

EMPOWERING THE SENSES OUTSIDE: AN INTERVENTION PROJECT ON PEER RELATIONSHIPS IN A DAYCARE CENTER

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Abstract

Outdoor spaces benefit children at different levels by promoting a healthy and balanced development. When we think of senses and sensations, these are directly linked to spaces and materials/resources. "Outdoor spaces can be seen as contexts rich in sensory opportunities, providing different smells, textures, sounds, temperatures, landscapes, etc." (Portugal, 2016, p.28), always associated with a responsive educator and learning booster, allowing "the possibility to feel the wind hitting the face and hear the leaves of the trees moving, to see the birds flying or people passing in the street (...)" (Portugal, 2016, p.28). Based on the theoretical framework and the observation made during the diagnosis period, we built a methodological design with a qualitative nature whose main objective is to understand the children's needs and understand how an outdoor space can be sensorially enhanced with resources and fostering peer relationships. The study is developed with a group of twelve two-year-old children. The cultural environment surrounding these children is a fishing town, Caniçal, in Madeira Island. We understood that the best data collection tool to support the work would be Observation. Participant observation was therefore the most obvious strategy, as "in the early days (...) the researcher usually stays a little on the outside, waiting to be observed and accepted. As relationships develop, he/she will participate more" (Bogdan & Biklen, 1994, p.125). To organise the data/evidence collection, we defined a set of dimensions of analysis that emerged on the one hand from the readings and the theoretical framework, and on the other hand emerged during the intervention period: intentionality of the early childhood educator; spaces and materials; interactions between children; team involvement. From the beginning of the process, permission was requested from parents to safeguard ethical issues. As May tells us "The development and application of research ethics is required not only to maintain public confidence and attempt to protect individuals and groups from illegitimate use of research findings, but also to ensure their status as a legitimate and valid enterprise" (May, 2004, p.84). In the data collection period, acronyms were used to code each child respecting the anonymity of each child involved. In parallel, the need for the child's informed consent was also considered (ERIC, 2023). Aware that the children in question are young, throughout the research period we asked the children if we could take images.

The collection of evidence from the intervention allowed us to implement strategies that promoted the child's agency resulting in the emergence of dynamics decided and organized by the children, an aspect explained extensively in the article. The enrichment of the outdoor space, as well as the availability of sensory materials that could integrate the spaces permanently, allowed the replication and organization of emerging experiences by the children autonomously. We also noticed that the project brought concrete evidence of a significant improvement in the relationships between pairs and in small groups. If at first the children were only running freely in the outdoor space, playing alone, seeking the adult as a pillar and security, during the intervention and afterwards we could see that they were interacting with each other, trying to create dialogues, playing in pairs and in small groups.

Keywords: Children, outdoor activities, peer interactions, senses.

1 INTRODUCTION

Article 31 of the Convention on the Rights of the Child (UNICEF, 2019) states that "1. States Parties recognize the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts" (UNICEF, 2019, p. 12). Understanding this principle was essential to our work, allowing for a more effective perception of how an outdoor environment should be free and that the child has the freedom to do exactly what they want, with adult supervision and, when necessary, intervention. "The environment is seen as

something that educates the child: in fact, it is considered the third educator, along with the team of two teachers. To act as an educator for the child, the environment needs to be flexible; it must undergo frequent modification by the children and the teachers to remain up-to-date and sensitive to their need to be protagonists in the construction of their knowledge" (Edwards, Gandini and Forman, 1999, p. 157).

Edwards, Gandini and Forman (1999), as well as Neto (2020), help us to understand the importance of the educator: "Adults, as educators or teachers, build contexts and facilitate learning. Adults should provide the means and contexts to enable children to appropriate them according to their vocations, tendencies and talents." (Neto, 2020, p. 129). An appealing, diverse space with different tools will certainly help children to develop all their knowledge.

And how can we, the educators of these children, with our thirst for discovery, promote environments that facilitate learning? Realise that it can't be just one person who changes, but that we must set an example and drive a classroom, two classrooms, a department, a school. Believing that change is possible and showing that, as Neto (2020) tells us, "The school needs a different vision to become a more harmonious environment between contact with nature and the seduction of digital culture. Obviously, this is a new way of understanding teaching. Ecological teaching is the future. And when necessary and appropriate, digital devices have all the information available. That's the idea: to give children more and more personal skills so that they are able to solve complex problems, have critical thinking skills and know how to work in groups." (Neto, 2020, p. 128). Creating problems so that each child, individually and as a group, can find solutions and reduce the tendency for "directed activities to prevail" (Ferreira and Tomás, 2016, p 447). All these children's critical thinking and entrepreneurial skills will make a difference every day.

Outdoor spaces benefit children at different levels: "(...) - altered levels of physical activity; - promotion of attentional capacity; - development of executive capacity and self-regulation; - development of cognitive skills; - reduction of attention deficit symptoms; - development of motor skills; - reduction of stress; - diversified stimulation of forms of play; - reduction of the risk of myopia; - improvement of the immune system and protection against allergies." (Neto, 2020, pp. 134-135). All of these skills will help promote healthy and balanced development in our children.

It's essential to realise that "(...) children need to experiment with various activities, such as walking in the rain, getting dirty, jumping in puddles, climbing trees, hiding in vegetation (secret places), running, chasing, being chased and fighting, making constructions and experiments with water, earth, mud, sand, sticks, etc, balancing, bouncing, jumping higher and further, sliding, rolling, skating, playing with loose materials (junk), having stalls and tools for woodwork, having materials and spaces for traditional games (...) tricycles, bicycles, rollerblades and scooters, playing ball (...), observing and studying phenomena in nature (...) with magnifying glasses and cameras, taking notes (...). It's about broadening the ability to search for phenomena and events that are spontaneous, unpredictable or organised in the context of action, and to assimilate knowledge of oneself and the complexity of appreciating outer space (nature) in a more appropriate way." (Neto, 2020, p. 139), so together we can be educators who make a difference and differentiate.

Portugal (2016) also reminds us that "In outdoor spaces, contact with water, soil, sticks, rocks, leaves, among others, is facilitated, allowing for a variety of experiences and learning. For example, by playing with water and soil, children learn that the combination of these two elements gives rise to mud, a thicker substance that is easy to mould. By trying to dig up different types of soil, more or less hard, it also becomes possible to train the strength that needs to be used, as well as the coordination and balance of the body. By filling and emptying buckets of sand and then knocking down the piles that form when the bucket is turned over, children deepen their understanding of cause-effect, full-empty and train their fine motor skills." (Portugal, 2016, p.30)

Outdoor spaces can be excellent drivers of senses and sensations. "Outdoor spaces can be seen as contexts rich in sensory opportunities, providing different smells, textures, sounds, temperatures, landscapes, etc." (Portugal, 2016, p.28), always associated with an educator who encourages learning: "With the accompaniment of a responsive adult, the possibility of feeling the wind hit the face and hearing the leaves of the trees move, of seeing the birds flying or the people passing in the street, are excellent learning moments for the baby, through which they amplify their interactions with the world around them." (Portugal, 2016, p.28). Remember that this whole process cannot be dissociated from all each child's playful expressive languages: speaking, feeling, touching, narrating, singing, telling, composing, building, inventing... Through all these languages both the adult and the child are in constant coexistence training, thus appealing to all the senses and emotions that make each moment unique, pleasurable, and lived intensely, as Pereira (2021) reinforces to us "The theory of the hundred languages

of children refers, among other aspects, to the various forms and senses that children use to express themselves, act and experience." (Pereira, 2021, p.11).

On the other hand, Pereira (2021), when referring to the Reggio Emilia Educational Approach, makes the following point: "Participatory Pedagogy considers that, for children and adults, the act of understanding is interconnected with the ability to elaborate an interpretation, which is called an interpretive theory that attributes meanings, that is, satisfactory explanations for things and events in the world. However, this theory is not just a simple set of ideas. These ideas need to be convincing and capable of satisfying the intellectual, emotional and aesthetic needs of those who elaborate them, while at the same time being understood as provisional." (Pereira, 2021, p.12). It is therefore up to the educator to be attentive to the individual needs of each child and group.

We are alert to the importance of creating learning moments where creativity and imagination are present outdoors, appealing to all the senses: "The outdoors also allows for different forms of expression of creativity and imagination. Activities such as painting on the floor/wall with chalk or water enable movements with characteristics that are different from those that are mobilised when drawing on a sheet of paper." (Portugal, 2016, p.32), reinforcing that "Outdoors, babies and children are stimulated to action and movement, enticed by the wide and dynamic characteristics of outdoor spaces." (Portugal, 2016, p. 29)

"Recent developments in sociology and other social sciences have made a decisive contribution to the conceptualisation of the 'child' as a social actor, capable of shaping their identity, producing and communicating reliable visions of the social world, while retaining the right to actively participate in it." (Tomás, Trevisan, Carvalho and Fernandes, 2021, p.53). So, when we look at the subject of relationships between children, or social relationships, we realise that the outdoors can promote healthy relationships between peers. Observing children and their play among peers helps us to realise that conflicts can easily arise in this age group, mainly over toys/objects. However, we educators can anticipate these conflicts, as Fochi shows us: "We understand that it is not interesting to offer various materials in small quantities, as this favours disputes, but rather to offer one material in a satisfactory quantity and with an adequate variety (neither too much nor too little). (Fochi, pp.129-130).

Living in society has never been and never will be an easy task, but as Neto (2020) tells us, childhood is only lived once, and as educators we must promote relationships between children so that they too can overcome future social barriers. Neto (2020) reminds us that "-collaborative learning based on individual or group problems, themes and desires, in projects that facilitate problem-solving with critical thinking and that require participation in group work; -continuous learning, from the perspective that all the experiences carried out have the privileged objective of acquiring individual meaning throughout life." (Neto, 2020, p.144)

It is therefore essential to check, select and evaluate materials that will contribute to social development. It should be understood that "social development consists of children's ability to establish and maintain healthy and rewarding relationships with adults and other children." (Daly and Beloglovsky, 2022, p.13). Daly and Beloglovsky (2022) suggest that "An environment, organised with attractive loose parts, plays an important role in supporting children's social play. A quantity of identical loose parts becomes attractive and provides choices that promote socialisation." (Daly and Beloglovsky, 2022, p.13)

In short, as Neto helps us realise, "playing is a very serious thing" (Neto, 2022, p.132): "School is not a playground, and that's why playing is a very serious thing. Playing at school, and preferably outside, is an opportunity for children to confront the quality and quantity of available affordances (possibilities for an action that the organism perceives and carries out with an environment (...)). These affordances can be physical, emotional and social, depending on the information that involvement provides the human being." (Neto, 2022, p. 132).

2 METHODOLOGY

2.1 Contextualizing the intervention

The period prior to the intervention, developed in parallel with the theoretical readings, was fundamental for us to reflect on the external context. Stopping and observing was therefore a dynamic we implemented to perceive problems and constraints, as well as to find solutions. After a systematized observation, particularly in the playground, where the children explored the space most freely and spontaneously, we realised that despite being equipped with tables, benches, a wooden house, slides,

natural grass, trees and dirt corners, what the children did most spontaneously was run around freely, watch the boats/planes¹, and try to play with the dirt (see image 1).



Figure 1: Outdoor area prior to the intervention.

In figure 1, we can see large spaces with some shade, an area with grass, another with a tiled floor and another with tartan. From our observation of the children's behaviour, we can realize that most of the outdoor play is done individually, as we can see in the following observation records: "Mk. plays alone in the dirt with his hands" (OR1)²; "Mt. moves away (from the OR3 small group) and goes off on his own to the corner of the land to play with the earth and a stick" (OR4); "L. alone in the wooden house goes up and down the flock, looks out of the window, taps his hands on the table and looks out of the window again at his friends" (OR5); "J. runs around freely on his own" (OR6); "S. is always near an adult. He follows the adult wherever he goes" (OR7). In pairs or small groups with little interaction, "K. and N. are walking near the fence" (OR2); "Mt., K., C. and J. are near the fence watching the birds and start shouting" (OR3). We realised the need to plan our intervention by bringing in resources and creating sensory learning moments for children in pairs and/or groups.

2.2 Research design

Based on the theoretical readings and the observation carried out, we believe that this work should be framed within a qualitative study whose main objective is to understand the children's needs and realise how an outdoor space can be sensorially enhanced with resources and by fostering relationships between peers. As Flick (2013) tells us, "(...) qualitative research (...) focuses more on the meanings attached to certain phenomena or on the processes that reveal how people deal with them." (Flick, 2013, p.35). Hence the need to create an intervention plan to meet the needs observed in this group/context under investigation. On the other hand, in qualitative studies the direct source is the natural environment, it is descriptive and has the particularity of focusing interest on the process and less on the results, analysing the results in a more inductive way (Bogdan & Biklen, 1994).

We therefore set out to answer the starting question "To what extent can a sensory playground favour relationships between children's peers in a nursery setting?". The definition of this research question tries to meet the perspective of Flick (2013), considering that it was carried out in a clear and objective way to provide immediate and medium-term answers, as well as Quivy (1998), fulfilling the qualities of clarity, feasibility, and relevance.

After a period of observation and reflection on the existing reality, we defined an intervention plan that included the planning of 9 dynamics and their respective objectives:

- Painting on cling film: expressing your emotions; using different painting tools (brushes, sponges, hands...); exploring the whole space presented for painting.
- Barefoot: express your emotions; explore tartan; recognise different sensations (rough, soft, hot, cold...); promote autonomy.
- Chalk exploration: exploring different materials; developing creativity and imagination; drawing spontaneously; exploring different drawing media (floor, walls, logs, wooden house, slide).
- Exploring the sensory mat: exploring different materials; exploring touch; recognising different sensations (rough, soft,...); promoting autonomy.
- Exploring bobbins with different textures: exploring different materials; recognising the importance of strength; recognising the importance of working in pairs; promoting dialogue.

¹ The outdoor playground overlooks Caniçal Harbour and part of the runway at Madeira Airport.

² Observation Record.

- Exploring buckets, spades, rakes: exploring different materials; recognising the importance of working in pairs; promoting dialogue.
- Exploring stainless steel pans, spoons, plates, and cups: exploring different materials, recognising the importance of working in pairs; promoting dialogue.
- Exploring tyres: exploring different materials; making simple routes; identifying and exploring spatial notions (inside/outside); promoting dialogue.
- Making a mud kitchen: exploring different materials; recognising the importance of working in pairs; promoting dialogue; promoting make-believe.

We felt that the data collection tool that would best support our work would be the Observation, coded OR+number in this document. Participant observation was therefore the most obvious strategy. "In the first few days (...) the researcher generally remains on the sidelines, waiting to be observed and accepted. As relationships develop, they become more involved" (Bogdan & Biklen, 1994, p.125). "Observing what children do, say and how they interact and learn is a fundamental information-gathering strategy." (Silva et al., 2016, p.13). Thus, various moments of observation were created by planning the intervention using video and photography as the tools for collecting records, checking that they would be the most appropriate for this work, based on its qualitative nature, with the educator's role being less interventionist.

To organise the collection of data/evidence, we defined a set of analysis dimensions that emerged, on the one hand, from the readings and theoretical framework and, on the other, during the intervention period: educator's intentionality; spaces and materials; interactions between children; team involvement. The dimensions defined reflect the researcher's objectives and guide the data analysis of this work, based on the perspective that data collection can "focus on a particular aspect or situation (how often and how children use a particular area of the classroom, when conflicts arise, etc.) or on a time sample, which takes into account different moments, days and spaces (morning, afternoon, inside the classroom, outside, in the dining room)" (Silva et al., 2016, p.14).

2.3 Ethical issues to consider

From the beginning of the process, both researcher and parents signed an authorisation form to safeguard ethical issues and children's confidentiality rights. As May (2004) tells us, "The development and application of research ethics is required not only to maintain public confidence and to try to protect individuals and groups from the illegitimacy of research findings, but also to ensure their status as legitimate and valid endeavours" (May, 2004, p.84). During the data collection period, acronyms were used to code each child respecting the anonymity. At the same time, the need for informed consent on the part of the child was also considered (ERIC, 2023). Throughout the research we also asked children if we could collect pictures.

3 RESULTS

Reflection on the data collected from the planned intervention, combined with the theoretical framework, allowed us to define the dimensions of analysis already explained in the methodology section. It is based on this definition that we have organised the analysis in this section of the paper. Through the implementation of the proposed activities, we chose to give greater importance to the intentionality of the early childhood educator, spaces and materials, interactions between children and the involvement of the team, dimensions that were guided on the one hand by theory and on the other by attention to emerging contexts.

3.1 Educator's intentionality

One of the strategies used in the intervention was to create moments of surprise, in which the educator is less of an intervener, but rather a provocateur of learning. As an example, we recall the activity "Exploration of buckets, spades and rakes", in which we prepared the space in advance by placing the different materials on the ground and also hanging them on the wall (see figure 2).



Figure 2: Outdoor area prepared for the activity "Exploring buckets, spades and rakes".

To introduce the materials, we chose to let the children freely enter the outdoor space. OR14 shows the children's reaction as expected by the adult: "Children run to see the new playground materials". The role of the educator as a creator of contexts was an aspect explored in the theoretical framework (Edwards, Gandini and Forman, 1999; Neto, 2020) and one that we wanted to emphasise in the intervention.

Boosting emergent activities was also one of our focuses, as was the case with the activity "Walking barefoot" where we took advantage of observing a child's behaviour: "When she gets to the playground, child L. takes off her shoes and socks and the teacher says: "- Anyone who wants to can take off their shoes and socks?" (OR8). As we can see in figure 3 and OR9, the educator "also takes off her shoes and socks."



Figure 3: Group of children and educator in the "Barefoot" activity

Another time, when we organised a painting activity on a cling film panel, we realised that the surprise effect also had a positive and challenging result for the children. The researcher had set up the panel before the children arrived with cling film placed on the playground railing, with paints, brushes, and sponges at the children's disposal, arousing their curiosity. When they arrived at the playground, the children immediately approached the area to see what they were going to do. After painting, they approached and "a group of children (J., V., E. and Mk.) started pulling at the film, looking shyly at the adult waiting for permission. The adult encouraged all the children to pull on the film to try and get it off the railing." (OR25) (figure 4).



Figure 4: Emerging activity after "Painting on cling film" activity

3.2 Spaces and materials

As for the spaces and materials, we were able to verify their versatility, as shown by the example of Chalk Painting, where each child was given a stick of thick chalk to draw freely in the outdoor spaces. Over the course of the intervention, we were able to confirm that the drawings began to be more intentional. For example, in OR23, "N." calls the teacher over to show her drawing and says, "A balloon!" and in OR24, in which K. says, "I made a balloon over there". The drawing no longer has only the traditional support of paper and moves on to the floor, the tree trunk and the wooden table, as we can see in figure 5.



Figure 5. Chalk drawings on different supports (floor, tree trunk and wooden table)

Also, in the "Painting on cling film" activity we were able to diversify the sensory experiences through the materials provided as observed in OR13 "Mk. and C. paint with their hands on the cling film." In the activity "Walking barefoot" where "M.E. touches the grass and with her hands she touches the earth and her feet." (OR11). And also, in the activity "Exploring buckets, spades and rakes" where the "Group of children start asking the teacher for materials: N. - I want the bucket, K. - I want the pink one (OR16).

We were able to observe that after several moments of repeating the use of the same materials, some children mobilised learning, as shown in the example of OR10 "Children play freely barefoot", where no child needed permission or an indication from the adult to go barefoot.

3.3 Interactions between children

In terms of relationships, the intervention got the children playing in pairs and in small groups, as we can see in the cling film painting activity where "E. shares a paintbrush with M.E." (OR12). When buckets, spades and beach equipment were placed, we could see the start of some conversations and interactions between pairs and small groups (figure 6): "V. calls K. to look." (OR15); "After the material has been distributed Mk., J., H., and N. get together in the hole with the earth and sand to play." (OR17); "N., Mk., K., J., V., H., and E. gather round the tree with the earth to play." (OR18).



Figure 6: Playing with buckets, spades, and rakes in the soil.

In the sensory mat activity, where the children were first challenged to take off their shoes and walk over a path with different textures and materials, after repeating the activity, we were able to observe that if the teacher left the materials available to the children in the playground, a small group, made up of "Mt., V., J., E., K. and N., would get together to assemble the sensory mat." (OR19). When tidying up and putting their shoes back on, we were able to record small conversations and achievements between

pairs: "K. calls V. and says 'I took off my shoes'" (OR21); "J. tries to put his shoes on by himself, after checking that C. is putting them on by herself." (OR26 and figure 7)



Figure 7: "J. tries to put his shoes on by himself, after checking that C. has put them on by herself." (RO 26)

3.4 Team involvement

Throughout the intervention process, the whole school team got involved in various ways by collaborating on materials such as: collecting bobbins; a sand bucket; collecting tyres; collecting beach equipment; collecting stainless steel kitchen equipment; putting up wall brackets. On the other hand, the activities were not limited to the group, focus of the project, but also to the other classrooms where children and adults got involved in the activities (figure 8).



Image 8 - Children from different groups exploring the sensory mat

It should also be emphasised that the project involved all the classrooms to such an extent that in the next school year there was a commitment to go ahead with the construction of a mud kitchen for all the children to enjoy, as well as maintaining the activities proposed so far, adapting them whenever necessary.

4 CONCLUSIONS

Most studies in early childhood education contexts reflect and are the result of an experience, of the educator's attentive look at their children, their practices, or the contexts in which they can intervene. They are important because they promote not only the improvement of their actions, but also of the children's learning, development, and well-being. This project that we have developed is no exception to this and arises from a systematised observation that took place during a period of diagnosis with a

view to creating opportunities in a sensory playground, favouring relationships between pairs of children in a nursery setting.

The articulation between the theoretical foundation and the methodological design was fundamental to the construction of an intervention plan, as well as to the awareness of the need to enhance outdoor spaces by transforming them into richer and more stimulating sensory contexts. This link between theory and practice was very evident, for example, with Portugal (2016) emphasising that "the outdoors also allows for different forms of expression of creativity and imagination" (Portugal, 2016, p.32). It also motivated us to propose interventions such as "Chalk Exploration", triggered by the readings made by the same author when she refers to "painting on the floor/wall with chalk or water enables movements with characteristics that are different from those that are mobilised when drawing on a sheet of paper." (Portugal, 2016, p.32).

Reflecting on the aim of this project, with a view to a final reflection, we note that the repetition of dynamics, to which we referred in the data analysis, became an important strategy during the intervention period. In daycare centres, the confirmation of learning and experiences is more important than in any other setting for promoting security and confidence in children. We saw this in the "Walking barefoot" dynamic, in which the children, after a certain number of experiences, stopped waiting for authorisation. The routine of taking off their shoes to feel the different textures in the soil became part of the children's daily routine.

On the other hand, contexts in which the children wait for the adult's permission as in the "Painting on cling film" activity, allowed us to reflect on the children's perception of right and wrong, good and evil, and on the child's own initiative, which sometimes waits to be stopped by the adult. In this context, the adult's permission allowed the children to create a game, decided and organised by them, the game of pulling the cling film and stretching the plastic, in which a large group of children took part. They therefore had a second opportunity for an emerging sensory dynamic, in which they realised the elasticity and resistance of the plastic and manage the force to be applied to tear or stretch it. This autonomy in the creation of games and play between children is extremely important because it values the child's agency in their daily activities. In this regard, we can also say that during this work we felt that it provided several opportunities for further study, particularly regarding reflecting on the role of the educator in contexts of emerging games and activities.

We also realised that our sensory intervention project in the playground brought concrete evidence of a significant improvement in relationships between peers and in small groups. If at first we had children who just ran freely around the space (OR6), played in isolation, explored the space alone and without materials, as we saw in the diagnostic observation (OR1, OR4 and OR5) or looked for the adult as a pillar and security (OR7), during the intervention, and afterwards, we were able to see that the same children interacted with each other trying to create some dialogues (OR15 and OR21), they play in pairs and small groups in the same areas of land, now with different materials such as buckets and spades (OR 7, OR18, OR19, OR21 and OR22), and the adult is now seen as "helping" the children, for example when they need some specific material that they can't reach (RO16).

It seems to us that this new reality evidenced by the data on interactions between children has come about because of experiences provided by the educator, but also, to a large extent, caused by the integration and maintenance of materials in the outdoor space. Intervention was therefore consequent in terms of altering and enriching the space, allowing children to autonomously replicate activities and/or reorganise and reconstruct games based on their experiences. We therefore define this as a practice to be systematised in day care intervention.

We can therefore conclude that our intervention project was able to provide a positive response to the starting question and will be a basic and motivating tool, not only during this period of intervention, but also continuously for the entire team involved, having been proposed and accepted for the next school year.

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