

ACCESSIBILITY EVALUATION OF THE PLAYGROUND DURING THE PLAY OF CHILDREN WITH CEREBRAL PALSY IN SCHOOL¹

AValiação da Acessibilidade do Parque Durante o Brincar de Crianças com Paralisia Cerebral na Escola

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ABSTRACT: In the school context, the playground is an important place for children to participate in recreational activities. Through play, children acquire knowledge, they develop skills and abilities, they can feel pleasure and express their feelings. However, for the playground to promote the development of children, it must be accessible and safe for all children, including those with disabilities. The aim of this research was to evaluate the accessibility of a school playground of Early Childhood Education and also to analyse the participation of children with cerebral palsy in recreational activities developed in it. The participants were three children with cerebral palsy, from four to six years old, from a school of Early Childhood Education in a municipality of São Paulo - Brazil. Data collection was divided into two stages: 1) evaluation of the accessibility of the playground using the Protocol for evaluation of physical accessibility in Early Childhood Education schools; 2) observation of children with cerebral palsy during play activities in the playground. It was noted that the playground is not accessible for children with cerebral palsy. However, they participated in activities with the help of teachers and caregivers. The lack of adequate recreational equipment may have hindered the best performance of the children in school playground activities. It is necessary to educate professionals to increase the participation of children during play activities and to adequate the playground, making it accessible and safe for all children, as it is proposed by the Universal Design.

KEYWORDS: Special Education. Playground. Cerebral Palsy. Accessibility.

RESUMO: no contexto escolar, o parque infantil é um local importante para as crianças participarem de atividades lúdicas. Por meio das brincadeiras, as crianças adquirem conhecimentos, desenvolvem habilidades e capacidades, conseguem ter prazer e expressar seus sentimentos. Entretanto, para que o parque infantil possa favorecer o desenvolvimento das crianças, ele precisa estar acessível e seguro para todas as crianças, inclusive para aquelas com deficiência. O objetivo deste estudo foi o de avaliar a acessibilidade de um parque de uma escola de Educação Infantil e analisar a participação dos alunos com paralisia cerebral nas atividades lúdicas desenvolvidas nele. Participaram três crianças com paralisia cerebral, de quatro a seis anos, de uma escola de Educação Infantil de um município do interior do estado de São Paulo. A coleta de dados foi dividida em duas etapas: 1) avaliação da acessibilidade do parque infantil utilizando o Protocolo para avaliação da acessibilidade física em escolas de Educação Infantil; 2) observação das crianças com paralisia cerebral nas atividades lúdicas do parque infantil. Notou-se que o parque escolar não se encontra acessível para as crianças com paralisia cerebral; no entanto, estas participaram das atividades com o auxílio de professores e cuidadores. A falta de adequação nos equipamentos recreativos pode ter dificultado o melhor desempenho das crianças nas atividades do parque da escola. Há necessidade de formação dos profissionais para ampliar a participação da criança durante as atividades lúdicas e a adequação do parque, tornando acessível e seguro a todas as crianças, assim como é proposto pelo Desenho Universal.

PALAVRAS-CHAVE: Educação Especial. Parque Infantil. Paralisia Cerebral. Acessibilidade.

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1 INTRODUCTION

Childhood is the moment of appropriation of images and representations of the real world, in which the child becomes able to communicate, socialize, interact, and thus develop, grow and mature in a healthy way. It enables to live in a state of transition between concrete situations of daily life and a world of representations unrelated to the events of life (Ferland, 2006).

Playing, a playful activity of childhood, is a healthy movement, and can be considered as a spontaneous, free action, propulsive of creativity, for the maturing of the child. It is in childhood, through play, that the child begins to know the new, to have pleasure, to dominate and to let rise his/her creativity. Through play the child can express their feelings, whether positive or negative, discovering the world around him/her and expand the skills of psychomotor and social development (Ferland, 2006).

The play activity used in the school context is of primary importance, because with play the student acquires sensations and emotions fundamental for his/her development, causing the child to form his/her personality and learn to deal with the world. Therefore, the fact that play is particularly associated with child development must also be inserted in Early Childhood Education with the objective of contributing to the learning process (Lira & Rubio, 2014).

In the school context, the playground can be considered a privileged area where it is possible to carry out the stimulation of the child in a playful way. It is an alternative environment, rich in stimuli capable of favoring the psychomotor aspects and social relations. The playground is important not only for the child's development, but also for the transmission of cultural values and citizenship (Blascovi-Assis, 2009).

Children diagnosed with cerebral palsy may present motor disorders and permanent postural deviations of a non-progressive origin in an immature brain, which may or may not be linked to cognitive transformations, such as language and learning disorders. Motor changes make voluntary movements dissociated and scarce (Gauzzi & Fonseca, 2004).

For children with cerebral palsy, outdoor play is important, because, in addition to playfulness being a form of fun, it is also a way to develop motor, cognitive and social skills. However, in order for these children to enjoy leisure time safely, playground equipment and locations must have accessible toys instead of obstacles to their users (Laufer, 2001). When thinking about adapting the recreational equipment of a playground, one must remember their accessibility, which aims to welcome all people, without hiding the particularities of each one, with the intention of eliminating discrimination to users and providing their integration to these recreation toys (Laufer, 2001). According to Federal Law n. 10,098, of December 19th, 2000 (p.1), accessibility is '[...] possibility and reach condition for the use, with security and autonomy, of spaces, furniture and urban equipment, buildings, transport and systems and means of communication, by persons with disability or with reduced mobility'.

Inclusive Education presents as one of its proposals to organize accessibility resources that annihilate the barriers to the absolute participation of the students, considering their special needs. Access to Inclusive Education complements and/or assists the development

of students in their independence and autonomy in and out of school (Política Nacional de Educação Inclusiva, 2008).

This study had as pretension to investigate how the accessibility of the playground and toys were during the play of children with cerebral palsy in Early Childhood Education. As hypothesis, we expected that the children's playground and the toys of the researched school would comply with what is established in the public policies that conduct the inclusion of the disabled student, due to the fact that it is a reference school regarding the physical structure of the municipality.

In addition, the other hypothesis was that the *Protocol for the evaluation of physical accessibility in schools of Early Childhood Education* (Corrêa, 2010) was an important instrument that allows to evaluate accessibility for all children, including those with cerebral palsy.

2 OBJECTIVE

The objective of this study was to evaluate the accessibility of a playground in an Early Childhood Education school and analyze the participation of students with cerebral palsy in the leisure activities developed in it.

3 METHOD

3.1 ETHICS COMMITTEE

The research project was submitted for evaluation by the Research Ethics Committee of the Philosophy and Sciences College of UNESP - Campus Marília, São Paulo (SP), Brazil, respecting the prerogatives of CONEP Resolution n. 196/96, which deals with ethics in research of human beings, having received a favorable opinion under Protocol No. 0841/2013.

3.2 RESEARCH LOCATION

The research was carried out in a School of Early Childhood Education in the municipality of Marília, São Paulo State, Brazil. The school was selected because it is a reference of the physical structure of the municipality, that is, its physical structure in relation to the playground represents several other schools in the municipality. The school under study subdivided the playground into four spaces, giving it the names of playground 1, playground 2, playground 3 and playground 4. This division was used to determine the age groups of the children, being playground 1 and 2 for young children aged 2 to 4 years old, and playground 3 and 4 for older children aged 5 to 6.

3.3 PARTICIPANTS

The criteria for participation in the study were: children from 4 to 6 years old with cerebral palsy, classified in Level I to V of the *Gross Motor Function Measure Classification System* (GMFCS), enrolled in Early Childhood Education classrooms. The GMFCS classifies the level of gross motor function and is based on voluntary movement, highlighting the transference, sitting and the locomotion of the child. This instrument is characterized as a five-level ordinal

scale that portrays, in descending order, the level of independence and functionality of children (Palisano et al., 1997).

Children with cerebral palsy with associated disabilities, such as visual impairment, hearing impairment, among others, were excluded from the study. Thus, the participants in this study were three children with cerebral palsy. Table 1 identifies the age, the school grade that the child is enrolled and also the classification through the GMFCS, verifying the level in which the child better evidences his/her abilities and limitations in the area of gross motor function.

	Age	Grade	Evaluation of GMFCS
Child 1	3 years old	Kindergarten I	Level II
Child 2	4 years old	Kindergarten I	Level II
Child 3	4 years old	Pre-school III	Level V

Table 1. Participants' profile

Source: Elaborated by the authors.

Children 1 and 2 present hemiparesis with right hemibody involvement. Child 1 makes use of a right lower limb bracing, and Child 2 makes use of a right upper limb bracing. According to the GMFCS assessment, children 1 and 2 presented a level II rating, which identifies that they are able to sit on the ground without assistance, but may show difficulty in the balance of holding an object with both hands. They can leave the floor or from a chair to the standing position, but they usually require a stable space to push or propel themselves up with the upper limbs. They are able to walk without using a manual mobility device, they climb stairs while holding onto the railing, but they are unable to run and jump (Palisano et al., 1997).

Child 3 is quadriparetic and makes use of a manual wheelchair. Regarding the GMFCS evaluation, the classification that he/she presented was level V. Children aged between four and six years old, referring to level V, present a limited control of the limited movement and are not able to maintain antigravity head and trunk postures. The areas of motor function are completely restricted, being compensated through the use of adaptive equipment and assistive technology. At this level, children end up not having the means to move independently, so they have to be transported (Palisano et al., 1997).

3.4 DATA COLLECTION

Data collection was divided in two stages.

3.4.1 STAGE 1 –ACCESSIBILITY EVALUATION OF THE PLAYGROUND

The accessibility of the children's playground was evaluated through the *Protocol for the evaluation of physical accessibility in schools of Early Childhood Education* (Corrêa, 2010), which intends to investigate the following items:

1. The reach to the equipment of the playground: if they are constituted by walkways to facilitate the locomotion of the children, mainly those that require mobility devices such as a wheelchair.
2. Aspects of the equipment: if the height of the toys are suitable for the age group, if they are equipped with a safety belt.
3. The safety of the toys: if the condition of the toys are fit to use without causing harm to children.

3.4.2 STAGE 2 – OBSERVATION OF CHILDREN DURING ACTIVITIES IN THE PLAYGROUND

The data was collected from the free observation of the children during their activities in the school playgrounds 1 and 2 over two distinct periods of time, of approximately 30 minutes each, as previously arranged with the teacher. Each moment the children carried out activities in the playground they were accompanied by a caregiver.

The activity of the child was recorded through filming done by the research assistant, in a dynamic way, in order to follow the children's movement through the playground. The researcher also performed the continuous recording of information during activity in a field diary.

3.5 FILMING TRANSCRIPT

After recording the information, the filming was transcribed in full. Next, the organization of the information identified through continuous registration was carried out emphasizing the following aspects: the resources used during play in the school playground, the strategies used by the teacher and caregiver, the student's performance during the play, the abilities and difficulties of the student, the description of the motor aspect, the interaction of the student with the activity, the caregiver and the other students and the school playgrounds.

The information obtained from the filming transcripts and the continuous recording were compiled into a single document from the time sequence of the activities.

3.6 CONTENT ANALYSIS

Regarding the first stage of the data collection, after the accessibility evaluation of the playground through the *Protocol for the evaluation of physical accessibility in schools of Early Childhood Education* (Corrêa, 2010), the identified data was compiled and later analyzed in order to identify the amount of recreational equipment that meets the accessibility items proposed by the Protocol.

Subsequently, in Stage 2, as it was a qualitative study, the content analysis proposed by Bardin (2004) was used. After the transcriptions of the filming and structuring of the written text, categories of analysis were established. Bardin (2004) defined category as a group, a group or a division that presents similar characteristics, but they differ by nature. Table 2 presents the established categories and subcategories:

Categories	Subcategories
Participation in the playground	With the initiative of the child
	With the initiative of the caregiver
Assistance offered	Verbal
	Non verbal
	Motor
Performance of the child	-

Table 2. Content analysis categories and subcategories

Source: Elaborated by the authors.

The category '*participation in the playground*' was defined as the involvement of the children during the activities carried out in the playground. The category '*assistance offered*' refers to the help that the caregivers and teachers offered when playing in the playground with the children. And the category '*performance of the child*' was defined as the quality of the action of the child with cerebral palsy during the participation in the activities carried out in the playground.

After establishing the categories and subcategories of analysis, with the intention of following a conceptual and methodological rigor of research, Carvalho's (1996) recommendations were adopted, being the material submitted to the analysis of experts with experience in the area. The concordance index between the researcher and the expert 1 was 84%, between the researcher and expert 2 was 87%, and between the two experts the agreement index was 85%. In this way, the categories and subcategories, and their respective examples of speech, presented the degree of representativeness according to Carvalho (1996). After completing the concordance index, the material assessed by the experts was analyzed.

4 RESULTS AND DISCUSSIONS

4.1 CHARACTERIZATION OF PLAYGROUND ACCESSIBILITY

Firstly, before analyzing the play of children with cerebral palsy in the playground, the evaluation of the recreational equipment that existed in the playground was carried out through the Protocol formulated by Corrêa (2010). As previously reported, the evaluated school had four playgrounds divided by age group. For better understanding, the results will be presented through tables that identify the number of playgrounds that were adequate or not in relation to accessibility. Table 3 shows the results obtained during the evaluation in relation to access to recreational equipment.

Items	Suitable playgrounds	Unsuitable playgrounds
The sites of each recreational equipment are constituted by footbridge.	0	4
The surface of the site is: flat and does not have abrupt level changes.	0	4
The surface of the site consists of lawn.	3	1

Table 3. Access to recreational equipment

Source: Elaborated by the authors.

Regarding the results presented in Table 3, it is possible to verify that the surface of the playgrounds is largely made up of lawn around the recreational equipment, however one of the playgrounds consists of sand on its entire surface. According to the Brazilian Association of Technical Standards NBR 9050 (2004), the surface where the children move must be firm, stable and non-slip, so the favorable ground for this is the lawn around the toys, because it is a material that cushions during a possible fall.

In relation to the need of the playground to be constituted by a flat surface, it was identified that the studied playground has some irregularities, mainly around the recreational equipment, highlighting the swing sets. However, there are some places that have abrupt level changes, mainly between the separation of one playground and another. Corrêa (2010) explained that irregularities or abrupt changes in the level of the playground may hinder or even make it impossible for wheelchair users or those who use walking aids to move around the site. Moreover, irregularities or level changes may become dangerous for children, especially as it is in this space that they experience running freely.

The situations of use of the environments and the equipment refer to the possibility of the activities being carried out by all the disabled people or not. The adaptations of all the physical characteristics of the equipment, such as the format, dimensions, raised area and also their accommodation in the environments are important to enable them to be accessed by all (Burjato, 2004). Table 4 identifies the characteristics in relation to the accessibility of the recreational equipment.

Items	Suitable playgrounds	Unsuitable playgrounds
Recreational equipment is divided by age group.	4	0
Sliding board with handrails, at all lengths with at least 3.93 inches of height.	1	3
Protection grids on top of the board.	0	4
Board width between 13.77 inches and 23.62 inches.	2	2
Slide ladder with double handrail height.	0	4

Handrail of the slider with rubber surface.	0	4
Steps with non-slip material.	0	4
Slide ladder steps closed.	2	2
Steps with a minimum depth of 2.95 inches and a maximum of 5.90 inches.	0	4
Ladder width equal to or greater than 19.68 inches.	2	2
Slide height (35.43 inches for smaller children and 47.24 inches for older children).	4	0
Seats for wheelchairs in swing sets and roundabout toy.	0	4
Side protection on swing, seesaw and roundabout toys.	0	4
Circular shape of seat on swing and seesaw.	0	4
Swing seat with adjustment of its angle.	0	4
Extra seat behind the seesaw, so that another person can sit and push.	0	4
Tires under the seesaw seat.	0	4
Belt or other safety equipment on the swing.	0	4
Foot rest on swing toy.	0	4
Rubberized coating on the part where the child holds on to the swing toy and seesaw.	0	4

Table 4. Characteristics of the recreational equipment

Source: Elaborated by the authors.

Considering the results identified in the evaluation performed in the playground, all recreational equipment under study are divided by age groups, as suggested by Corrêa (2010). The school makes a subdivision of the playground into four parts, differentiating them by the ages of the children, two of them for children from 2 to 4 years old and the other two for children from 5 to 6 years old. This division meets the needs identified by Laufer (2001) and Burjato (2004) who emphasized that playgrounds should be composed of recreational equipment for various age groups, considering that each child may have a certain need in the use of these toys; for example, the height of the slides, which must be different between the younger and older children.

The slides of the evaluated school are not constituted by double height in the handrail of the stairs and do not have their surface rubberized as recommended by Corrêa's (2010) Protocol. The toy also does not consist of protection grids on both the ladder and the sliding board. Two of the four slides that are in the playground have closed steps, but without non-slip material. The other two, however, do not consist of closed steps or non-slip material. However, the distance between the steps of all slides is adequate. In relation to the width of the

slide board, two of them were suitable, between a width of 13.77 inches and 23.62 inches, yet the other two have a width of less than 13.77 inches. Laufer (2001), in his study, found that the side protections of the sliding boards are not sufficient. In view of this, she noted that a continuation of the stair handrail should be given to the entire sliding board, thereby forming grids of protection. Regarding the height of the handrail on the stairway of the slide, the researcher stated that it should be formed of two different height handrails so that it benefits children of various age groups. Figure 1 refers to the slide of the surveyed school.



Figure 1. Slide of the school

Source: Photographed by the authors.

As for the recreational equipment swing and roundabout, it was identified that none of them presented adequacy in relation to the regulations proposed by the Brazilian Association of Technical Standards NBR 14350-1 (1999). The roundabout toy does not have ramp access for wheelchair users and also does not have a protection grid or safety barriers to avoid possible collisions. In relation to the swing sets, it was identified that they do not have a backrest, a protection grid to avoid possible collisions, foot rests or seat belts to protect the child from possible accidents. According to ABNT (1999), all the seatings of the swing sets must be constituted by a backrest and it is also recommended that the swing sets for children up to the age of 3 years old must have the seat in the form of 'pants' for the protection of the spinal cord. Regarding the footrest in the swing sets, ABNT (1999) establishes that it is necessary to provide adequate support and also to provide greater stability for the child when playing. Figure 2 refers to the swing sets of the surveyed school.

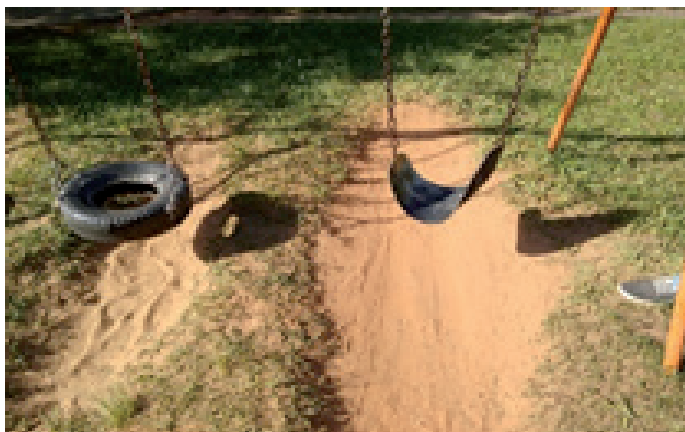


Figure 2. Swing sets of the school

Source: Photographed by the authors.

Playgrounds and their toys may present risks to children when they are not properly structured. However, it can be seen that, in most cases, these episodes could be avoided with simple prevention models (Harada, Pedreira, & Andreotti, 2003). Table 5 presents items related to the safety of recreational equipment.

Items	Suitable playgrounds	Unsuitable playgrounds
The equipment exhibits some kind of cracking, deformation or loose connection.	2	2
Wood surfaces and corners have smooth finishes, free of chips, burrs or barbs.	4	0
Nuts, bolts, screws or other sharp materials have protective finishes so that no sharp corners remain and no injuries are caused.	4	0
Recreational equipment that moves, such as swing sets and roundabouts, has protection grids or safety barriers so that possible collisions are avoided.	0	4
The playground area is kept clean.	4	0
The school carries out periodic maintenance of the playground.	4	0

Table 5. Safety of recreational equipment

Source: Elaborated by the authors.

Regarding the safety of the recreational equipment, one of the slides found in the playground had cracks, deformation and loose connection. However, recreation toys made of wood have smooth finishes, free of chips, burrs or barbs. Recreational equipment that consists of nuts, bolts and pointed head screws, have protective finishes, so that no sharp corners appear, preventing injury from being caused.

Finally, it is possible to verify that in the total of 29 items presented only 6 items meet the proposal of accessibility of the Protocol. Thus, the school playgrounds are inadequate

in relation to physical accessibility of recreational equipment for all children, especially for children with cerebral palsy who are enrolled in school. The Early Childhood education playgrounds need to be safe, facilitate access and to allow children to have autonomy regarding the use of recreational equipment, even children with physical disabilities. Otherwise, the activity of playing in the playground may be limited or even infeasible for some children, thus distancing the effective inclusion of children with disabilities (Corrêa, 2010).

4.2 CHARACTERIZATION OF THE CHILD WITH CEREBRAL PALSY DURING PLAY ACTIVITIES IN THE PLAYGROUND

Among the objectives of this study, we proposed to evaluate the child with cerebral palsy during the play activities in the playground. Soler, Rezende, and Blascovi-Assis (2011) reported that the playground is a stimulating environment for children with cerebral palsy, because, when playing in the playground, they have the opportunity to explore the whole environment and experience their limits, moving their whole body and mind. In addition, along with other children, children with cerebral palsy experience new perspectives of humanization in their social relationships.

From the analysis of the data, the categories were identified in order to characterize the play of the children with cerebral palsy in the activities of the school playground. The first category established was the *participation in the playground*, understood as the involvement of the child during the activities carried out in the playground. This category has been divided into two subcategories. Firstly, the participation in the playground was analyzed with the initiative of the child, observing if he/she had autonomy in the choice of the toy. With regard to this subcategory, it was identified in this study that the fact that the recreational equipment was not adequate did not prevent children with cerebral palsy from playing in this environment and demonstrated initiative regarding the choice of toys. The transcript excerpts below describe the children playing in the playground and exemplifies this statement:

Child 1 was sliding on the house toy with a slide, and as he/she got up from the slide he/she went straight to the little train-shaped tunnel toy to pass in the tunnel.

Child 2 is in the house toy with the slide and as soon as he/she slides, the child immediately points again to the toy.

To Ferland (2006), children with physical disabilities share multiple elements of playful behavior, as other children do, such as curiosity, taste for pleasure and initiative, and interest in any kind of play. Thus, we believe that the children in this study demonstrated the elements necessary for play behavior, but, during play in the school playground, the lack of accessibility and safety elements can impair performance and expose children to a risk of accidents.

The second established subcategory of *participation in the playground* was the participation of the child in the playground with the initiative of the caregiver, who intended to identify moments when the child did not have autonomy in relation to the choice of recreational equipment of the playground. Regarding this subcategory, we observed that there

is still lack of preparation of the caregivers in relation to the child with cerebral palsy, because they end up not noticing the child's capacity and not respecting their desires during the play activities. The following excerpt identifies the caregiver of Child 2 depriving him/her of having autonomy in choosing the activity in the playground.

Child 2 points to the slide toy, after the caregiver has taken him/her from it and taken him/her to the horse toy.

The education of professionals working with children with physical disabilities at school is essential in order to stimulate the children's abilities and broaden their participation in activities in this context. According to Caregiver's Practical Guide (2008), the role of the caregiver in the regular network of education is to make participation in the daily school life of students with communication, intellectual, cognitive, mobility, locomotion difficulties or other specific limitations possible. In this study, we identified that education of this professional is necessary so that he/she performs his/her duties in a way that allows the child to use his/her abilities and to have autonomy during the play activities.

Another category identified in the analysis of the data collection was in relation to the *assistance offered*, in order to verify the assistance that the professionals offer when playing in the playground with the children. Rothschild, Swaine, and Norris (2001) discuss the need for people trained and involved in the classroom routine to support the activities of the student with disabilities and to identify the needs for assistance. This category was divided into three subcategories: verbal assistance, non-verbal assistance and motor assistance. With regard to verbal assistance, we understand the moments that the professionals offer or the child requests assistance through orality. The following excerpt identifies a moment when one of the children receives verbal assistance:

Child 1 is in the castle toy with the slide and caregiver assists speaking and showing which step the child must step on, because the steps are not sequenced one in front of the other and also as the toy does not present handrails.

Verbal assistance can be used as an instrument that facilitates student's participation in the activities and it is considered an effective strategy to stimulate the child's involvement during play activities. Nunes (2003) argues that teaching strategies that use verbal instruction to bring information to the child present different characteristics according to their needs, making it necessary to consider their age, their understanding and their motor and sensory abilities. In this perspective, Rocha (2013) reports that it is necessary to guarantee the understanding of verbal assistance and to reflect on its content and extent.

Other assistance offered by the professionals in this study was the non-verbal, which is concerned with the professionals offer or when the child requests assistance through gestures and/or facial expressions.

Child 2 stands in front of the swing looking at the caregiver. Caregiver assists the child to sit on the swing. When she stops swinging, the child looks at the caregiver to push him/her again.

The results of Rocha's study (2013) highlight the need for professionals to identify what help is necessary for the child with physical disability, being among the non-verbal assistance the indicative gestures and facial expressions. It is essential to offer the child only the help he/she needs, thus enabling the development of skills. In this example, mediating the caregiver through non-verbal assistance was important for the child to participate effectively in the activity.

The last subcategory of participation was the *motor assistance* which is related to when the caregiver offers or the child requests assistance through a motor action. The following excerpt exemplifies a moment when the caregiver offers motor assistance to the child during the activities in the playground:

Child 3 needed assistance from the caregiver to sit on the access to the slide ramp, as it has a separation level between the castle and the slide ramp, and, right after that, he/she slipped with the assistance of the caregiver.

The student's participation in this case depended on the caregiver's motor assistance, even the environment where the student developed the activity was appropriate for his/her age group. The need for the assistance may have been accentuated by the fact that the playground did not meet the universal design proposals. Ferland (2006) and Blanche (2002) argued that play is essential for the child's development and it is an easy accessible activity for children without disabilities, but the child with physical disability needs specific resources that favor the play in their natural environments, such as the accessible recreational equipment and the caregiver's motor assistance.

Finally, the *performance of the children* with cerebral palsy was verified, and in this category the quality of the child's action during the participation in the activities was identified in the playground, that is, the results obtained by the student through playing in the school playground. The results showed that all the children in the study had performance impairments, however Child 3 was the most affected possibly due to his/her greater motor impairment identified in the GMFCS. It was also possible to verify that the lack of adequacy in recreational equipment may have hindered the best performance of children in the activities of the school playground; this situation is exemplified in the following excerpts:

Child 1 walks to the middle of the ramp without help from the caregiver, but then he/she needed the caregiver's assistance to finish climbing the ramp. He/she has difficulty in knee flexion and dorsiflexion and sliding in a certain path.

Child 2 is on the swing on his/her stomach, with only stomach support in the seat and the child has no trunk control and ends up unbalancing and falls forward, banging his/her face against the sand.

In Araújo and Galvão's (2007) study, children with physical disabilities presented difficulties in play activities, due to their own pathology. In view of this, it is necessary to provide and/or maintain assistance or adapt the recreational equipment, promoting strategies that facilitate the child's participation, creating situations in which the child can experiment,

act; in short, play. The choice of the toy needs to be appropriate to the age group, provide safety and motivation for the child (Araújo & Galvão, 2007).

5 CONCLUSION

The use of the Protocol for the evaluation of physical accessibility in nursery schools proposed by Corrêa (2010) was efficient to identify the needs regarding the adequacy of recreational equipment and the environment of the playground. It was observed that, even though the school playground is not accessible to children with cerebral palsy, they participate in activities carried out in this environment with the assistance of caregivers and teachers.

We observed the need for education of the professionals who accompany the child in the playground, in order to enable them to use strategies to increase the child's participation during the play activities carried out in that environment. In addition, it is fundamental that trained professionals make a proposal to adapt the playground, making it accessible and safe for all children, as proposed by the Universal Design.

We suggest for future studies the extension of this study through the accessibility evaluation of other school playgrounds, studies that propose adaptations for the recreational equipment and environment of the playground, as well as education proposals for professionals who accompany children in this environment.

REFERENCES

- ABNT NBR 9050, de 31 de maio de 2004. Acessibilidade a edificações, mobiliário, espaços e equipamentos urbanos. Rio de Janeiro: Associação Brasileira de Normas Técnicas.
- ABNT NBR 14350-1, de julho de 1999. Segurança de brinquedos de playground. Parte 1: Requisitos e métodos de ensaio. Rio de Janeiro: Associação Brasileira de Normas Técnicas.
- Araújo, A. E., & Galvão, C. (2007). Desordens Neuromotoras. In A. Cavalcanti, & C. Galvão, C. (Eds.), *Terapia Ocupacional: Fundamentação e prática* (pp. 328-337). Rio de Janeiro: Guanabara Koogan.
- Bardin, L. (2004). *Análise de conteúdo*. Lisboa: Edições 70.
- Blanche, E. I. (2002). Play and process: Adult play embedded in the daily routine. In J. Roopnarire (Ed.), *Conceptual, social-cognitive, and contextual issues in the fields of play* (pp. 249-278). Conn: Ablex Publishing.
- Blascovi-Assis, S. M. (2009). Lazer para deficientes mentais. In N. C. Marcellino (Ed.), *Lúdico, educação e educação física* (3rd ed., pp. 101-111). Ijuí, RS: Unijuí.
- Burjato, A. L. P. F. (2004). *Parques acessíveis: Um direito de cidadania. Aplicação de procedimentos para avaliação do projeto implantado: O caso do Parque Villa-Lobos*. (Master Dissertation), Faculdade de Arquitetura e Urbanismo, Universidade de São Paulo, São Paulo, Brazil.
- Carvalho, A. M. P. (1996). O uso do vídeo na tomada de dados: Pesquisando o desenvolvimento do ensino em sala de aula. *Pro-posições*, 7(1), 5-13.

- Corrêa, P. (2010). *Elaboração de um protocolo para avaliação de acessibilidade física em escolas da educação infantil*. 2010. (Master Dissertation), Faculdade de Filosofia e Ciências, Universidade Estadual Paulista, Marília, São Paulo, Brazil.
- Ferland, F. (2006). *O Modelo lúdico: O brincar, a criança com deficiência física e a terapia ocupacional*. São Paulo: Roca.
- Gauzzi, L. D. V., & Fonseca L. F. (2004). Classificação da paralisia cerebral. In C. L. A. Lima, & L. F. Fonseca (Eds.), *Paralisia cerebral: Neurologia, ortopedia e reabilitação* (pp. 37-44). Rio de Janeiro: Guanabara Koogan.
- Guia prático do cuidador* (2008). Retrieved from http://bvsms.saude.gov.br/bvs/publicacoes/guia_pratico_cuidador.pdf.htm.
- Harada, M. J. C. S., Pedreira, M. L. G., & Andreotti, J. T. (2003). Segurança com brinquedos de parques infantis: Uma introdução ao problema. *Revista Latino-Americana de Enfermagem*, 11(3), 383-386.
- Laufer, A. (2001). *Recomendação para projetos de brinquedos de recreação e lazer existentes em playgrounds adaptados à criança com paralisia cerebral*. (Master Dissertation), Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina, Brazil.
- Lei n. 10.098, de 19 de dezembro de 2000*. Estabelece normas gerais e critérios básicos para a promoção da acessibilidade das pessoas portadoras de deficiência ou com mobilidade reduzida, e dá outras providências. Retrieved from http://www.planalto.gov.br/ccivil_03/Leis/L10098.htm.
- Lira, N. A. B., & Rubio, J. A. S. (2014). A Importância do brincar na educação infantil. *Revista Eletrônica Saberes da Educação*, 5(1), 1-22.
- Nunes, L. R. O. P. (2003). Linguagem e comunicação alternativa: uma introdução. In L. R. O. P. Nunes (Ed.), *Favorecendo o desenvolvimento da comunicação em crianças e jovens com necessidades educacionais especiais* (pp. 1-13). Rio de Janeiro: Dunya.
- Palisano, R., Rosenbaum, P., Russell, D., Walter, S., Wood, E., & Galuppi, B. (1997). Development and reliability of a system to classify gross motor function in children with cerebral palsy. *Developmental Medicine & Child Neurology*, 39(4), 214-23.
- Política Nacional de Educação Especial na Perspectiva da Educação Inclusiva* (2008). Brasília DF: MEC/SEE.
- Rocha, A. N. D. C. (2013). *Recursos e estratégias da tecnologia assistiva a partir do ensino colaborativo entre os profissionais da saúde e educação*. (Doctoral Thesis), Faculdade de Filosofia e Ciências, Universidade Estadual Paulista, Marília, São Paulo, Brazil.
- Rothschild, N., Swaine, J., & Norris, L. (2001). *Augmentative and alternative communication: Management of severe communication disorders in children and adults*. Brazil: Workshop.
- Soler, A. P. S. C., Rezende, L. K., & Blascovi-Assis, S. M. (2011). Utilização do playground por crianças com paralisia cerebral tipo diparética espástica: Preferências e dificuldades relatadas pelas mães. *Revista Terapia Ocupacional*, 22(1), 19-26.

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