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A METHODOLOGICAL APPROACH TO DESIGN AN INCLUSIVE INTERIOR CHILDREN'S PLAY SPACE: FROM OBSERVATION TO INTERVIEW

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ABSTRACT

The research presented in this article is part of a PhD project, whose objective was to identify a set of characteristics to be implemented while creating an inclusive indoor children's play space. This article aims to create an interview guide directed at children, inquiring their preferences regarding the possible characteristics of a play space for them.

In order to do that it was necessary to first understand the main existing characteristics of children's play spaces, in order to verify those there are transversal to them. For the first stage, observation, an auxiliary grid was structured to ensure that the same characteristics were observed across spaces. The analysis of this data created the content for the questions belonging to the script (second stage).

It was thus concluded that the script should be composed of eight thematic groups: decoration, furniture, architecture, play activities, communication, accessibility and constraints. In these groups, each question is presented to the child with the specific purpose of identifying the aspects needed to implement an interior and inclusive children's play space.

The results are fundamental for the creation of new areas for children, seen as through the new script it becomes possible to inquire any population, thus learning the preferences of the children all over the world. In this sense, designers who want to know their users would only have to apply the script in their interviews.

Keywords: Design methods, interview, observation, play space, children

INTRODUCTION

Playing is not only one of the rights of the child, but nowadays also considered a fundamental activity for child development. In this context, it becomes obvious the importance of spaces exclusively destined to these moments, since play is not only important for the development of the child, but also a great occupation for them [1].

We live in a society where diversity reigns, and inevitably this diversity is also present in children's groups. Diversity encompasses not only intellectual characteristics but also motor and sensorial. Even though we all know that diversity exists, society still does not offer the same opportunities to all. Inclusion argues that diversity is inevitable and therefore it is necessary to learn how to deal with all people, being school the best place for this [2]. In this sense, the concern with creating children's play areas that are inclusive is essential, so that the children are given the same opportunities when they playing.

The research hereby presented is part of a project whose objective is to identify a set of characteristics for the creation of an indoor and inclusive play space for children between three and five years of age. The methodological process of this investigation is divided into four distinct phases, however, in this article, we will only address the process that allowed the study to move from first to second phase. That is the moment when it becomes possible to perceive which data can be drawn from observing several children's spaces, in order to construct an inquiry to be applied to users of future space.

CONTEXTUALIZATION

According to Almeida "guaranteeing play space can be an important element to expand the child's repertoire of life and knowledge. By guaranteeing this space their autonomy, their creative capacity, their collective conscience, their solidarity and their cooperation are strengthened". Playing helps build solid and consistent values that will eventually serve for children to strengthen relationships with themselves, others and the environment [3].

It is important to initially state that, in the research project in which this article is inserted, it is intended to identify a set of characteristics to build a space where the child can play freely, promoting their autonomy and social interaction.

This space is therefore defined as a play space since it is intended to be "a space in which objects and installations - toys - immediately create a strong interest in being touched, manipulated, climbed, or roamed by children"[4]. That is, a place where each child plays and forms relationships with other children, as well as with the environment. A space that by itself stimulates play and touch to all its elements. In this arena children go through experiences that lead to their development.

Even if the child can choose anywhere to play, not all spaces are suitable for it, seen as they were not built for that purpose. The play spaces thus emerged as a consequence of urban phenomena such as mass urbanization, creating the need to take children off the streets, away from unpleasant influences [5].

Regarding its construction, despite the three dimensions mentioned in Zamberlan et al. being related to educational space, they can also be adapted to a playful space [6]. The authors state that spaces must have a dimension complementary to the aesthetic aspects: welcoming, charming and proportional; as well as a dimension related to the functional aspects: adapt places and available resources to play purposes (this point would be changed since the functional aspect of a kindergarten would be educational); and a dimension related to environmental aspects: concerns related to temperature, noise and brightness.

The architecture of a space with a correct articulation of forms, the use of appropriate materials, the exploration of colors and light, as well as the design of the appropriate furniture, makes it possible that space itself is an agent of playfulness. In this case the correct designation will be "qualified space", that is, a space that simultaneously satisfies certain functional requirements and is able to offer something more through special resources [7].

Related to the furniture that belongs to the space, Rezende considers that it should be organized in such a way as to create environments conducive to specific activities [8]. According to Mazzilli, in a playful space the child should be facilitated with the choice of what to play with, and what is the game's argument, so that he has autonomy. These spaces can be inserted in different environments catering for, in the majority, children from the birth until the school age [4].

INVESTIGATION

The empirical research presented here is concerned with the first two phases of the investigation, in order to understand the process of constructing a questionnaire based on observation.

Initially, in Phase 1, it was made an observation of existing play spaces inserted in different environments. This phase of the work aims to understand if there are transverse features between the children's play spaces and what are their specificities.

This first stage is fundamental to the work since it not only serves as the basis for the second phase, but also allows to verify how are the indoor playful environments with which the child is already familiar.

Phase 1: Observation

After having researched different techniques for data collection [9], it was concluded that observation is the most appropriate method, taking into account that it is intended to collect information on existing indoor playground spaces installed in different environments. This technique allows us to observe and describe the characteristics of the play spaces that children currently have at their disposal.

Through observation it is expected to verify how the spaces are organized and decorated and if there are characteristics transverse to them.

From the treatment and analysis of the collected data, the elements that form the basis for the interview structure, to be presented to children in the second phase of the empirical investigation, are extracted.

Once the technique to be used has been chosen, observation, and considering that it is desired to observe different parameters in the same space in order to compare them across different areas, it was elaborated a non-standardized instrument, the observation grid, that according to Coutinho is considered the most appropriate to apply in these situations [9].

The assembled grid is based on the categories of analysis of the environmental content, related to children's spaces [4]. As already mentioned in the first chapter, the author divides the spatial observation into three categories: the affective, the functional/activities and the perceptual/visual space.

Given that the response to the affective category may vary according to the past experiences of those who observe the spaces (thus not being an objective category), it was opted not to include them in the observation grid. Nonetheless, aspects that can provoke sensations are introduced, such as feelings of security, capacity or competence, freedom and autonomy, which result directly from the conditions of inclusiveness.

In the functional category/activities questions related to the action of playing are described. Here, it is considered the game classification defined by Piaget for symbolic games, sets of rules (intellectual and sensory-motor) and construction games [10]. Since spaces to be observed are possibly also intended for children of less than two years of age, it is probable that there are spaces that consider exercise games. However, these are not considered in the observation grid since data analysis will focus on the elements targeted to the age group from three to five.

The last category is labelled perceptive/visual space where all the information about the spatial structure (situation, modulation and equipment) and the elements of visual syntax, of materials and representation as symbols, and the theme, are inserted.

Through the observation grid (Figure 1) it is possible to evaluate all the parameters described in the functional/activities and perceptual/visual space categories. There is also a category for "additional information", which covers items which do not fall into any of the previous classes.

Briefly it can be said that the observation grid consists of 12 distinct groups whose goal is to bring together the different themes in order to facilitate the data collection. Out of these groups, 1 to 5 and 9 and 12 make up the category of "additional information". The perceptual/visual space category is the most detailed. This association includes group six (architecture and design), a part of group seven (objects in space - furniture), and group eight (communication). Finally, part of group 7 (objects in space - to play with) and groups 10 and 11 are part of the functional/activities category.

1.Space's name 2.Location 3.Max. nr. of occupants 4.Ages 5.Construction 1.Year 2.Last rehabilitation 6.Architecture & Design 1.Open or closed space? 2.Number of rooms 1.With portable separator 3.Total area 4.Height (m) 5.Space's division (same) 1.Number of areas 2.Divider 6.Space's entry 1.With door 1.Net width> 0,77m 2.Net height > 2m 3.Nr of parts 4.Opening system 5.Door handle 1.Type 6.Obstacle 1.Type 2.With an aperture 1.Net width> 0,77m 2.Net height > 2m 3.Obstacle 1.Type	Additional information	7.Slops 1.Number of levels 2.Accesses 1.Dimensions 8. Floor 1.Colours 2.Motifs 3.Coating/Material 1.Fixation 4.Surface 1.Stable 2.Durable 3.Firm 4.Continuous 5.Tactile floor 9.Delimitations 1.Type 1.Coating material 2.Up to the ceiling 2.Colours 3.Motifs 10.Ceiling 1.Colours 2.Motifs 11. Free space (of circulation) 1.Free width (minimum) 2.Free height 12.Lighting 1.Natural light 1.Light inlet mode 2.Privacy 1.How? 2.Artificial Light 1.Yellow light 2.White light	Perceptive/visual space	7.Objects in the space 1.Furniture 1.Tables 1.Type 2.Nr of people per table 3.Quantity 4.Material 5.Colour 6.Height of top 7.Distance between 2.Seats 1.Type 2.Quantity 3.Material 4.Colour 5.High 3.Storage 1.Type 2.Quantity 3.Material 4.Colour 5.Maximum height 6.Minimum height 7.Depth 4.Others... 1.Type 2.Quantity 3.Material 4.Colour 5.Maximum height 6.Minimum height 7.Depth 2.To play 1.Name 2.Guided to a specific game 1.Which? 3.Prevaling colours 4.Prevaling textures 5.Electronic equipment 1.Which?	Perceptive/visual space	8.Communication 1.Decorative theme(s) 1.By areas 1.Durability 2.Which? 2.Communicative elements 1.Channels 1.Auditory communication 1.How? 2.Visual communication 1.How? 2.Signs/rules/information ... 1.Message contrasting 2.Perceptible 3.Predominant colours 4.Predominant shapes 5.Braille/embossed 6.Location 1.Visible location 9.Hygiene 1.WC 1.Location 2.Accessibility rules 10.Safety 1.Special protective care 1.Which? 2.Standards (toys) 3.Security Cameras 4.Chaperones 1.Quantity 2.Interaction 11.Comfort 1.Use of space 1.Mandatory footwear 12.Operations 1.Cost Per Child 1.Price 2.Schedule 3.Children's frequency	Perceptive/visual space	Additional information	Functional/activities	Additional information

Figure 1 – Observation grid

Phase 2: From observation to the interview script

The observation and analysis of spaces constitutes the basis from which the script destined to collect users' opinion of the play spaces was drawn. Children between three and five years are the users targeted during this study. It is important to perceive with this interview (Phase 2) what the child intends or prefers to have in the space, so that, in the end, he feels comfort, safety and well-being during his stay in the same.

From the analysis of the collected data related to the observed spaces it is possible to identify five main thematic groups, to be used for the interview script to be addressed to the child in Phase 2: A. Visual elements of design; B. Furniture; C. Architecture and accessibility; D. Play activities and E. Communication.

A. Visual elements of the design

Colors have been observed in various places, from the delimiting architectural elements, to furniture and toys. They are predominantly from the chromatic circle, in the same level of saturation. Yet, there are colors that have different levels of saturation: light yellow, light yellow-orange, light pastel blue, light blue, light red-violet, brown, and light brown. There were also four neutral colors: white, gray, light gray and black. Taking into consideration the observed colors and the children's knowledge of them, it is considered pertinent to approach children only on the twelve colors of the chromatic circle (all with

the same level of saturation), adding only three common colors to their day-to-day: black, white and brown.

As for forms, regular or irregular geometric shapes were observed. The regular forms such as the triangle, the square, the rectangle, the circle, the ellipse and the trapezoid, and irregular shapes such as the heart, the cloud, the star, and the moon, stand out.

Regarding textures, from the three observed visual elements of design, this is the least developed. In none of the spaces there an evident concern with this element, not even to stimulate the children. Tact being such an important sense, especially for children with blindness or with low vision, should have a greater importance, in order to provide the child with many new sensations. In the observed areas, the textures present were mostly smooth and fresh. Notwithstanding, given the importance of this field for work, it becomes necessary to deepen its study together with children.

B. Furniture

The most common furniture is the combination of a table with respective seats. Those vary between chairs, benches, sofas, puffs or even cushions. The first three are used mainly together with tables, while the remaining are used throughout the space, assuming a more relaxed posture to the child.

The tables' tops vary on size, allowing the child to play with a mixed number of children, or even alone. The surplus of furniture is tucked under the storage places, which vary between cabinets, shelves, baskets and storage boxes. Since this kind of furniture does not have a direct influence on the children's play, it was not considered pertinent to approach it directly with them. It is only necessary to check if the child can access it, acting in a more autonomous way, ie if the maximum / minimum height and depth of the storage furniture give all children access, regardless of their age or any physical problem they may have.

C. Architecture and accessibility

In this group architectural and accessibility aspects are approached, since these two fields are interrelated, and about which the child has the capacity to express opinions, referring to their preferences.

Regarding lighting, seen as most of the spaces contain at least one window belonging to it or not, they are predominantly illuminated with natural light. Two types of windows can be distinguished: from the ceiling to the floor or windows placed at a certain distance from the floor. The former allows children to observe the exterior, while the latter allow only the taller children, and sometimes not even those. There are still spaces where, although there are windows, the view to the outside is prevented by a spleen vinyl film, which allows light to enter but blocks visibility.

As for the way of entering the space, there are two ways the child can do it: through a door or through an opening in the area itself.

Accessibility issues are directed to the existence of at least one accessible route, as well as ensuring that all children have access to games and toys. It is not possible to question the child about this issue, but given its relevance it is necessary to find an alternative form of data collection to ensure that these types of accesses are considered. In this sense, it is essential to collect from children some anthropometric data, important for the use of space.

D. Play activities

Some issues raised in the furniture group also relate to the ludic activities of space, since they determine some aspects of the games, such as playing at the table or on the floor.

This group of questions focuses essentially on the child-child relationship. Thus, since such a large number of different games have been observed, it is important to question the child about his favourite game, classifying it in one of the following categories: rule games (sensory-motor), rule games (intellectual), construction games or symbolic games. It was also verified the possibility of individual or group play, and also spaces where an adult is present.

As for the toys, they are mostly related to a specific game, and can always be inserted into one of the groups: symbolic games, construction, or game rules (intellectual or sensory motor). It should be noted that not all spaces have only traditional toys, since with the evolution of technology access to electronic equipment is increasing.

E. Communication

Like textures, communication directed at children is a field that is little or nothing developed. It is clear that it is directed towards adults, with few signs of communication conducted to children.

Although intended for adults, the most common is to have information about the use of space (rules) placed at the entrance. There are few spaces where information appears complemented with images.

In only one of the spaces was verified the existence of signs identifying the ages for which the games are intended. These appear in the form of colors and shapes, completed with a poster and its caption. The remaining communicative elements relate to game rules or danger signals.

In this domain, it is important to establish a direct communication with the child, so that there is a greater space-child interaction and not space-adult-child interaction. Therefore, it is necessary to place in these spaces communication accessible to the child, such as

warnings about what is allowed or prohibited, or alerts to anything that may require specific care.

CONCLUSION

After the investigation, it can be concluded that a script based on the existing spaces must be composed of five distinct groups. A group for the visual elements of design, which should address questions about colors, shapes and textures; a second group for furniture, where children should be asked about table and seat preferences (which will also be associated with questions about play activities); the third group should be about architecture and accessibility, where the child is approached about entering the space and its illumination, and some anthropometric data pertinent to the space will be drawn; a fourth group focused on play activities and, finally, the fifth group should include questions regarding communication between space and the child. While there are many other space issues, these groups should only address questions that are within the child's reach, thus ensuring that the child's response is reliable.

It is also concluded that existing play spaces do not always respect inclusiveness, especially in the field of communication and child-space interaction. In this sense, it is noted that the questionnaire should be composed of more data than the observed in existing spaces, seen as it has been found that elements such as texture and communication elements were scarce in the, or sometimes non-existent. Being the objective of the investigation to identify a set of characteristics that allow the construction of an interior and inclusive playful space, it is essential to attend to issues related to communication and to the perception/interaction of space by all children, regardless of their characteristics.

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