

Participatory Process in Landscape Project for Children with Disabilities: The Experience of An Undergraduate Thesis

Mariana Gurgel, Camila Correia Teles, Félix A. Silva Júnior, and Ana Isabela Soares Martins da Silva
Universidade Planalto do Distrito Federal - UNIPLAN, Brazil

Abstract: The theme is circumscribed in the participatory process experience in Final Graduation Work based on the requalification of a park located in the Gama, administrative region of the Federal District (Brazil), for children with disabilities. The justification comprises in the importance of studying more effective project methodologies to achieve the 2030 Agenda goal of providing universal access to safe, inclusive, accessible and green public spaces for people with disabilities. Among the objectives are: a) synthesize the characteristics of participatory research and b) understand local needs and c) weight guidelines and find out the acceptance of the proposals with the community and the current public body responsible for the area under study. The method used was the systematic bibliographic research on the participatory process with consultations in high impact factor books and newspapers, the elaboration of design program was formulated through interviews with visitors and park officials and disabled children of a local school and application of participatory research with weekly meetings including representatives of the community: child with disabilities, local school teachers, parents of children and landscape architect representative of the public body. Among the results found, the participatory process allowed greater acceptance of the design proposal by the community, formed by the final user, general public and the financing public. The conclusions are: i) alternative methodologies to the traditional design process can enhance the learning of Architecture students and urban planners and can increase the effectiveness and viability of the proposed solutions and ii) the form of data collection must adapt to the capacity of expression of the public.

Key words: participatory research, community, project process, accessible public spaces

1. Introduction

The cities in Latin America present critical social, economic and environmental problems that demand transformative and effective solutions to be adopted by government agencies, individuals and the population of all countries. Facing this problem, among several world conferences that have established solutions and goals, we highlight the Agenda 2030, which has as one of the Sustainable Development Objectives the transformation of cities into more inclusive, safe, resilient and sustainable environments [1].

In the Brazilian context several urban interventions are registered in public spaces of cultural, landscape or tourist relevance with proposals for new activities and functionalities, new plastic and environmental characteristics, but which are excessively standardized and generate generic and segregators spaces [2], whether due to the lack of professional knowledge or the limitation of costs in public works. The clear inefficiency of these solutions in relation to the objectives of sustainable development leads to the need to train future architects and urban planners with other more flexible design methods that generate safe, inclusive, accessible and green public spaces [1], adapted to the context of each city or neighborhood.

Corresponding author: Camila Correia Teles, Professor; research areas/interests: architecture and urbanism. E-mail: prof.camilacorreiates@gmail.com.

The University plays a key role in the professional training of future urban planners and planners who will also be responsible for achieving the goals of cities that are more sustainable, egalitarian, inclusive, economically viable and environmentally sustainable.

In contrast to the traditional methods, the participatory process is more effective and leads to more committed responses to social and urban reality, as well as releasing great creative potential in the effort to build responses to the challenges [3]. It is also understood that the approximation of the project process in relation to the population and the public executor increases the probability of implantation and appropriation of the public space by the users due to the increase of the functionality and the technical feasibility, as well as the financial reduction of execution of the proposals. This strategy has already been indicated, for example, by the Guide for Elaboration of Master Plans in Brazilian Cities as a key tool for the democratization of territorial planning and public spaces enjoyed by residents, favoring social equality and the redistribution of risks and benefits of urbanization [4].

The teaching and practice of participatory research currently in Brazil are mainly used in urban settlement projects or master plans but are still little explored in interventions in smaller public areas such as squares and parks.

Besides the problem of elaborating intervention solutions, it is noted that there is great difficulty in the interaction of children with disabilities in Brazilian leisure parks due to the lack of accessibility [5], which generates social exclusion [6]. The lack of adaptation prevents them from an equal enjoyment of public and leisure spaces, fundamental for the social development of these children. According to data from the [7], the Gama is the administrative region near the Federal Capital that contains more residents with disabilities and, even with this characteristic, there is a lack of adapted public leisure spaces, as well as play spaces for children with disabilities.

Therefore, this article, based on a Final Graduation Paper, aims to present a more clear and systematic method of participatory research in a public area intervention project in the Parque Leste do Gama neighbourhood to include children with disabilities, to improve security and planning of green spaces, in ratification to Agenda 2030 goal 11.7. The design method that was a research product is relevant because it allows replicability in other Brazilian or Latin American cities.

1.1 Participatory Process in Landscape Project for Children with Disabilities

Participatory research or action research, applied mainly in health research, escapes the traditional linear pattern; is a reflexive, flexible and interactive process and uses users perspective and priorities as driving forces: the study ceases to be about the local population and becomes part of it in part of development [8, 9].

This method of community involvement as participants in the planning and research phases has been proven to be more effective and coherent and saves time and cost in a long-term evaluation [8, 10].

The forms of participation can be classified into four types: contractual, where the local population is hired to be part of research projects and experiments; in which persons are consulted prior to the conduct of the investigations; collaborative, in which the researchers and the local population participate in the construction of a study that is designed, started and administered by the researchers; and collegiate, where researchers and local people work together in construction, undergo a mutual learning process and the community has control of research [8]. In the case of applying participatory research in a landscaping project developed in Final Graduation Work, the consultative and collaborative categories are the most viable.

Concerning the specificities of the participatory method adapted to the children's audience, the participation of children is already present in many scientific researches on Sociology of Childhood, which

“attribute to young people the status of subjects of knowledge, not of simple object, instituting forms collaborative knowledge-building in the social sciences, which are articulated with modes of production of knowledge committed to social transformation and extension of social rights”, and which considers this public as full social actors, competent in the formulation of interpretations on their worlds of life and revelators of the social realities where they are inserted [11]. However, the involvement of children in research requires adaptations that take into account their limitations in expressing ideas, such as the use of interviews and questionnaires for drawings, often used in psychology, in psychoanalytic treatments [12-14]. In the case of children with disabilities, sometimes the production of drawings is impossible, so the interview becomes the most appropriate form.

1.2 Landscape for Children 0-12 years

Landscaping applied to meet the needs of children should consider the physical, psychological and cognitive characteristics of this public as well as the various learning phases that vary within the age group 0-12 years old.

1.3 Children's Learning Phases

The cognitive development is divided by D. G. Amaro (2004) [15] into stages and sub-stages that are characterized by “an overall structure in function of which the main particular reactions are explained” [15]. D. G. Amaro (2004) [15] considers that the stages have a universal character, since “all human beings go through the same order in the evolutionary sequence” [15]. These sequences happen at different moments in each subject, and the structures of each stage are integrative and successive. What is acquired in one stage integrates and reconstructs in the next moment with the formation of new sequences of structures and new schemes, made through the interaction of the subject with the environment [15].

According to D. G. Amaro (2004) [15] sensory motor development is a structure that is based on the motor and sensory aspects of the child, approximately, from 0 to 2 years. [15] points out that for the child, interaction is important because it works with sensations:

[...] is characterized by the construction of schemes of action that enable the child to assimilate objects and people. Moreover, it is also marked by the practical construction of the notions of object, space, causality and time, necessary for the accommodation (adjustment) of these schemes to the objects and persons with whom it interacts. There is a process of functional adaptation through which the child regulates his actions according to the demands of interaction, progressively compensating, always in the plane of sensations and motor, the disturbances produced by the insufficiency of the schemes in the process of interaction [15].

The use of objects has a central role at the moment, in the formation of the first part of the development, which is part of the displacement group. The structure allows that the existence of objects is not necessarily linked to visibility, that is, the child knows the existence of the object even when it is not seeing. Now this is perceived as an object of the universe [15]. D. G. Amaro (2004) also points out that “the sensorimotor intelligence is the matrix of other intelligences that will be later constructed from it” [15].

Explaining each of the stages, the motor-sensory begins at 0-2 years of age, which according to J. Piaget (1983) [16], is the period of the birth of language, the individual begins to have reflex, the first habits, the coordination of the vision and begins to understand the space. The preoperative, which goes from two years to six or seven years old. This second phase is the moment in which the symbolic function appears in the child, when it begins to assimilate its own action, creating bonds in acts, and can play in various ways, including those games that need imaginary situations [16]. The operative-concrete, from the six or seven to the eleven

or twelve years of age, the person becomes mastery of space and time, having a greater motor coordination [16]. The formal operative is the last phase, from the twelve years onwards, in which it is conceptualized that the individual has the capacity to reason on statements and hypotheses. It also includes, at this stage, intellectual growth [16].

1.4 Strategies for Outside Environments that Maximize Learning

The main solutions to maximize the learning of children in their various phases involve the connection of the child with physical deprivation to play activities. [17] says that the practice of activities allows and stimulates social inclusion and cultural production. Play to include it is a natural and intentional infantile action that has been present since birth [18]. This way of fun is how she understands and interacts with her body, with other individuals, and with the world. From the first months of life, the individual begins to play alone or even with the people around him [18]. According to I. Saviani, and R. Pinheiro (2010) [19] the practice of play activity in the simple environment is obtained by motor physical development and play is fundamental for the motivation of games that develop coordination.

In children's playgrounds there are toys that must support play, complementing and satisfying the needs of users [20]. Toys are elements that create opportunities for children to interact allowing for the socialization and empowerment of learning [20].

It is important that children's recreation spaces include elements that help in the development of creativity, such as dunes that recall mountains; elements that provoke the imagination and instigate the construction and imaginary journeys [21]. In addition, child-friendly places should be safe, so as to make everyone accessible and allow the child to be autonomous, even with some disability [20]. Still according to the author, parks that do not have access to both space and toys are far from being tools for social

inclusion. It is also important to evaluate whether playgrounds provide shelter, play and various activities that are important for the psychic development of users [22].

When designing a project for the accessibility of disabled people, it is important to base the ABNT NBR 9050 Brazilian standard, which establishes criteria and technical parameters for the construction, installation and adaptation of the urban, rural and building environment with respect to accessibility. This standard also aims to establish the conditions of mobility and perception of the environment, with or without the help of specific devices for each disability, as well as establishing principles for the autonomy of the person in the safe use of the environment, buildings, furniture and equipment urban.

Another relevant point is the environmental comfort associated with bioclimatism in open spaces. This study requires a more accurate analysis, because according to M. B. Romero (2000) [23] studying the climate encompasses several factors, such as geomorphological, sun, latitude, altitude, winds, land, water, vegetation, topography, soil, as well as the characterization of the air through unit, temperature and movements of the air masses. Lastly, one must understand all the principles and understand what will be balanced in the environment to achieve good results in the project.

Another important factor to be considered is landscaping, since according to B. Abbud (2006) [21] this is the unique and artistic expression in which it relates beyond sight to hearing, taste, smell and touch, and the more it can relate these senses concomitantly, more landscaping plays its part. When the plant is observed, for example, the shapes of crowns, flowers, leaves, stems and branches are perceived [21]. In this case, the colors of the blooms, leaves and foliage are still visible, which can be analyzed on the textures, whether they are soft or rough, small, large, smooth or rough, shiny or not.

The touch, then, works in a different way, since it needs direct contact with other elements to feel temperature, warmth or coldness, roughness, smoothness, roughness, softness or hardness [21]. According to the same author, tact reports on warmth and freshness. As for palate, according to B. Abbud (2006) [21], it is related to the enormous variety of fruits and edible flowers that lead the individual to have the pleasure of experimenting and savoring. The auditory sense brings the understanding of the sounds of different forms, each with its characteristic, such as the sound of water, leaves, wind, sounds when walking, birds singing [21]. Finally, the smell, to which the garden areas attract people by the aroma of the plants, morning freshness, fall of the afternoon, smell of rain, aroma of grass, perfume of flowers, bark, branches and leaves [22].

In relation to the park, people should move freely and safely, with toys or objects suitable for each phase, also offering sound toys that stimulate curiosity [19]. The characterization of colors, sizes, absence of toxicity or danger and type of material are important aspects in the toy. Generally, the child has the curiosity to explore its meaning, and may carry some materials to the mouth, so it is necessary to aim for safety when playing [19]. Toy is a great stimulant of fantasy,

cognition, movement, construction and physical motor: those made of cloth, wood, scrap, blocks, boxes, building blocks are interesting to enhance the culture of the place [19].

It is understood that in order to include disabled children in parks, it is necessary to think of the adaptation of urban space to the norms of accessibility and landscaping to convey pleasures and sensations with nature. As play is a relevant act in this project, the choice of toys and furniture is fundamental, in order to guarantee safety and promote learning.

2. Material and Methods

The elaboration of the participatory project process in Parque Leste, Gama – DF, area involved the construction of three stages: a) synthesizing fundamental aspects of participatory research, b) collecting and analyzing the needs of the local population, c) developing project solutions and validating the proposal together with the community and the current public agency responsible for the area under study.

Stage “a” involved systematic bibliographic research with exploratory research, selection by titles and later by abstracts, and finally, evaluation of the complete publication [24] (Fig. 1).

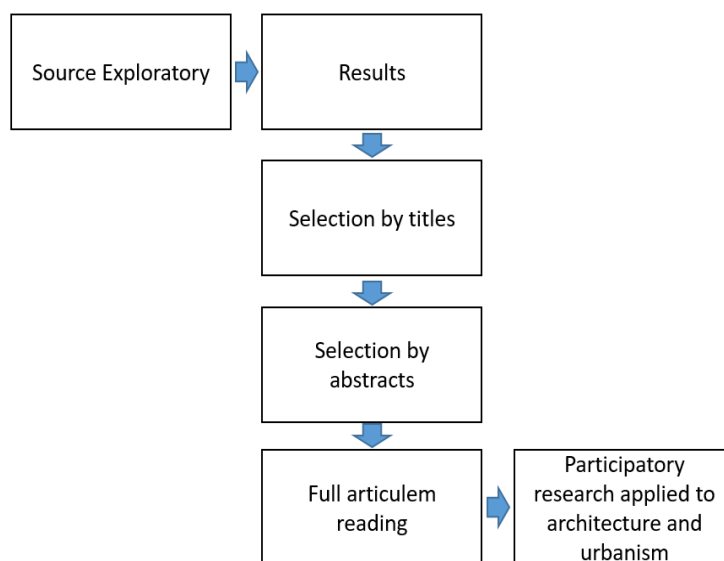


Fig. 1 Flowchart with selection stages of articles for participatory research, own elaboration based on information obtained from [24].

The searches were done on Google Scholar and the Capes Journal Portal on the Web of Science database using the search words “participatory research” and “architecture” separately and together with no connectors in Portuguese and English. Priority was given to articles above 35 citations or published in scientific journals with a minimum Qualis Capes B2 classification. The authors were compared and the concepts that were repeated.

The next step, “b”, involved first a thorough bibliographic review of the characteristics of the learning phases of children from 0 to 12 years old and the strategies of maximizing child learning in external spaces. The review was also the basis for the conceptualization of play, public space, intervention and requalification.

After the theoretical background on the object of study and on the specifics of the target audience, a visit was made to the place of intervention to observe potentialities and restrictions and photographic survey of the characteristics of the environment such as: soil use, height jig, topography, equipment, urban furniture, bioclimatic profile and survey of plant species. The needs program was complemented with the results of an interview conducted as the park safety officer with the interpretation of children’s drawings of an inclusive public school located in the Gama called Escola Classe 29 and interviews with children with disabilities: wheelchairs, carriers of the autistic spectrum — TEA or Down Syndrome (Fig. 2 and Fig. 3).

Data were collected in two groups with ages ranging from 10 to 12 years, one of children without disabilities and the other with five children with disabilities. For the first group, they were asked to draw what they would like to have in a park, in particular in Parque Leste, since the students are familiar with the area. All children drew, colored and handed out signed names and age (Figs. 4-6).

The “c” phase was constructed [25] project techniques that involve characterization of clientele and functions, elaboration of architectural program,



Fig. 2 Interview with children without disabilities of Escola Classe 29, source personal archive (2018).



Fig. 3 Interview with children with disabilities of Escola Classe 29, source personal archive (2018)

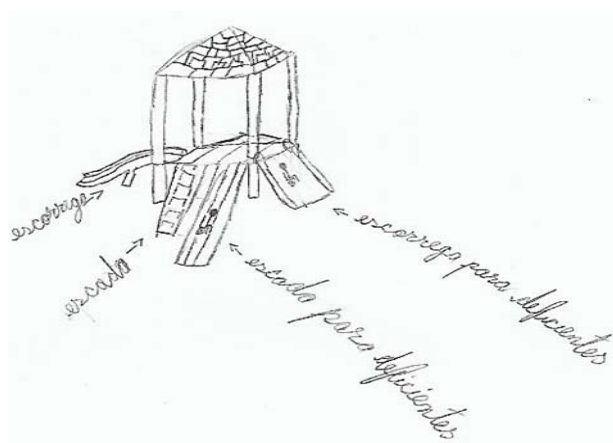


Fig. 4 Adapted slide drawing for children without disabilities, source student Vick Cassemiro (2018).

For the project, the geometric figures were used as an architectural party, as C. M. L. Souza and C. G. Batista (2008) [26] says:

Architecture can be understood as the result of the manipulation of geometric solids, through the composition of full and empty volumes, projections and recesses, in a play of light and shadow, with aesthetic care, fulfilling a certain purpose and inserted in a determined urban environment [26].

The design originated by the axuality, with the intention of connecting the buildings and the surroundings, such as the residential area, supermarkets and cultural cinema square; reflecting in main axes of circulation that caused the creation of some new accesses. Subsequently, the widths of the paths were defined by the hierarchy of the flows and the resulting rectangles of the main axes were subdivided to house the different activities (Fig. 7).

After defining the main paths, the other environments were divided the other environments starting from the axuality, forming several rectangles, each with its functionality, separately without harming the circulation. A sketch viewed from above the park, which from the rectangular divisions, it was proposed that each space represented geometric figures, such as the square, triangle, rectangle, rhombus, heptagon and etc, with the intention that the user can observe that through the pure forms of geometry, they are in all the park (Fig. 8).

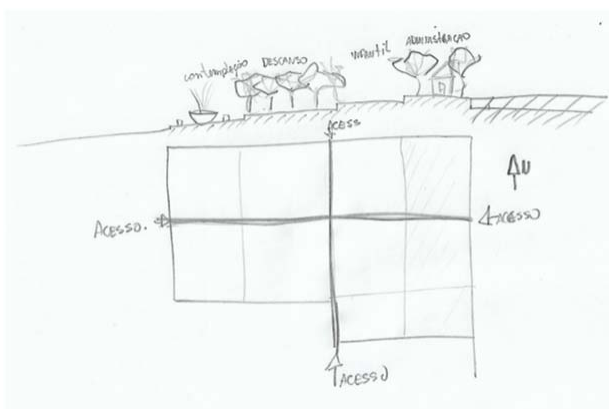


Fig. 7 Acessand court ground sketches sectorization, self-elaboration (2018).

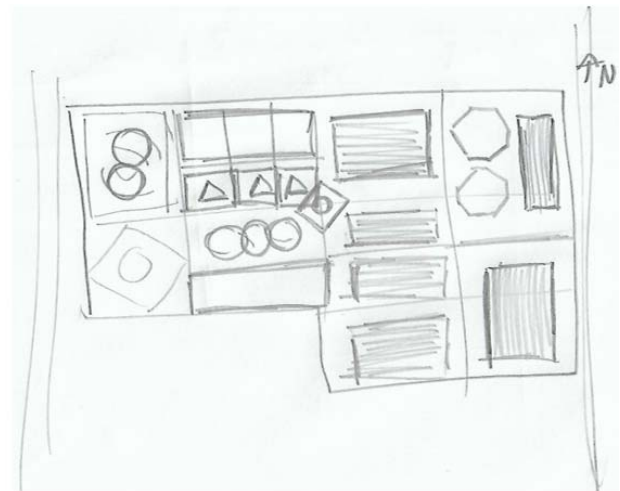


Fig. 8 Geometry of the park, self-elaboration (2018).



Fig. 9 Fountain dry and pagination of the floor, self-elaboration (2018).

As for the topography, the terrain has three level curves, and from one to the other there is a difference of 1 meter. In order to make better use of the land, the park was designed with land and landfill removals, but following more properly the old curves, with the highest point being that of the administration. This elevation helps in the monitoring and observation of the park. Besides the topography brings a greater visibility to those who are above can see who is below, the terrain makes the user has more sensations in having to descend, climb, see everything beyond the plane, observe the view that a high point provides.

On the floor paging, the pigmented perforated concrete was used as material for floor pagination. In addition to the geometric shapes appearing in the

pagination of the park, pastel colors were also used in the children's area, so that the color brings dynamism, beauty and joy to the user (Fig. 9). In order to avoid the great accumulation of heat, the warm tones were discarded in the design process, favoring environmental comfort.

Throughout the rest of the park, colors prevailed in gray, blending in with a lighter shade and darker to the floors. Pebbles, grass and elements (wood, stone, gravel, bamboo) were also part of the pagination, sharpening the touch and the sense of the user, being therefore extremely important for the sensory part. The inspiration of the floor with triangular shapes came from the tiles of Athos Bulcão.

In relation to furniture, fundamental elements for achieving inclusiveness and functionality, the initial ideas of the toys were removed by the case study of the APAE Araraquara Park, to which LAO Engenharia-SP was the supplier of accessible toys. Others, such as the handy carousel, pergolas, trash cans were taken from the NOVACAP company. The others, such as concrete benches and bleachers, were created for the project, according to the minimum measures of the Brazilian Association of Technical Norms — ABNT NBR 9050. Also inspired by the network created by designers Jair Straschnow and Gitte Nygaard from Amsterdam.

The dry fountain and the landscaping were designed to combine leisure with aesthetics and sensory experience, generating spaces to play and refresh, helping to maintain humidity, and being an element to sharpen all the senses. The raised vegetable garden was designed so that people with difficulty of locomotion could enjoy the place without having to lower themselves (Fig. 9).

The park's landscaped project contains a total of 66 trees, accounting for existing and new trees, which had the function to emphasize the zoning of activities and provide functionality, as well as to compose with various colors and fruits (Fig. 10). In the orchard, the fruits proposals were: blackberry, jabuticaba, guava, cashew and pitomba. In the area of contemplation, the



Fig. 10 Aerial view of the park, self-elaboration (2018).

proposed trees were of purple foliage, conveying the tranquility that this color provides to the users, and thus, each new tree had a purpose, be it color, fruit or shade. The management and the grouping of the trees helped to create more “closed” — or more “open” environments, giving the user different shading intensities and, consequently, different scenes.

3. Results and Discussion

Finally, the validation of the proposal to the community and to the current public agency responsible for the area under study was made by a meeting held at the Escola Classe 29 with the main actors: the public agency architect (NOVACAP) currently responsible for the area, the mother of a child with a disability, a mother of a child without a disability, a child and a teacher; and a meeting with the guiding teachers and the architect responsible for the public agency in the Final Banking of the Graduation Work.

At the meeting held at the inclusive school, the project was presented in the classroom through a monitor and a physical layout of the project and later a discussion was held to raise doubts about the project and to propose suggestions for adapting the proposal to the needs of the project. government. After this meeting, the project was sent by e-mail so that everyone had access to the details of the proposal and then there was a virtual questionnaire, sent to each one and that was returned filled out. The questionnaire

requested that the proposal be qualified from 0 to 2 (0: not suitable/not adapted/not applicable, 1: partially adequate, 2: adequate/needs) regarding access solutions, connections with surrounding activities, activities proposed for children with and without disabilities and residents, furniture and types of trees and floors. The project's strengths were also questioned and how they could be leveraged, as well as weaknesses and how they could be corrected. According to the results of the completed questionnaires, the positive aspects of sectorization, the dimensioning of sectors and roads, and especially universal adaptation, were highlighted as positive aspects for people with or without disabilities. As a suggestion for improvements, more public toilets and drinkers were requested, in addition to the existing structure of the park administration building.

The last meeting was held at the public session of Defense of Final Graduation Work of the Mariana Gurgel Alumni at the University Center Planalto of the Federal District, with the participation of Professors Camila Teles, Felix A. Silva Junior, Architect José Humberto Vieira da Silva responsible for NOVACAP and with the agreement of the Coordinator of the Architecture and Urbanism Course Ana Isabela Soares Martins da Silva. In this meeting all the theoretical research and the project solutions were presented in detail, considering the meetings and interviews with the community. The depth of the theoretical research, relevance of the theme, as well as the quality, functionality and feasibility of the proposal were punctuated.

4. Conclusion

The theoretical deepening in the method of participative process applied to projects and in the characterization of the target public, children with disabilities, was of fundamental importance for the foundation of the proposals and for the construction of the critical reasoning. The case studies allowed the increase of the architectural repertoire and the

verification of positive solutions to be replicated and negative to avoid. Visits to the study area allowed for the evaluation of local particularities related to social, environmental and physical issues, which provided more precise and context-specific solutions.

The fundamental aspects for the consolidation of the participatory consultative and collaborative process were the initial interviews with the children, who assisted in the elaboration of the program of needs, and the validation of the proposal in the final meeting in the school and in the public session of Defense of Graduation Final Work. The main peculiarity in the application of the method with the participation of children was the request of drawings, since they adapt to the capacity of expression of this public.

It was verified that the use of the participatory process in the elaboration of the project allowed the closest connection between the proposal, the needs and preferences of the residents of the neighborhood and the requirements and limitations of the public agency responsible for the area.

This initiative was an important step in the professional training of urban planners and urban planners, since it elucidates design process techniques better suited to the challenges of social integration and economic development, environmental sustainability and urban resilience to the context of climate change.

References

- [1] ONUBR, *Transformando nosso mundo: An Agenda 2030 para o desenvolvimento sustentável*, Rio de Janeiro, 2015.
- [2] G. N. Montenegro, *A produção do mobiliário urbano em espaços públicos O Desenho do Mobiliário Urbano nos Projetos de Reordenamento das Orlas do Rio Grande do Norte*, Natal, UFRN, 2005.
- [3] Ministério das Cidades, *Plano Diretor Participativo: guia para a elaboração pelos municípios e cidadãos*, 2004.
- [4] E. H. Freitas and L. M. Bueno, *Processos participativos para elaboração de Planos Diretores Municipais: inovações em experiências recentes*, Campinas, Revista Brasileira de Gestão Urbana, 2018.
- [5] ABNT, *NBR 9050: Acessibilidade a edificações, mobiliário, espaços e equipamentos urbanos*, Rio de Janeiro: Associação Brasileira De Normas Técnicas, 2015.

- [6] F. Diaz, M. Bordas, N. Galvao and T. Miranda, Educação inclusiva, deficiência e contexto social: questões contemporâneas, Salvador: EDUFBA, 2009.
- [7] Distrito Federal, Companhia Planejamento do Distrito Federal, Brasília, 2013, Available online at: http://www.google.com.br/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwiw-Mfn3rzXAhWKHJAKHbPFAgoQFgggNMAA&url=http%3A%2F%2Faprender.se.df.gov.br%2Farticles%2F0000%2F4274%2FPerfil_das_pessoas_com_deficiencia_no_DF_1_.pdf&usg=AOvVaw1TTFGMY-lrZsmbTy6UsJyB.
- [8] A. Cornwall and R. Jewkes, What is participatory research? *Soc. Sci. Med.* 41 (1995) (12) 1667-1676.
- [9] K. Lowe, Little known but powerful approach to applied research: Community-based participatory research, *Geriatric Nursing* 32 (2011) (1) 52-54.
- [10] J. Mackenzie, P. L. Tan, S. Hoverman and C. Baldwin, The value and limitations of Participatory Action Research methodology, *Journal of Hydrology* 474 (2012) 11-21.
- [11] C. Tomás, N. Fernandes and M. J. Sarmento, Jogos de imagens e espelhos: um olhar sociológico sobre a infância e as crianças em Portugal, in: V. Muller (Ed.), *Crianças Dos Países De Língua Portuguesa: Histórias, Culturas e Direitos*, Maringá: EDUEM, 2011, pp. 193-227.
- [12] W. Trinca, *Investigação clínica da personalidade: o desenho livre como estímulo de percepção temática*, São Paulo, EPU, 1987.
- [13] F. Meredieu, *O desenho Infantil*, São Paulo: Cultrix, 1997.
- [14] M. Gobbi, *Lápis vermelho é de mulherzinha: desenho infantil, relações de gênero e educação infantil*, 1997.
- [15] D. G. Amaro, Índícios da aprendizagem de crianças com deficiência em escolas de educação infantil: Roteiro de observação no cotidiano escolar, Dissertação de Mestrado, 2004.
- [16] J. Piaget, *Os pensadores*, São Paulo, 1983.
- [17] Takatori et al., O lúdico no atendimento de crianças com deficiência: uma reflexão sobre a produção cultural na infância, *Estilos da Clínica* 12 (2007) (23) 90-107, available online at: http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1415-71282007000200008&lng=pt&tlng=pt.
- [18] A. S. Scherer, O lúdico e o desenvolvimento: a importância do brinquedo e da brincadeira segundo a teoria Vigotskiana, Medianeira: Universidade Tecnológica Federal do Paraná, 2013.
- [19] I. Saviani and R. Pinheiro, *Formação em espaços lúdicos*, São Paulo: Fundação Maria Cecília Souto Vidigal, 2010.
- [20] P. M. Correa and E. J. Manzini, Acessibilidade em parque infantil: um estudo em escolas de educação infantil, UNESP, 2006, available online at: <http://33reuniao.anped.org.br/33encontro/app/webroot/files/file/Trabalhos%20em%20PDF/GT07-6088--Int.pdf>.
- [21] B. Abbud, *Criando Paisagens Guia de trabalho em arquitetura paisagística*, São Paulo: SENAC, 2006.
- [22] M. R. Abelson, As representações das crianças com deficiência sobre os parques infantis da cidade, Rio de Janeiro, 2012, available online at: <http://www.unicap.br/jubra/wp-content/uploads/2012/10/TRABALHO-53.pdf>.
- [23] M. B. Romero, Princípios bioclimáticos para o desenho urbano. Copy Market, 2000, available online at: https://biblioteca.unilasalle.edu.br/docs_online/livros/principios_bioclimaticos_para_o_desenho_urbano.pdf.
- [24] J. Matos and P. S. Scarazzato, A iluminação natural no projeto de arquitetura: revisão sistemática da literatura, *PARC Pesq. em Arquit. e Constr.* 8 (2017) (4) 249-256.
- [25] L. P. Neves, Adoção do partido na arquitetura, I Laert Pedreira, Neves, Salvador: Centro Editorial e Didático da UFBA, 1989.
- [26] C. M. L. Souza and C. G. Batista, Interação entre crianças com necessidades especiais em contexto lúdico: possibilidades de desenvolvimento, *Psicologia: Reflexão e Crítica* 21 (2008) (3) 383-391.