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**SGEM INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC CONFERENCE ON  
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**Secretariat Bureau**

E-mails: [sgem@sgemsocial.org](mailto:sgem@sgemsocial.org)

URL: [www.sgemsocial.org](http://www.sgemsocial.org)

## THE EXISTENCE OF DIFFERENT STAGES IN THE DESIGNING PROCESS OF AN INCLUSIVE INDOOR CHILDREN'S PLAY SPACE

**Inês do Amaral**

**M<sup>a</sup> Graça Guedes**

<sup>1</sup> University of Minho, **Portugal**

<sup>2</sup> University of Minho, **Portugal**

### ABSTRACT

The research in this article aimed to draw the entire design process, culminating in the identification of a set of characteristics to be implemented in the creation of an inclusive interior play space for preschool children. For this process, it was imperative that final users were part of the project, thus ensuring that their preferences/needs would be taken into account.

To determine the process, it was necessary to understand the essential steps for a design project. It was important for the research to identify a set of specific characteristics to implement in the creation of a new space, but never neglecting the characteristics of the existing spaces. Being a continuous design process, the steps should be dependent on one another. After creating the various process stages, it was put into practice, validating its effectiveness.

It was concluded that the investigation should be divided in four different, continuous, and dependent stages, being that the first and the fourth stage comprise two distinct phases.

After the process has been put into practice, one can see the importance of having different stages (with their respective phases). This is because users participating throughout the project was a focus point during research, ensuring that the end result meets their preferences and needs.

**Keywords:** Play space, children, design process, design methods

### INTRODUCTION

According to the 31st article of the Rights of the Child's convention [1], all children have the right to rest, to leisure and to participate in cultural and artistic activities. Playing is not only one of the rights of the child, but also nowadays considered a fundamental activity for child development. In this context, it becomes evident 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 [2].

Today we live in a society where diversity reigns, in innumerable diverse physical, sensorial and intellectual characteristics. However, while this diversity is generally known, the same opportunities are not given to all children (and adults at the same time). In this perspective, the existence of children's play spaces that are inclusive is essential so that children are given the same opportunities when playing.

The investigation hereby presented has as main objective to design the entire design research process, which culminated in the identification of a set of characteristics to be implemented in the creation of an inclusive interior play space for pre-school children. For this process, it was imperative that the users of the final project, the children, were part of it, thus ensuring that their preferences/needs were taken into account.

## CONTEXTUALIZATION

Although the child has the right to play, there are not always spaces where he or she can carry out this activity in a safe, comfortable and pleasant way.

It is true that the child can play "anywhere", nonetheless, the existence of appropriate play spaces enhances the child's interest in performing the action. According to Ripat & Becker [2], in these spaces the child is able to develop motor skills, expand their limits by taking (safe) risks and, above all, can interact with other children, learning social norms and values.

Taking into account that children's behaviors are affected by the physical and social environments in which they are inserted, organizing the space in distinctive ways provides different ways of social contact [3]. All the relationships that the child establishes in a space, either in contact with other children or with diverse materials and forms, will gradually build up their knowledge of space-environment [4]. Privileging this author's line (2003), with regard to the sensorial relationship established between the child and space, the latter plays a fundamental role in his development. Authors such as Piaget argue that the child's evolution "is directly the product of his sensory acquisitions made through his space environment."

Considering the visual language one of the key tools in the process of building an environment, being also a communication resource, it is important to look at space as a means of communication [4]. Yet, when the objective is to communicate with children of very young ages (between three and five years), this mission becomes more complicated since they do not always perceive or understand the information addressed to them in the same way as an adult [5].

In this sense, it can be affirmed that the designer plays a fundamental role in the course of a space's construction. Design is an activity developed by the human being for the human being, in which an interface is established in the created relations between the human and the environment. Therefore, the designer aims to create projects that improve people's quality of life [6].

Notwithstanding, even if it is the designer who creates, no less important is the targeted audience for whom each project is intended. Throughout the entire creative process, designers give voice to the user who becomes an integral part of the project [7].

The integration of users into the design process ensures the suitability of the end product for the intended use and user. It is through this process that designers better understand their needs and preferences. With the adoption of this type of methodology, it is intended that the target audience (in this case, children) that will be affected by the space has the opportunity to influence the decisions to be taken along the creation of such area [8].

Another problematic that must be taken into account, is the great variety of children, seen as in today's society diversity prevails. In this sense, the creation of spaces (as well as other products resulting from design) requires that children are considered as having all types of different characteristics, and therefore adopting as a reference the average human dimensions no longer makes sense, given that even within a restricted group variations are visible at the most diverse levels [9].

It is important, and necessary, to design spaces that can be used by the greatest number of users in comfort and safety. This diversity is present both in adults and children, although when the approach rests on the latter, one must add the (accentuated) differences of each stage of their development. This chain of design is called inclusive or universal design and it is an approach that certainly cannot be neglected [9]. In this sense, it is extremely important that children's play spaces are created along the lines of inclusive design, so that they can cover children with the most varied characteristics.

## INVESTIGATION

After outlining the main objective of the investigation, the second step was to put some thought of the methodology to be used, and how it the whole process should be defined. Considering that it is essential to include the user in the research process, the project has a main objective, which requires that two secondary and sequential objectives are achieved first. In the first place, it is necessary to verify the characteristics and elements of existing play spaces, inserted in different environments, so that it becomes possible on a later phase to: check the children's preferences regarding the characteristics and elements of the children's play spaces, having as basis the set of characteristics of existing spaces.

In this way, it is possible to achieve the main objective, which is to define the characteristics of an indoor, playful, and inclusive space that offers comfort, well-being, safety and autonomy to children between three and five years, residing in mainland Portugal, based on their preferences and needs.

The methodological approach choice should be weighted considering the specificity of the research, the nature and the questions posed by the research, the context in which it takes place and the diversity that characterizes the research group (Soares et al., 2005).

Based on the assumption that methodology involves the study of methods, it is important to first define the direction in which this investigation takes place, that is, from which perspective, and then define the most appropriate methods to be used throughout the process.

An investigation, according to Creswell (2009), can follow one of three perspectives: qualitative, quantitative or mixed. Taking into account the objectives outlined, this research should address both the use of qualitative and quantitative methods.

It is decisive to consider the influential aspects in procedures' design of a study using a mixed method: the timing of data collection, the weight of each, the way in which they relate and finally theorising or transforming perspectives.

Regarding the time of data collection, there are two moments that must occur in sequential phases. Since it is intended to explore a topic, responding to the proposed objectives, firstly the qualitative data is collected. In a second phase, extended to a large (and previously determined) number of individuals, the quantitative data is gathered.

A second factor to consider is the weight of each method in the research, as well as priority issues. Creswell argues that a greater weight is given to that method that is used in the first place [10]. In this investigation, the inductive method was initially used, practising the qualitative approach. It tries to understand a phenomenon without imposing previous expectations to what is being studied. In Marconi and Lakatos' view, this method is based on an approach "in which an approximation of phenomena generally goes towards more and more comprehensive plans, going from the most particular findings to laws and theories" [11].

The last relevant factor lies in theorizing or transforming perspectives. Considering that designers tend to develop products according to the average values registered by the market segments to which these products are addressed, it is intended to change this perspective, since the ultimate goal will be to design a space that can be used by the largest number of children, regardless of their characteristics. That implies an approach centered on the range of registered values and not on average values, as will be discussed later in this paper.

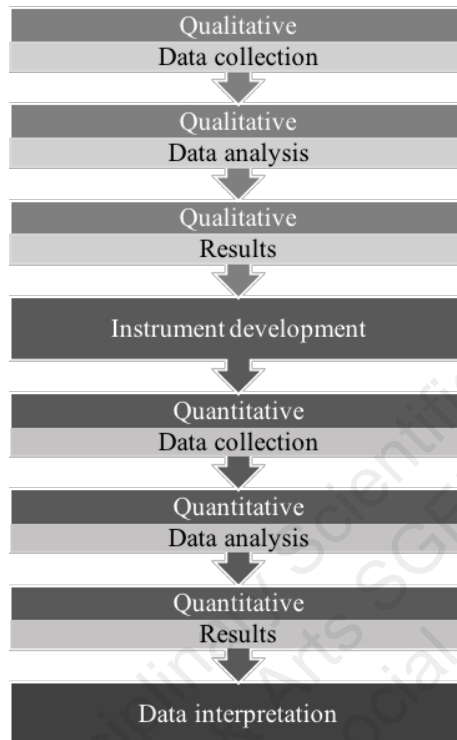
In addition to the four previously described factors that help shape the procedures of an investigation using mixed methods, there are still four strategies that can be adopted.

Considering that it is necessary to implement a quantitative instrument based on the results of the qualitative analysis, the sequential exploratory design was considered as the most appropriate strategy. This kind of strategy is commonly used when the researcher needs to develop a new instrument with certain characteristics.

By crossing the information previously described, it can be said that the strategy to be used is as follows: initially the researcher qualitatively explores the theme, that is, collects qualitative data and analyses it. At this stage, the main source is not large samples, but rather case studies in which, as Coutinho (2011, p. 27) describes, "do not look for abstract universal factors, which are reached through a statistical generalization of a whole population sample, but rather concrete universal factors, which are obtained by studying a specific case in detail and then comparing it with other case studied in an equally detailed manner. "

From this first phase are extracted results that will be used in the second phase. From this point an instrument is built based on the results of the first phase, which will then

be applied to a sample. This sample should be representative of the study population so that the extracted results can be considered statistically significant. As in Phase 1, also in this second phase the data is collected, analysed and discussed. Finally, the last step lies in the interpretation of all the data (Figure 1).



**Figure 1 – Sequential Explanatory Design**

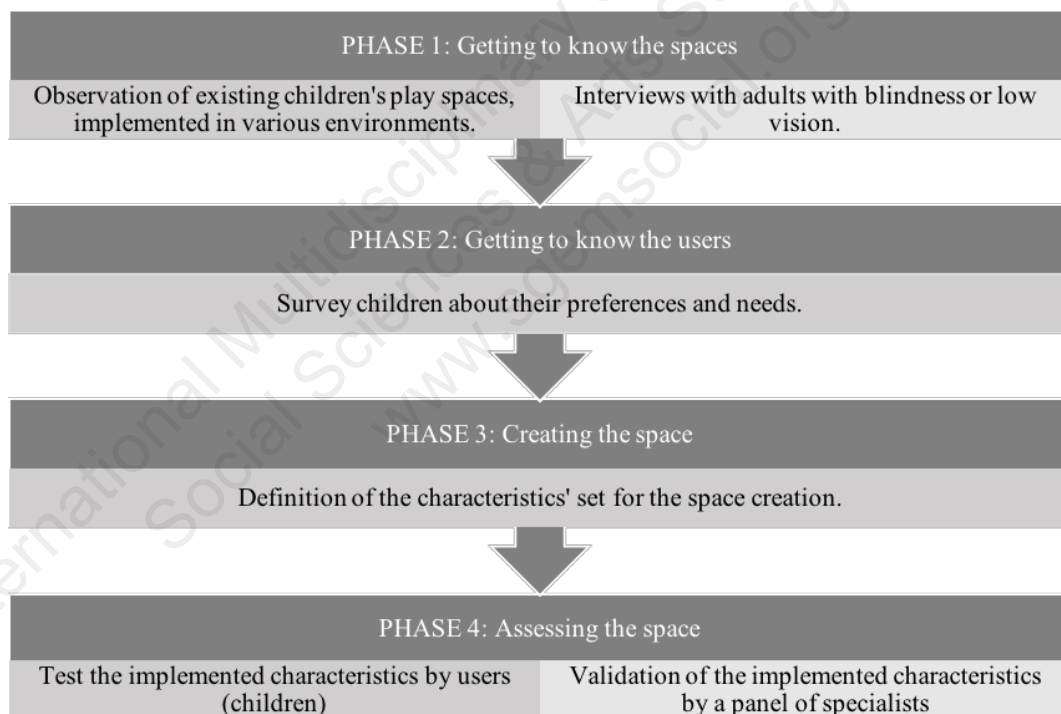
Not neglecting all the work already done related to the design of children's spaces and in order to understand what are the characteristics of existing spaces for children, inserted in different environments, it is important to observe them at an early stage. Thus, it becomes possible to perceive which points cross all spaces. Considering that it is necessary to identify characteristics for the creation of an inclusive space, with a greater incidence in visual disabilities, it is relevant to understand how people with blindness or low vision perceive the spaces and what are the most important points in them. Therefore, in Phase 1, two moments of data collection must be carried out in parallel to support Phase 2. While the observation intends to extract information for the interview's structure, from the interviews with adults with blindness or low vision it is intended to realize the importance of an inclusive space for them, especially in terms of decoration and ambience and, in this sense, to substantiate the existent need to address children with blindness or low vision.

Given the importance of the user in this investigation, it would be a failure not to include him in one of the stages. In this sense, in Phase 2, with the data extracted from Phase 1, a questionnaire is created to be used on a sample of children representative of

the population. In this way, it becomes possible to identify a set of characteristics for the creation of a space whose main orientations are given by those who will use it.

After the data is collected and analysed, there is enough information to proceed to identify the characteristics. Hence, in Phase 3, based on the data collected, the characteristics necessary for the creation of the inclusive and indoor children's play space are defined. These attributes are not only supported by the information gathered in Phase 2 but also by all questions that are transversal to the principles of universal design. At this stage, and in order to support Phase 4, a virtual space model is created, with the implementation of the defined aspects.

The fourth and last phase should be divided into two distinct stages, both with the objective of validating the characteristics that were identified in Phase 3. The first step is a space test with potential users (children). The second stage, considering the importance of being fully adapted to the children, stimulating them, concerns the characteristics' validation by a panel of specialists (children's educators, children's psychiatrists, children's psychologists, designers specializing in universal design). In Figure 2 the four main sequenced research phases can be observed.



**Figure 2 – Research process**

## CONCLUSION

Once the research is completed it can be concluded that although there are transversal aspects to the design processes, there are those that must be created or adapted to each



specific process, depending on the work's purpose. That is because the design process intends for the end result to meet the necessities of the user, thus satisfying their needs.

Thus, for a design process whose ultimate goal is to identify a set of characteristics for the creation of an inclusive children's play space, it can be said that the process requires four distinct phases. Briefly, one can conclude that the process must begin with a field study of what already exists, so that it can be perceived which characteristics are already there, and only then the user must be inquired based on the information extracted from the previous phase. In a third stage, the attributes should be defined based on the results of phase 2, and finally, in stage 4, they should be tested with their users and also with a panel of experts, as it is a product for children but there are some issues that are not possible to deal directly with them, given their complexity.

Nonetheless, it should be noted that although they are distinct phases, given that concrete information is extracted from each of them, they must be continuous since they are dependent on one another. From each phase information is extracted that has to be used in the next phase. It should also be noted that the first and the last phase comprise two distinct stages that run concurrently.

The existence of the four different phases is essential for the whole design process to work. That is due to the structure of the process not only allowing to identify the characteristics, but also testing them with the respective users, thus maximizing the possibility of the space's success.

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## REFERENCES

- [1] Assembleia Geral das Nações Unidas, A Convenção sobre os Direitos da Criança, Assembleia Geral das Nações Unidas, 1989
- [2] Ripat J., Becker P., Playground usability: what do playground users say? Occupational Therapy International, John Wiley & Sons, Ltd, 2012.
- [3] Wanderlind F., Martins G., Hansen J., Macarini S., Vieira M., Diferenças de género no brincar de crianças pré-escolares e escolares na brinquedoteca, Paidéia, vol. 16, pp-263-273, 2006.

- [4] Mazzilli C., Arquitetura lúdica: criança, projeto e linguagem, Tese de Doutorado, Universidade de São Paulo, 2003.
- [5] Machado M., Ambiente escolar infantil, Dissertação de Mestrado, Universidade de São Paulo, 2008.
- [6] Cardoso M., Contributos do design para espaços de espera infantil em unidades de saúde familiar, Dissertação de Mestrado, Universidade de Aveiro, 2009.
- [7] Águas S., Do design ao co-design: uma oportunidade de design participativo na transformação do espaço público, Waterfront, vol.22, pp. 57-70, 2012.
- [8] Hussain S., Sanders E., Steinert M., Participatory design with marginalized people in developing countries: Challenges and opportunities experienced in a field study in Cambodia, International Journal of Design, vol. 6, pp. 91-109, 2012.
- [9] Falcato J., Bispo R., Homem médio ou diversidade humana? Design Inclusivo: Acessibilidade e Usabilidade em Produtos, Serviços e Ambientes, Lisboa, Centro Português do Design, 2006.
- [10] Creswell J. W., Research design: qualitative, quantitative, and mixed methods approaches, Los Angeles, Sage, 2009.
- [11] Marconi M., Lakatos E., Metodologia do trabalho científico, São Paulo, Editora Atlas, 2006.

