observes them

carefully. After a long observation, Eduarda sits next to the basket, picks up the wooden stumps, brings them close to her body, feels their texture, and places them on her lap. Continuing her exploration, the girl removes the wooden stumps from her lap, stands up, and begins to slowly spread them across the floor of the solarium. Eduarda distributes the wooden stumps over a large area of the solarium, aligning them and placing them in relation to each other. Eduarda observes the scattered objects and decides to put them back in the basket. This action of collecting the wooden stumps is carried out slowly, as Eduarda collects one unit at a time and puts it back in the basket. After collecting all the materials, the girl sits next to the basket, picks up two wooden blocks, and starts hitting the ground with them. The game continues. Eduarda stops the action, turns the basket over on the floor, and, consequently, scatters the wooden stumps. The girl remains for a long time in the solarium enjoying the space and these materials. Eduarda only ends her action when she is told by the teacher that her mother is in the classroom and has come to get her. The girl leaves the objects in the solarium and returns to the classroom intending to find her mother. (Researcher's Field Diary).

Concerning the episode, we initially highlight that the space in the daycare center is understood as “[...] a pedagogical category that [...] constitutes a field of possibilities for children’s actions [...]” (Rodrigues, 2020, p. 23, our translation). Thus, the teacher previously arranged the materials highlighted in the episode – especially the basket with the wooden stumps – in a limited space in the courtyard. This arrangement of materials in the space was configured as an invitation for the babies to interact and play.

As shown on the episode, Eduarda (1 year and 1 month) carries out her autonomous activity, assuming “[...] all roles [and] accumulating her modal competences of wanting, knowing, and being able” (Chokler, 2017, p. 160, our translation). However, her autonomous activity demands time and availability from the teacher to provide support – through her indirect and relational action – so that she can practice *free play* (Kálló; Balog, 2013).

Furthermore, Eduarda’s actions demonstrate a choreography of the play (Rodrigues, 2020), marked by her direct action on the materials chosen for the play. Observation, choice, exploration, experimentation, and reiteration constitute her actions. Her distribution of wooden stumps in the solarium confirms the argument by Gruss and Rosemberg (2017, p. 68, our translation) that playing “[...] becomes enriched when the baby begins to put objects in relation, take them out and put them back, align them, stack them.” Eduarda places the objects in relation, but her body is also placed in relation to the space and the materials she has at her disposal. Her postural security, balance, and the way she positions herself in the space to be able to play are visible.

Tardos (2011, p. 13, our translation) recommends that “[...] adults need to be aware of the conditions in which babies’ play develops,” therefore, we will now present an episode in which we will highlight the experiments and discoveries of Patrício (1 year and 3 months) based on his exploration of a set of basins in the daycare courtyard:

Episode 5 – The experiments and discoveries of Patrício with basins

The babies are playing in a large area in the daycare courtyard, under the watchful eye of the teachers. I watch Patrício (1 year and 3 months) sitting alone, handling two plastic bowls. The

boy gets up from the ground and turns the basins over. Soon after, he places one hand on each of the basins and – in the four-handed position – begins to move around the courtyard. During his journey, Patrício makes a sound immediately heard by the assistant teacher. I hear the teacher saying: “Patrício, are you driving?”. The boy smiles and continues moving. I observe the dexterity, postural security, and balance with which Patrício moves around the courtyard with the basins in his hands. For a long time, the boy moves from one side to the other with the basins, smiling and making the same sound. Suddenly, Patrício sits on the floor. Immediately, the boy places one basin inside the other and thus begins a new game. The boy repeats this action countless times until he decides to look for another basin to compose his exploratory action. When he takes the third basin, the boy places it inside the others. Soon after, he separates the three basins and puts them back inside each other again. The game stops only when the boy loses interest in the basins and moves to the basket of materials being explored by Olga (1 year and 2 months). (Researcher’s Field Diary).

As shown in the events described, with the exploration of the basins, the boy demonstrates that “[...] the function of the objects does not reside in them, but in the narratives elaborated by the subjects based on the interpretation of the meanings and relationships with things and with others” (Rodrigues, 2020, p. 228, our translation). In the solarium, the use of basins by Patrício acquires a new functionality, serving to move him and to contain one object within another. His action with the basins is complex, as the containers are large and the floor is uneven for him to move around. However, it is precisely this challenge that mobilizes his exploration. Furthermore, the sound emitted by Patrício during the movement, named by the teacher as the noise of a car, enhances the construction of a narrative during the game.

As Amadini (2016, p. 15, our translation) argues, “children are explorers, curious and eager to touch, smell, and go on adventures,” a fact that we noted during the research. We agree with the author that “[children’s] cognitive and emotional intelligence develops through experiences that can be achieved in the environments in which they live” (Amadini, 2016, p. 94, our translation).

Given the above, we also highlight the exploratory action of containing one basin within another. Such action, according to Gruss and Rosemberg (2017, p. 68, our translation), is characteristic of the manipulative play of babies, generally around 12 months, when “[...] interest arises in [objects] that can contain others, in holes that can be filled, and in elements that penetrate and allow themselves to be penetrated.” However, it is important to remember the recommendation by Kálló and Balog (2013) that it is the interests of the babies that guide the offering or removal of materials that compose the play area.

In addition to the shared episodes, during the research, we also had the opportunity to observe the interaction of the babies with the Piklerian furniture inside the reference room. Through the free exploration of the ramp circuit, tunnel, cubes, and triangle that made up the room, the babies had “[...] the pleasure of feeling their body[ies], the pleasure of moving [and] of experimenting with their own capabilities [...]” (Falk, 2017, p. 105-106, our translation). The furniture arranged in the room was accessible for all children to

explore without any censorship from the teachers regarding its use. However, the presence of the teachers, the careful observation, the guarantee of free movement, and the safety transmitted to the children allowed them to explore the furniture autonomously, within their possibilities.

During the investigation, we confirmed what Kálló and Balog (2013) said about playing being a pleasurable activity for babies as long as it is freely, spontaneously, and autonomously. In other words, the *center of the daily activity of a baby* (Szanto-Feder, 2014, p. 68, our translation) lies in the possibility of him “discovering the world based on his own curiosity [and] his own will to understand and experience” the world. From this approach, the spatial experiences of the babies are also constituted based on the possibility they have of appropriating and attributing meanings to the materialities that make up the daycare spaces. Based on direct action on materials, babies observe, explore, and make discoveries configured as learning.

Continuing the discussion, in the next section, we will focus the analyses on the effects of babies' interactions, through free movement and autonomous activity, on their spatial experiences.

Interactions between babies in the daycare center

Observing the interactions between babies during playtime allowed us to monitor “[...] the creation of shared meanings” (Moura; Souza; Amorim, 2020, p. 10, our translation) between them daily. We observed a recurrence of interactions in shared play situations between babies, in which they were able to “[...] experience a fruitful sensory and affective exploration” (Amadini, 2016, p. 17, our translation) through the use of furniture and materials available in the reference room. In this direction, it was possible to verify that “[...] the gaze and attention to the actions/activities of peers often resulted in moving” (Moura; Souza; Amorim, 2020, p. 18) and the sharing of games, as presented below:

Episode 6 – Encounters and interactions between babies in the play area

Olga (1 year and 2 months) walks into the reference room towards the wooden box with yellow balls in one of the corners of the play area. The girl approaches the box and touches the balls. After a few moments of exploration, Olga enters the box. Eduarda (1 year and 1 month) and Patrício (1 year and 3 months) observe Olga's action for a few minutes, walk towards the girl, and enter the box. When they enter the box, Eduarda and Patrício take out some balls and start a dialogue consisting of vocalizations, smiles, and gestures made with their hands. Olga watches her peers remove the balls and decides to repeat the same action. In a few moments, simultaneously, the three babies, standing inside the box, begin to remove the balls. Olga leaves the box and interrupts Eduarda and Patrício, who start watching her again. After a few seconds, Eduarda and Patrício sit inside the wooden box. Outside the box, Olga starts collecting the balls and putting them back in their original place. After collecting and returning the balls, Olga enters the box and stands up. Eduarda and Patrício continue sitting down and playing with the balls. Olga sits next to her classmates. The three babies start again to take the balls out of the box. While removing the balls, I notice dialogues between Eduarda, Patrício, and Olga again. After

some time, Patrício leaves the box and starts collecting the balls again. After a few moments, Olga and Eduarda also come out of the box and help Patrício collect the balls and put them back in their original place. The interaction between the three babies continues until the teacher announces that their family members have arrived to pick them up. (Researcher's Field Diary).

As shown in the episode, “the spatial arrangement is the basis on which the interactions between baby-environment, baby-peers, and baby-educators are organized” (Moura; Souza; Amorim, 2020, p. 19, our translation). The play area, organized by the teachers with the wooden box and balls in a specific area of the reference room, is configured as a meeting place where interaction between babies occurs. In the episode described, Olga's actions attract Eduarda and Patrício, who are watching her. This is an *imitative interaction* (Maisonnet; Stambak; Barrière, 2011) in which Eduarda and Patrício repeat Olga's actions. In other words, “bonds between children are established through activities with objects; the activity of one attracts the attention of one (or several) members of the group, who then begins to do the same as the initiator” (p. 49, our translation).

The episode shows a *common dynamic* (Maisonnet; Stambak; Barrière, 2011) of interaction between the babies, in which Olga initially plays the role of triggering the action of her peers. When they enter the box with the balls, Eduarda and Patrício repeat Olga's action. However, after a few minutes, both babies start to take the balls out of the wooden box. When they take the balls out of the box, Eduarda and Patrício start to be imitated by Olga. At the end of the interactions between the babies, “the imitation of the activities carried out [...] seems to be part [...] [of] the desire to do things together” (p. 20, our translation).

In the episode, there is an alternation of roles between the babies, due to “[...] new activities that the child could hardly do alone” (p. 29, our translation). This alternation of roles between the babies is constituted by the actions of 1) removing the balls from the wooden box; and 2) collecting the balls that were outside the box and placing them in their original place. In both actions listed, it was the “imitation processes that caused common activity” (p. 28, our translation) among the babies.

Below, we share another episode of interaction between two babies, in which “the exchanges [between them] take the form of dialogues” (p. 49, our translation):

Episode 7 – The exchange of balls between Alice and Patrício

Nursery room. Play area. Wooden box with balls. Alice (1 year and 2 months) enters the wooden box with balls and begins to manipulate. Patrício (1 year and 3 months) observes the girl and then also enters the box. The boy sits facing the girl, observes her for a few seconds, and starts to move the balls inside the box. Alice returns Patrício's gaze as she manipulates the balls. After a few minutes of individual manipulation of both babies, Patrício offers a red ball to Alice, who receives it with a smile. The girl repeats the action and gives a yellow ball to Patrício, who responds by extending both hands. The babies look at each other intently and begin to make vocalizations. For a few minutes, the babies continue to exchange balls. However, the exchange of balls is interrupted by Patrício, who pulls the chain to which her pacifier is attached, in an attempt to remove it from the girl. Patrício's action triggers Alice's reaction, who throws herself back into the wooden box, preventing the boy from taking out her pacifier. Her refusal to share

the pacifier is evidenced physically by her distancing herself from Patrício and the crying that begins soon after. When Patrício notices that Alice is crying, he offers her a ball. Alice reaches out and receives the ball. From that moment on, the babies resume their initial interaction and start exchanging balls again. (Researcher's Field Diary).

By reading the episode, it is possible to observe that Alice and Patrício interact through “[...] looks, mimics, gestures, and vocalizations that constitute messages [from one] to the other; [in this context,] each response gives precision to the meaning of the initial message” (Maisonnet; Stambak; Barrière, 2011, p. 49, our translation). Although there is a dispute over Alice's pacifier, which, in a way, interrupts their common project, the initial game involving the manipulation and exchange of balls is resumed.

Furthermore, in this episode, we consider it crucial to point out the centrality of the babies' gaze in their interactive processes. According to Amorim, Anjos, and Rossetti-Ferreira (2012, p. 380, our translation), “babies look continuously, sometimes at their own bodies, sometimes at nearby objects and people, sometimes at things and situations further away.” In the manipulation and exchange of balls that constituted the interactive plot, it can be seen that how babies observe each other “[...] triggers actions in the contemporaneous (vocalizations, movements of approaching or moving away from the partner), emotions [...] or similar actions that the other performs [...]” (Amorim; Anjos; Rossetti-Ferreira, 2012, p. 380, our translation).

Given the above, we highlight that the *spatial arrangement* (Moura; Souza; Amorim, 2020) of the *reference room*, the *available materialities* (Rodrigues, 2020), the *free movement* (Szanto-Feder, 2014), and the *autonomous activity* (Falk, 2011) of the babies allow them to experience the space through a process of interaction with their peers. However, this is only possible because there is “sufficient, calm time for [the babies to] perceive, explore, choose, combine, transform and imagine” (Chokler, 2017, p. 156, our translation). Continuing the discussion, in the next section, we will present the final considerations of the article.

Final considerations

Observing daily life in a daycare center whose educational project is based on the principles of the Pikler approach was the choice for investigating the spatial experiences of babies. The research allowed us to show that spatial experiences occur through “[...] the encounter between the personal and social planes” (Lopes, 2021, p. 119, our translation) of babies. It means that the babies give meaning to the spaces and establish social relationships in the context of collective life.

Throughout the article, with the analysis of the episodes, we argue that the *free movement* (Szanto-Feder, 2014) and *autonomy* (Falk, 2011) of babies in their movements, explorations, and social interactions at daycare operate in the promotion of spatial experiences. Based on this argument, we highlight that, in our investigation, the spatial experiences of the babies occurred through movements, explorations of materialities, and their social interactions with their peers in the occupation of spaces. Their repertoire of



actions enabled us to analytically demonstrate that babies' spatial experiences are always marked by the production of the new (Lopes, 2021) as a result of their choices.

However, the choice of the babies regarding the ways of inhabiting the daycare spaces occurred because they had the possibility of exercising free movement through *emotional security* (Chokler, 2017) and the presence of teachers who accompanied them in their processes of attributing meaning to the times, spaces, and materialities that made up the institutional daily life. In other words, we understand that their spatial experiences were an effect of *the repetitiveness, continuity, and stability* (Amadini, 2016) provided by the organizational methods of the daycare. For all these reasons, we argue that "[...] the bond with spaces [has become] rigorous, deep, continuous and not at all occasional" (p. 102, our translation) for babies.

Thus, we reaffirm that *free movement* (Szanto-Feder, 2014) allows babies to learn from their peers, performing similar or even new actions resulting from such a process. Regarding the *materialities* (Rodrigues, 2020), we observe that spaces and furniture help to construct autonomy, enabling interactions between babies and their peers. Concerning the movement, we noticed that promoting possibilities for babies to move freely in the internal/external spaces of the daycare influences their autonomy. As for the social relationships between babies, we found that these promote their autonomy and learning. After all, they "[...] want to know the world, live it to the fullest and not just in the confined spaces delimited by adults [...]" (Amadini, 2016, p. 111, our translation).

Therefore, from the research, we infer the importance of relational teaching based on the promotion of spaces, times, and materialities, which allows babies to enjoy free movement and have the opportunity to exercise autonomous activity through their spatial experiences.

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