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Article

Evolution in physical accessibility measures in Brazilian schools according to School Census data

Evolução nas medidas de acessibilidade física nas escolas brasileiras segundo dados do Censo Escolar

Evolución de las medidas de accesibilidad física en escuelas brasileñas según datos del Censo Escolar

Enicéia Gonçâves Mendes[I]

Rosângela Gavioli Prieto[II]

Mônica de Carvalho Magalhães Kassar[III]

Cristina Broglia Feitosa de Lacerda[IV]

Gabriela Schneider[V]

Ana Lorena de Oliveira Bruel[VI]

ABSTRACT

In the educational context, the demand for accessibility measures is increasing as the thesis strengthens that the best place to educate students from the target audience of special education (PAEE) is in the regular classroom. This is primarily driven by significant advances in global movements for school and social inclusion, legislative changes in various countries, and applied scientific research in the field of education. Using documentation from the National Institute of Educational Studies and Research as a reference, the study aims to analyze how physical accessibility is defined and measured in Brazilian schools and whether there have been changes in the criteria evaluated. The data sources are the forms and microdata from the School Censuses of 2011, 2013, 2015, 2017 and 2019. The results present the dimensions and definitions, as well as data on issues related to physical accessibility in schools. Overall, the analyses have led us to conclude that we are still far from guaranteeing accessibility as a right in schools. Although legislation contains provisions that establish an obligation to comply, it also includes exceptions which create possibilities for failing to adequately meet the needs of the PAEE.

Keywords: School Census. School Physical Accessibility. School Infrastructure.

[I]Universidade Federal de São Carlos, São Carlos, SP, Brazil. E-mail: egmendes@ufscar.br https://orcid.org/0000-0003-3673-0681
[II]Universidade de São Paulo, São Paulo, SP, Brazil. E-mail: rosangel@usp.br https://orcid.org/0000-0003-4013-1163
[III]Universidade Federal de Mato Grosso do Sul, Corumbá, MS, Brazil. E-mail: monica.kassar@gmail.com https://orcid.org/0000-0001-5577-6269
[IV]Universidade Federal de São Carlos, São Carlos, SP, Brazil. E-mail: cbflacerda@gmail.com https://orcid.org/0000-0002-3250-1374
[V]Universidade Federal do Paraná, Curitiba, PR, Brazil. E-mail: gabrielaschneider@ufpr.br https://orcid.org/0000-0002-6346-2849
[VI]Universidade Federal do Paraná, Curitiba, PR, Brazil. E-mail: analorena@ufpr.br https://orcid.org/0000-0001-7978-5805

RESUMO

No contexto educacional, as demandas por medidas de acessibilidade se ampliam à medida que se fortalece a tese de que o melhor lugar para escolarizar estudantes do público-alvo da educação especial (PAEE) é na classe comum, impulsionada principalmente pelos grandes avanços nos movimentos mundiais pela inclusão escolar, nas legislações e na pesquisa educacional. Tomando como referência a documentação do Instituto Nacional de Estudos e Pesquisas Educacionais (Inep), este trabalho teve como objetivo analisar como a acessibilidade física é definida e mensurada nas escolas brasileiras e se houve alterações nos quesitos avaliados. As fontes de dados são os formulários e microdados do Censo Escolar de 2011, 2013, 2015, 2017 e 2019. Como resultados, são apresentadas as dimensões e definições, além de dados sobre os quesitos relacionados à acessibilidade física nas escolas. As análises permitiram concluir que ainda estamos distantes de garantir acessibilidade como direito nas escolas, e que, apesar de a legislação conter dispositivos estabelecendo a obrigatoriedade de seu cumprimento, ela também prevê ressalvas que abrem possibilidades de não atendimento adequado do PAEE.

Palavras-chave: Censo Escolar. Acessibilidade Física Escola. Infraestrutura Escolar.

RESUMEN

En el contexto educativo, las demandas de medidas de accesibilidad son cada vez mayores, pues se fortalece la tesis de que el mejor lugar para escolarizar al público de la educación especial (PAEE) es en la clase regular, impulsada principalmente por los grandes avances en los movimientos mundiales por la inclusión escolar, en la legislación y en la investigación educativa. Con referencia en la documentación del Instituto Nacional de Estudios e Investigaciones Educativas (Inep), tiene como objetivo analizar cómo se define y mide la accesibilidad física en las escuelas brasileñas y si hubo cambios en los requisitos evaluados. La fuente de datos son los formularios y microdatos del Censo Escolar de 2011, 2013, 2015, 2017 y 2019. Como resultado, se presentan las dimensiones y definiciones, más allá de los datos sobre la accesibilidad física en las escuelas. En general, permitieron concluir que todavía estamos lejos de garantizar la accesibilidad como un derecho en las escuelas y que, aunque la legislación contiene disposiciones que establecen la obligación de cumplirlo, también prevé reservas, lo que abre posibilidades de que no se satisfagan adecuadamente el PAEE.

Palabras clave: Censo Escolar. Accesibilidad Física Escolar. Infraestructura Escolar.

INTRODUCTION

As a result of the social movement of people with disabilities in favor of their social inclusion, one of the greatest emerging demands has been the issue of accessibility[1] in different spaces, including schools. Nunes and Nunes Sobrinho (2008) point out that this theme emerged in the 1940s, almost exclusively interpreted in terms of physical and architectural barriers for people with physical disabilities and reduced mobility. In the 1980s, still related to people with physical disabilities, the concept was expanded to consider environmental barriers in a more general way, encompassing, in

1 The National Institute of Educational Studies and Research Anísio Teixeira (INEP), in its guiding documents for the School Census (Inep, 2019a), uses the terms “physical and/or architectural accessibility”, “physical accessibility” or simply “accessibility”, often indicating the same meaning. In this text, the focus is on “physical accessibility”, following the perspective used in the INEP documents, which is the locus of the empirical material worked on.

addition to the physical buildings, attitudinal barriers. In the 1990s, new issues emerged covering specificities of other disabilities too and involving communication and transportation barriers, although the elimination of barriers was still thought of categorically, that is, per disability. Later in that decade the concept of a universal design began to be disseminated, understood as a project that aims to meet the diversity of the population in all different anthropometric and sensory characteristics (ABNT, 2020).

For Calado (2006), accessibility and universal design can be considered as concepts that complement each other, although they do not depend on each other. According to the author, accessibility promotes access, through different mechanisms, with regard to issues of disability, while universal design encompasses all people and the diversity of the population and is achieved with the creation of products, environments and means of communication without the need for adaptations for the benefit of certain people and their individualities.

In the context of schools, demands for accessibility measures are growing, as the thesis is strengthened that the best place to educate students from the target audience of special education (PAEE) is the regular classroom of a regular school, driven mainly by the great advances in global movements for social inclusion, in the legislation of countries, and in scientific-applied research in the educational area. According to Omote (2004), the arguments in favor of school inclusion are evident, although the author points out the need to consider the typical impediments of each student's condition so that the resources necessary to eliminate the barriers can be made available and to avoid what he calls "normalization," when students with disabilities are considered equal to any other, thus having their needs ignored.

In Brazil, according to Decree No. 5,296 (Brasil, 2004), accessibility is related to providing "[...] conditions for the safe and autonomous use, total or assisted, of urban spaces, furniture and equipment, buildings, transportation services and devices, systems and means of communication and information, by people with disabilities or reduced mobility" (art. 8°, I). Art. 24 states that

> [...] educational establishments of any level, stage or modality, public or private, shall provide conditions for access and use of all their environments or compartments for people with disabilities or reduced mobility, including classrooms, libraries, auditoriums, gyms and sports facilities, laboratories, leisure areas and toilets.

Furthermore, schools must prove that their organization contains standards in the treatment to be given to teachers, students, employees and staff with disabilities, "[...] with the aim of preventing and repressing any type of discrimination, as well as the respective sanctions for non-compliance with these standards" (Brasil, 2004, art. 24, III).

The same document presents the definition and classification of the types of barriers:

> Barriers: any obstacle or hindrance that limits or prevents access, freedom of movement, safe circulation and the possibility of people communicating or accessing information, classified as:
> a) urban barriers: those existing on public roads and in spaces for public use;
> b) barriers in buildings: those existing in the surroundings and interior of buildings for public and collective use and the surroundings and internal areas of common use in buildings for private multi-family use;
> c) transport barriers: those existing in transport services;
> d) barriers to communications and information: any obstacle or hindrance that hinders or makes it impossible to express or receive messages through communication devices, means or systems, whether mass or not, as well as those that hinder or make it impossible to access information. (Brasil, 2004, art. 8, II)

The Brazilian Association of Technical Standards (ABNT) published in 2020 the fourth edition of Brazilian Norm "NBR 9050 Accessibility to Buildings, furniture, spaces and Urban Equipment", which established criteria and technical parameters to be observed in the construction, installation and adaptation of buildings, furniture, spaces and urban equipment regarding accessibility conditions. According to NBR 9050 (ABNT, 2020), item 3.1.1, accessibility is the

> [...] possibility and condition of reach, perception and understanding for use, with safety and autonomy, of spaces, furniture, urban equipment, buildings, transport, information and communication, including their systems and technologies, as well as other services and facilities open to the public, for public or private use for collective use, both in urban and rural areas, by people with disabilities or reduced mobility.

In 2008, Decree No. 186 (Brasil, 2008a) was approved in Brazil, with the status of a constitutional amendment, whose text is that of the Convention on the Rights of Persons with Disabilities (CRPD) and its Optional Protocol, signed in New York on March 30, 2007. Its art. 24, which deals with education, establishes the commitment of the States Parties to the right of persons with disabilities to education, without discrimination, the need to provide equal opportunities, to ensure an inclusive education system at all levels, as well as to provide lifelong learning.

Law No. 13,005 (Brasil, 2014), which approved the National Education Plan (PNE/2014–2024), establishes in strategy 4.6 the provision of resources to promote "[...] accessibility in public institutions, through architectural adaptation, the provision of accessible transport and the provision of specific teaching materials and assistive technology resources".

In June 2015, Law No. 13,146 (Brasil, 2015) was enacted, the Brazilian Law for the Inclusion of Persons with Disabilities (LBI), inspired by the CRPD, reinforcing the provisions that guarantee the right to an inclusive educational system and, among others, to accessibility and universal design, which in the educational context involves promoting conditions for equal opportunities for PAEE students.

In March 2018, Decree No. 9,296 was approved, regulating art. 45 of the LBI, establishing basic criteria for promoting accessibility for people with disabilities or reduced mobility.

However, despite advances in legal provisions that guarantee accessibility, both the CRPD and the LBI refer to the concept of reasonable accommodations as meaning:

> [...] necessary and appropriate adaptations, modifications and adjustments that do not entail disproportionate and undue burden, when required in each case, in order to ensure that the person with a disability can enjoy or exercise, under equal conditions and opportunities with other people, all fundamental rights and freedoms. (Brasil, 2015, art. 3, VI, our emphasis)

This caveat may affect the quality of accessibility offered in all senses, including physical accessibility in schools, so the adoption of reasonable adaptations based on the burden may be used as a justification for governments to fail to provide adequate accessibility measures in schools. In fact, the existence of barriers has been pointed out in several studies, which conclude that schools would need to provide spaces free of physical barriers in order to ensure greater participation of PAEE students (Tagliari, Três and Oliveira, 2006; Carvalho, 2008; Paulino, Correa and Manzini, 2008; Silva Filho, 2017).

Decree No. 9,451 (Brasil, 2018b), which regulated art. 8 of the LBI, provides details and provisions that reinforce that all spaces, furniture, urban equipment, and buildings which are

designed, constructed, assembled or implemented, as well as any renovations or expansions of buildings and urban equipment, must comply with the provisions of this standard to be considered accessible.

Regarding the assessment of accessibility, it is important to highlight both the fact that it is a complex task and that there are several detailed and specific instruments in national literature for verifying ABNT requirements (Audi, 2004; Audi and Manzini, 2006; Kasper, Pereira and Loch, 2009; Corrêa, 2010; Corrêa and Manzini, 2012). Among other aspects, in school spaces, accessibility must be considered at the students' entrance gate, in the routes connecting different areas (administrative, sports practice, recreation, food, classrooms, laboratories, libraries, reading centers, classrooms and other pedagogical environments), in complementary equipment (swimming pools, bookstores, academic centers and others), toilets, internal furniture, classrooms, blackboards, stairs and ramps, elevators and handrails — as has been recorded, for example, in guiding documents of the National Institute of Studies and Educational Research Anísio Teixeira (INEP) that draw on the ABNT (2015).

In 2007, the Accessible School Program (PEA) was established, aiming to adapt schools to promote physical accessibility. Decree No. 7,611 (Brasil, 2011) ensures that the Union must provide technical and financial support to complement the actions of other administrative spheres regarding the "[...] architectural adaptation of school buildings for accessibility" and the "[...] development, production and distribution of educational resources [...]" (Brasil, 2011, art. 5, § 2, V, VI), aiming to provide conditions of access, participation and learning to PAEE students in regular education. In 2012, a manual for this program was published by the Ministry of Education — MEC (Brasil, 2012, p. 3), with the objective of guiding "[...] education systems in the implementation of the Accessible School Program, in 2012, an action that is part of the National Plan for the Rights of Persons with Disabilities — Living without Limits", providing resources for operating and capital expenses, for architectural adaptation of ramps, toilets, access routes, installation of handrails and visual, tactile and sound signaling; acquisition of wheelchairs, assistive technology resources, drinking fountains and accessible furniture.

Thus, for at least 13 years, the MEC has provided resources to education networks to promote physical accessibility in schools. Resolution No. 19 of the National Fund for Educational Development (FNDE) of the MEC (Brasil, 2013), which provides for the allocation of financial resources, establishes, in art. 2, that public schools with enrolled PAEE students must apply resources from the PEA to the acquisition of:

> I – Materials and goods and/or contracting of services for the construction and adaptation of ramps, widening of doors and passages, installation of handrails, construction and adaptation of toilets for accessibility and placement of visual, tactile and audible signage;
> II – Wheelchairs, accessible drinking fountains and accessible furniture; and
> III – Other high assistive technology products. (Brasil, 2013, p. 2)

Notably, even though attention directed towards improving physical accessibility is fundamental to providing adequate services to the population, it cannot be ignored that this is just one of the dimensions of the concept of accessibility.

Currently, given that the concept of "inclusion" encompasses many meanings and contradictions, some authors propose replacing it with a more unifying and operational concept, that of accessibility (Ebersold, 2017; 2019; 2020; Plaisance, 2020). According to the authors, this change would allow for an emphasis on the analysis of accessibility, opening a more pragmatic path to new representations centered on welcoming the diversity of individuals. This proposal highlights the importance and scope of the concept of accessibility in the educational field, but without detracting

from this breadth, and due to the need to better delimit the study, we restrict ourselves to the issue of infrastructure, which concerns physical accessibility in schools.

It is important to note that physical accessibility is one of the aspects of school infrastructure. In Brazil, education networks are divided into public and private, with the public system being subject to different administrative spheres (federal, state and municipal). Brazil being a country with a large territory and great inequalities, schools' infrastructure is certainly marked by the socioeconomic conditions of the region in which each institution is located (Soares Neto *et al*., 2013). Thus the relevance, in censuses and assessment instruments for basic education, of items of physical accessibility in schools is justified because these elements impact school quality, especially for PAEE students. In addition, they can generate indicators for monitoring and tracking policies to support physical and architectural adaptation projects, which, in turn, favor an assessment of the great inequalities that exist in the Brazilian territory. In Brazil, INEP, an agency linked to the MEC, is responsible for conducting assessment studies of basic education from different perspectives. One such perspective is that of monitoring the conditions offered by the Brazilian school network, including in relation to its infrastructure, based on data collected annually by the School Census. Due to the complexity of the aspects involved in the assessments and in the accessibility conditions in general, and also given the impossibility of including all possible criteria for evaluating them, this study focused on one aspect of accessibility and aimed to analyze how physical accessibility is defined and measured in Brazilian schools and whether there have been changes in the criteria evaluated.

Specifically, it intended to:

- Find out how physical accessibility at school has been defined in School Census instruments;
- Analyze which dimensions of physical accessibility in schools have been captured in the collection of information;
- Identify whether there were any changes in the ways accessibility was defined and what their implications were in the editions analyzed over the period from 2011 to 2019;
- Specify what data these items allow to be generated regarding physical accessibility and which metrics are adopted to collect the information;
- Understand whether and how this information allows monitoring the condition of physical accessibility in Brazilian schools.

It should be noted that the School Census is a declarative survey carried out annually by INEP, with the reference date for collecting information being the last Wednesday of May, with information filled out at the educational units. Providing the requested information is mandatory for all public and private schools and covers the different stages and teaching modalities of basic education (Brasil, 2008b).

METHODOLOGY

At each school, five School Census data collection instruments must be completed: school, class, enrollment, teacher and manager[2] (available since 2019). To assist in completing the Census information, texts and videos with specific guidelines for collection are made available annually, such as the *Special Education Glossary* and the *School Census Concepts and Guidelines Notebook*, among others, from different years. The study design involved two stages, the first of which was documentary studies, and the second an analysis of the Inep microdata bank, related to the schools'

2 In the 2011, 2013, 2015 and 2017 editions they are called registry; in 2019, they are called form (Inep, 2011a; 2013a; 2015a; 2017a; 2019b).

responses to the items of the School Census records/forms in the 2011, 2013, 2015, 2017 and 2019 editions.[3] Each stage will be detailed below.

Initially, a search was carried out for reference documents from the School Census on the INEP Portal[4] for the chosen years. This identified the sets of documents for each year, which included the aforementioned records/forms, glossaries, technical notes, frequently asked questions, and notebooks and guidelines, which were read to identify the terms used and the concepts and/or definitions adopted. Some of the most recent documents were available on the School Census website, while INEP itself provided others.

Subsequently, 42 available documents were analyzed, seven of which were from the 2011 School Census, eight from the 2013 School Census, eight from the 2015 School Census, ten from the 2017 School Census, and nine from the 2019 School Census. In the analysis of these documents, all items directly related to physical accessibility in schools were identified, with a focus on school infrastructure and the variations in items and definitions in the set of documents over the years. This information was copied in full to Excel spreadsheets created for the purpose of recording the information gathered for this research.

Once the items of interest were identified in the records/forms of the five editions of the School Census, data relating exclusively to these items were extracted, corresponding to the educational units in operation in the reference year of the Census application and which have at least one student enrolled in regular education.

Five spreadsheets were created from the raw data and, in addition to the data related to the number of schools for each alternative response to the identified items, the proportions that these responses assumed in relation to the total number of schools were calculated. Information was analyzed regarding the infrastructure items required in the School Census of 193,047 schools in 2011, 190,706 in 2013, 186,441 in 2015, 184,145 in 2017 and 180,610 in 2019. Tables and graphs were generated from these spreadsheets to summarize the indexes better and allow analyses that answer the research questions.

It is worth noting that the proportion of blank or null responses for all schools ranged from 3 to 4.1%, which indicates that the responses were considered valid for most items and that the informants were clear about their responses when indicating whether or not their schools met the physical accessibility requirements in infrastructure. Therefore, blank or null responses were disregarded in the composition of the tables and graphs.

RESULTS

The results were organized into two sections. The first addresses the definition of school physical accessibility for PAEE students in the guiding documents of the School Census. The second section presents the definition and measurement of questions on physical accessibility, focusing on the infrastructure of schools in view of the needs of PAEE and the indexes generated in the analysis of the results of the information recorded in the records/forms completed by schools in the School Census. This section also presents analyses of the evolution of the questions related to physical accessibility in schools and their update as a contribution to future monitoring. Finally, the text includes a brief analysis of the challenges to be overcome regarding the possible meanings of such questions in the School Census and problematizes some implications of these changes in schools.

3 From the 2011 to 2019 editions, only data from odd-numbered years were analyzed, considering that school physical accessibility requirements do not change so frequently from one year to the next.

4 Available at: http://portal.inep.gov.br/censo-escolar. Access on: Mar. 05, 2025.

DEFINITION OF PHYSICAL ACCESSIBILITY IN SCHOOLS FOR THE TARGET AUDIENCE OF SPECIAL EDUCATION IN THE SCHOOL CENSUS

It is worth noting that the reference documents commonly use the terminology "accessibility resources" and not just "accessibility," which is generally used for the situation "accessibility resources for people with disabilities or reduced mobility," directing the focus to physical accessibility. However, it is also possible to find this terminology, as well as just "accessibility" in a broad sense, referring to computer programs, for example, which is not the prerogative of these Inep documents alone.

Therefore, in order to understand the definition of physical accessibility adopted by INEP, in addition to reading the reference documents, it was necessary to pay attention to the items present in the instruments. Items were detected only in the School Registration/Form, organized into two items: a. accessible bathroom, suitable for use by students with disabilities or reduced mobility, and b. facilities and pathways suitable for students with disabilities or reduced mobility (Table 1).

In the 2019 School Census, among the alternatives for physical accessibility in schools, only the item on accessible bathrooms was maintained, while the item on adequate facilities and pathways was broken down into items 2 to 9 (Table 1). Item 10 was added, which allows the indication of the absence of these items. Another change was the inclusion of the item "Conditions of classrooms used by the school (inside and outside the school building)" and, in this item, the item "Classroom with accessibility for people with disabilities or reduced mobility."

Table 1 – Items on physical accessibility at school for target audience of special education (PAEE) students in the School Census School Records/Forms for the years 2011, 2013, 2015, 2017 and 2019.

Census Year	Instrument	Response type
2011 2013 2015 2017	SCHOOL REGISTRATION 1. Accessible bathroom, suitable for use by students with disabilities or reduced mobility 2. Facilities and pathways suitable for students with disabilities or reduced mobility	Yes or no
2019	SCHOOL FORM 1. Accessible bathroom, suitable for use by students with disabilities or reduced mobility 2. Handrail and guardrail 3. Elevator 4. Tactile floors 5. Doors with a minimum clearance of 80 cm 6. Ramps 7. Sound signaling 8. Tactile signaling 9. Visual signaling (floor/walls) 10. None of the listed accessibility features	Yes or no
	11. Accessible classroom	Number of rooms

Source: prepared by the authors based on Inep – School Census (2011a; 2013a; 2015a; 2017a; 2019b).

Thus, it can be seen that the change in the perception of physical accessibility in schools for PAEE students in the School Census data collection instruments occurred through the breakdown of items. Such detailing may allow for better identification of the conditions of schools, although it does not allow for a comparison with previous years surveyed. However, the response that measures the existence or not of the information needs to be revised to attest to compliance with the ABNT provisions. The metric used to record the responses, with yes and no alternatives for complex questions, such as indicating whether or not a bathroom or a classroom is accessible, records a type of simplified response and does not provide information that necessarily reflects the reality of the physical accessibility conditions of Brazilian schools.

DEFINITION AND MEASUREMENT OF QUESTIONS ON PHYSICAL ACCESSIBILITY IN THE SCHOOL CONTEXT IN THE SCHOOL CENSUS

Next, we analyzed each of the items in the School Census in a historical series and the database of responses created for this research.

ACCESSIBLE BATHROOM

The definitions of accessible bathrooms, suitable for use by students with disabilities or reduced mobility, specify only that these components must include a universal design, defined as:

> Design of spaces, artifacts, and products that contemplate universal design, with the objective of simultaneously serving all people with different anthropometric and sensory characteristics in an autonomous, independent, safe, and comfortable manner, ensuring elements and solutions that make up accessibility. It must contain the characteristics established by the technical accessibility standard prepared by ABNT – NBR 9050 –, available on the website http://pessoacomdeficiencia.gov.br/app/normas-abnt. (Inep, 2015b, p. 32)

> Design of spaces, artifacts, and products that contemplate universal design, with the objective of simultaneously serving all people with different anthropometric and sensory characteristics in an autonomous, independent, safe, and comfortable manner, ensuring elements and solutions that make up accessibility. It must contain the characteristics established by the technical accessibility standard prepared by ABNT – NBR 9050 –, available on the website http://pessoacomdeficiencia.gov.br/app/normas-abnt. (Inep, 2017b, p. 28)

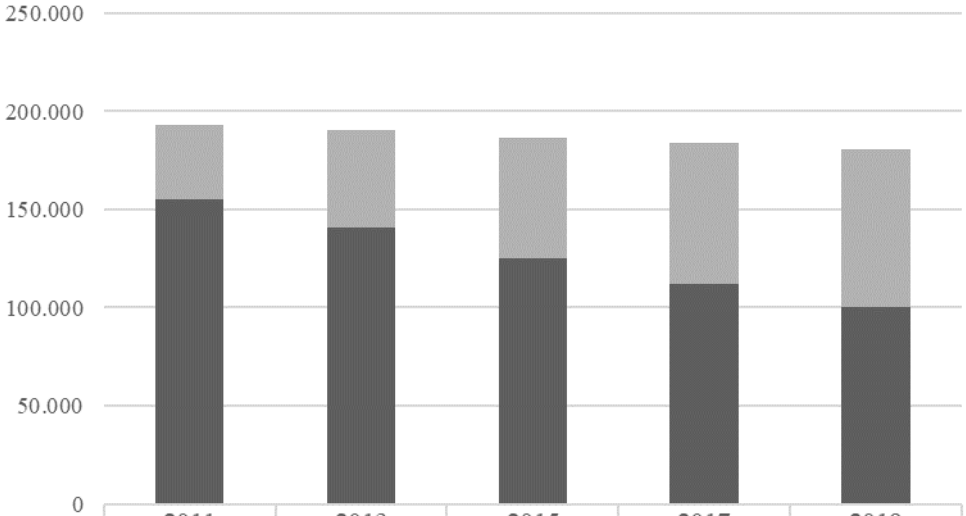
> Design of spaces, artifacts, and products that contemplate universal design, with the objective of simultaneously serving all people with different anthropometric and sensory characteristics in an autonomous, independent, safe, and comfortable manner, ensuring elements and solutions that make up accessibility. It must contain the characteristics established by the technical accessibility standard prepared by ABNT – NBR 9050 –, available on the website http://pessoacomdeficiencia.gov.br/app/normas-abnt. (Inep, 2019a, p. 23)

This definition is generic and does not provide greater security in assessing compliance with physical accessibility standards for students with disabilities or reduced mobility because the assessment involves many elements of these facilities, such as door width, types of door handles and faucets, flooring, grab bars, circulation space, and height of toilets and sinks. In addition, it is worth noting that the link to consult the ABNT in the 2015, 2017, and 2019 editions, present in the reference documents for completing the School Census, did not work when used during the

preparation of this research,[5] leaving doubts about how it worked during completion by the schools. If any respondent to the instruments wanted to obtain more information before indicating their answer, they may have had trouble doing so through this means. In the 2013 edition, there is only a reference to the ABNT, and in the 2011 edition there is no mention.

Despite the difficulties in completing the form, the School Census respondents recorded whether or not their schools had accessible bathrooms, as can be seen in Graph 1, which shows the proportion of surveyed schools that indicated having accessible bathrooms.

Graph 1 – Schools with Restrooms Accessible to Students with Disabilities or Limited Mobility – School Census – 2011; 2013; 2015; 2017; 2019.



	2011	2013	2015	2017	2019
Yes	38.073	49.691	61.348	72.343	80.426
No	154.974	141.015	125.093	111.802	100.184

Source: Inep – School Census (2011a; 2013a; 2015a; 2017a; 2019b).

It can be seen that there was an increase in the number of schools that reported meeting this requirement, from 38,073 in 2011 to 80,426 in 2019, which represents an increase of 42,353 (111%) in the number of schools with accessible bathrooms, over the eight years. However, the School Census also indicated that, in 2019, more than half of the schools (55.5%) did not have an accessible bathroom on their premises, even considering the reduction in the total number of schools, from 193,047 in 2011 to 180,610 in 2019 (-6.44%). It is worth noting that the item in the collection instrument only allows indicating whether or not the school considers it to have this accessibility component, which may lead to the response that a minimally or partially adapted bathroom is confirmed as accessible or not, depending on who is judging.

FACILITIES AND PATHWAYS SUITABLE FOR STUDENTS WITH DISABILITIES OR REDUCED MOBILITY

This item is vaguely defined in the 2011 School Census instruction booklet as being: "School space and access suitable for students with disabilities or mobility difficulties" (Inep, 2011b, p. 14).

In the Instruction Booklet for the 2013, 2015 and 2017 Censuses, the definition is more detailed, as follows:

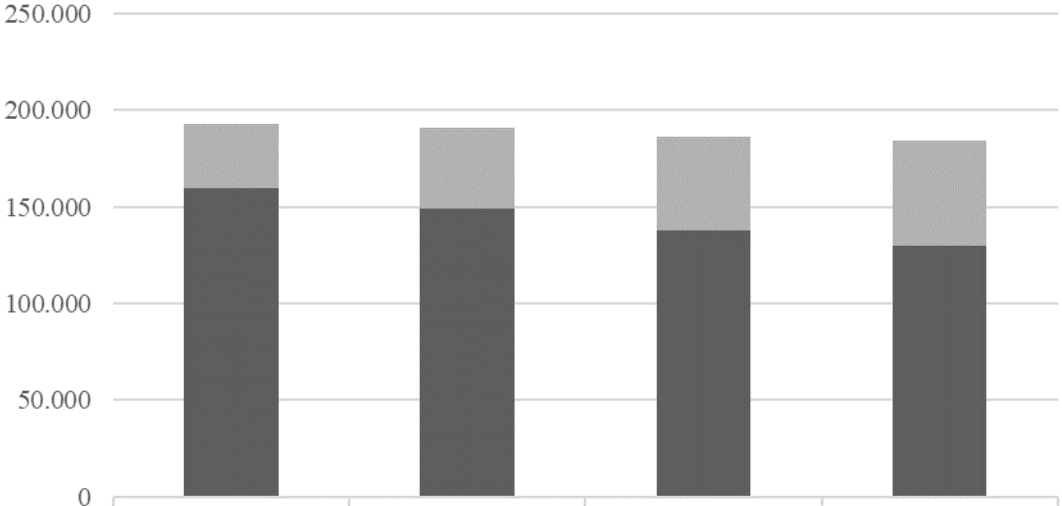
5 From October 2020 to July 2022.

> Space and access to schools that are appropriate for students with disabilities or mobility difficulties, which include a universal design (design of spaces, artifacts and products that aim to simultaneously serve all people with different anthropometric and sensory characteristics in an autonomous, safe and comfortable way, constituting the elements or solutions that makeup accessibility). They must contain the characteristics established by the technical accessibility standard developed by the ABNT – NBR 9050. (Inep, 2013b, p. 23)

One may question what criteria respondents used to indicate whether or not the spaces and access to the school were suitable for people with disabilities or reduced mobility. In the 2019 School Census form, this item disappeared and nine new items on accessibility were added, as previously reported.

Graph 2 presents the results obtained from the responses to the School Census registrations/ forms in the 2011, 2013, 2015 and 2017 editions in relation to the item "facilities and pathways suitable for students with disabilities or reduced mobility." In 2019, this item was broken down into several other items and, therefore, was analyzed separately.

Graph 2 – Schools with Facilities and Pathways Suitable for Students with Disabilities or Reduced Mobility - School Census – 2011, 2013, 2015, 2017.



	2011	2013	2015	2017
Yes	33.559	41.602	48.943	54.133
No	159.488	149.104	137.498	130.012

Source: Inep – School Census (2011a; 2013a; 2015a; 2017a).

The proportion of schools considered to have facilities and pathways suitable for students with disabilities or reduced mobility increased from 33,559 (17%) in 2011 to 54,133 (29%) in 2017, i.e., an increase of 61% over the seven years. However, it should be noted that the majority of schools (71%) in the 2017 School Census still did not register as having facilities and pathways suitable for students with disabilities or reduced mobility.

It should also be noted that, in the definitions found in the documents consulted, the concept of "facilities and pathways suitable for students with disabilities or reduced mobility" is vague and, in the instruments, only allows for the presence or absence of information. This is an item that involves many aspects, such as widths of the entrance gate, corridors and doors, presence of ramps and handrails, floors of the different routes, different school spaces (yard, cafeteria, classroom, libraries, etc.), signage (tactile, visual and audible), among other things, as recorded more clearly in documents published later, such as Decree No. 9,296 (Brasil, 2018a) or the Notebook of Concepts and Guidelines for the School Census (Inep, 2019a).

ACCESSIBILITY RESOURCES FOR PEOPLE WITH DISABILITIES OR REDUCED MOBILITY ON THE SCHOOL'S INTERNAL CIRCULATION ROUTES

This item, exclusive to the 2019 form, represents an increase in the number of physical accessibility questions in schools. In the 2019 Concepts and Guidelines Booklet, it is defined as follows:

> Accessibility resources for people with disabilities or reduced mobility on the school's internal circulation routes are related to the design of spaces, artifacts and products suitable for use by people with disabilities or reduced mobility, which contemplate a universal design, with the aim of simultaneously serving all people with different anthropometric and sensory characteristics, in an autonomous, independent, safe and comfortable way, guaranteeing elements and solutions that makeup accessibility. More than one option may be informed, if applicable. (Inep, 2019a)

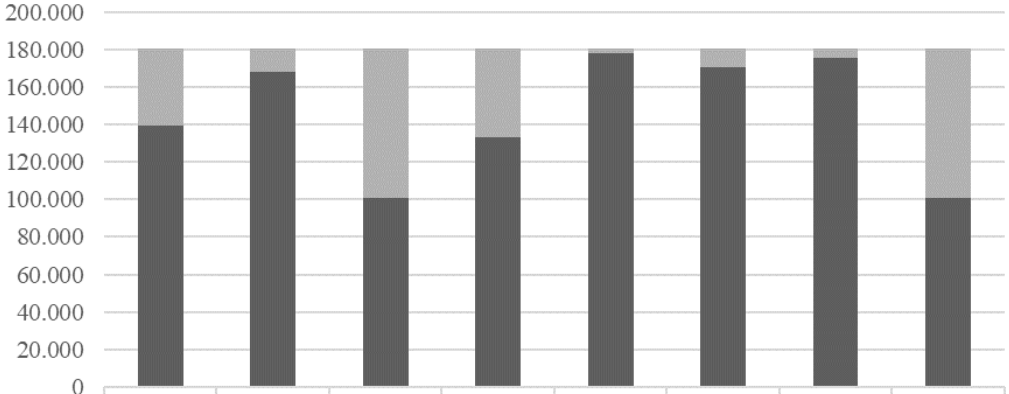
In addition to the accessible bathroom, respondents can indicate the presence or absence of several other items, as set out in Table 1. The 2019 Instruction Book*let al*so provides the following warning:

> To declare this field, the characteristics established by the Technical Standard on "Accessibility to buildings, furniture, spaces and urban equipment" (NBR 9050, 2015 edition) must be considered [...] In addition, they must be in accordance with Decree No. 5,296/2004, which establishes general standards and basic criteria for promoting accessibility for people with disabilities or reduced mobility, and with Decree No. 6,949/2009, which promulgates the International Convention on the Rights of Persons with Disabilities and its Optional Protocol. (Inep, 2019a, p. 28)

As previously stated, during the data collection period for this study, the ABNT website indicated in the documents analyzed did not allow access to the standards, which does not help to clarify specific doubts, given its level of detail and the degree of complexity of the subject.

Graph 3 presents the results obtained from the application of the school forms in 2019, referring to accessibility resources for people with disabilities or reduced mobility on the school's internal circulation routes.

Graph 3 – Accessibility Features in Internal Circulation Pathways of Schools - School Census – 2019.



	Handrails and Guardrails	Tactile Flooring	Ramps	Doors with a Minimum Clear Width of 80 cm	Auditory Signage	Visual Signage (Floor/Walls)	Tactile Signage	None of the Listed Features
Yes	40.880	12.505	79.596	47.059	2.627	10.173	4.760	79.586
No	139.730	168.105	101.014	133.551	177.983	170.437	175.850	101.024

Source: Inep – School Census (2019b).

According to the 2019 School Census Concepts and Guidelines Notebook:

> A handrail is a bar, pipe or similar piece, with a smooth, rounded and continuous surface, located next to the walls or guardrails of stairs, ramps or passages for people to support themselves when going up, down or moving around. Handrails can be attached to guardrails. Guardrails are vertical protective barriers, solid or not, that delimit the open side faces of stairs, ramps, landings, terraces, balconies, galleries and similar, serving as protection against possible falls from one level to another. (Inep, 2019a, p. 26)

The results indicate that a total of 180,610 schools responded to the school forms in the 2019 School Census. Regarding "handrails and guardrails," 23% of schools indicated that they had them, compared to 77% of schools that were considered inaccessible in this regard.

An elevator is defined in the same 2019 School Census document as: "A vertical transportation system designed to transport people between different levels. It can be used to go up or down a building or an underground construction" (Inep, 2019a, p. 26).

The results related to the item "elevator" indicated that only 3% of schools had an elevator, compared to 97% that did not have this equipment. However, it should be noted that elevators or elevating platforms are only necessary in schools with more than one floor with a difference in level, which may not be the case for most schools. In the case where an elevator is not necessary because the school only has one floor, it would be important to add another answer option: "not necessary."

An accessible floor, using the same reference, is defined as:

> Flooring is characterized by contrasting texture and color in relation to the adjacent flooring, intended to constitute a warning or guideline, serving as guidance mainly for people who are blind or have low vision. There are two types of tactile flooring: the warning tactile flooring and the directional tactile flooring. The warning tactile flooring is known as a "ball floor," and its function is to alert. This type of flooring is installed at the beginning and end of stairs and ramps, in front of elevator doors, on access ramps to sidewalks, or even to alert of an obstacle that the visually impaired person cannot track with a cane. The other type of flooring is the directional one, and its function is to guide the path. In places where no reference point can be detected with the use of a cane, the directional tactile flooring serves as a guide. (Inep, 2019a, p. 26)

Regarding tactile floors, these were indicated in only 7% of schools, and 93% lacked this type of flooring.

In the accessibility aspect related to doors, "[...] which, to be accessible, when open, must have a free span of at least 0.80 meters wide" (Inep, 2019a, p. 26), the results were more expressive compared to the previous ones, with 26% of schools indicating adequacy. However, the majority (74%) indicated a lack of accessibility in this aspect.

Regarding the existence of ramps, defined as "[...] slope of the floor surface, longitudinal to the direction of walking, with a slope defined by NBR 9050" (Inep, 2019a, p. 26), the results showed that in 44% of schools these were present, against 56% that indicated not having this accessibility requirement. However, it is worth noting that, in the instruments, the response option does not explicitly state the slope recommended by ABNT, as is done for doors.

Sound signaling is defined as "[...] sets of sounds that allow understanding through hearing. Directional signaling, in sound form, uses audio resources to explain directions and safety, such as alarms and escape routes" (Inep, 2019a, p. 26). This item was the least indicated in the items on accessibility of internal roads, as only 1% of schools indicated its presence.

Visual signaling is defined as being:

> [...] composed of text messages, color contrasts, symbols, and figures, among other forms of signage. Thus, glass doors and walls located in circulation areas must be clearly identified with continuous visual signage to allow easy visual identification of the physical barrier. To this end, the different lighting conditions on both sides of the glass walls or doors must also be considered. It is worth noting that information in Braille does not dispense with visual and tactile signage, with characters or symbols in relief. (Inep, 2019a, p. 26)

The proportion of schools that reported having visual signage (floor/walls) was only 6% of schools.

Tactile signage is defined as: "Information in relief, such as texts, figures, symbols and Braille [...] used to identify doors, walls, stair and ramp handrails, fire doors, elevators, lifting platforms, flooring, among others" (Inep, 2019a, p. 27), and was indicated by only 3% of schools.

This same document also presents the response option indicating the non-existence of all the accessibility items presented previously (Inep, 2019a, p. 27), which represents 56% of schools, showing that more than half of Brazilian schools do not meet a minimum level of physical accessibility that is required by law.

Although it is not possible to make a direct comparison between the variables throughout the period analyzed due to changes in the items that make up the instrument, the data indicate that the change in the way information is recorded possibly generated greater accuracy of the information. In 2017, 29% of schools indicated having facilities and pathways suitable for students with disabilities or reduced mobility. In 2019, with the breakdown of this item, only the ramp item was present in 44% of schools, and doors with a free span and handrails were present in more than 20%. The other items evaluated were present in only 1 to 7% of schools. The change in the way the collection instrument is constructed may have led to a change in the judgment of the person responsible for completing the School Census, without necessarily changing the physical conditions of the schools.

In addition to these items, in 2019, a question was added about the number of accessible classrooms with two alternatives (presence or absence), one of which was "classrooms with accessibility for people with disabilities or reduced mobility," defined as

> [...] classrooms with the design of spaces, artifacts and products that contemplate universal design in order to simultaneously serve all people with different anthropometric and sensory characteristics in an autonomous, independent, safe and comfortable way, guaranteeing elements and solutions that make accessibility. It must contain the characteristics established by the technical accessibility standard prepared by ABNT [...] (NBR 9050), available on the website http://www.pessoacomdeficiencia.gov.br/app/normas-abnt. (Inep, 2019a, p. 28)

The results indicate that, of the total number of rooms, only 19.5% were reported as accessible. Although the changes in the questions show an improvement in the specification or detailing of the information, the inclusion of this item may not account for the complexity of its requirements (doors and handles, floors, furniture, blackboards, signage, etc.).

When reviewing the data set made possible by access to information collected by INEP in the editions of the School Census analyzed, it can be stated that, on the one hand, there was an increase in the registration of different items related to physical accessibility in schools; on the other hand, the indication of an item cannot be taken as a guarantee of the existence of the accessibility

conditions assessed. This statement is based on research, such as that of Silva Filho (2017), who verified, *in loco*, quite inadequate (and even non-existent) conditions of bathrooms and access routes in schools, admitted as "accessible" by their management and, consequently, thus registered in the School Census.

Another possible reading of the data set indicates that Inep's concern regarding knowledge of the infrastructure conditions in schools was oriented towards trying to better understand the actual situation, with the detailing of some of the items evaluated.

FINAL CONSIDERATIONS

One of the essential aspects for evaluating schooling policies for PAEE students is related to measures to provide conditions for the use of the school environment by people with disabilities or reduced mobility, safety and autonomy, total or assisted, of the different spaces, especially in schools. Brazilian legislation (Brasil, 2004, art. 24) states that:

> Educational establishments of any level, stage or modality, public or private, shall provide conditions for access and use of all their environments or compartments for people with disabilities or reduced mobility, including classrooms, libraries, auditoriums, gyms and sports facilities, laboratories, leisure areas and toilets.

This study aimed to analyze how physical accessibility is defined and measured in Brazilian schools, using data from the School Census for the years 2011, 2013, 2015, 2017 and 2019 as a source, and whether there have been changes in the data over time. With this objective in mind, it was possible to verify that the guiding documents for the School Census present some vague definitions regarding the issues of physical accessibility in schools, which should make it difficult to fill out the data collection instruments (Registrations/Forms) appropriately.

During the period, changes were identified in the ways in which data was collected, and a trend towards more detailed information was observed, especially in the 2019 School Census. However, even with the increase in the detailed description of accessibility items, the metrics adopted do not always allow for the understanding of the accessibility conditions actually offered in schools since, for some questions, the response options are still limited to recording the presence or absence of the items. It is therefore understood that such information, on the one hand, allows for some monitoring of the recording of physical accessibility conditions in Brazilian schools, while, on the other, it does not allow for the assimilation of the operating conditions and usability of the recorded items.

By looking closely at the items present in the instruments, it was possible to analyze the dimensions of physical accessibility captured through the collection of information in schools and the number of educational institutions that recorded such items in the period analyzed. In this sense, there was an increase in physical accessibility items in Brazilian schools between 2011 and 2019. The increase recorded in this study is indicative of a trend towards improvement in material conditions in schools, as already recorded by Sátyro and Soares (2007) in a study carried out between 1997 and 2005.

It is important to remember that assessing accessibility in schools to meet ABNT requirements is a complex task that must involve all school spaces and many aspects of each of them. Given that it is possible to assume that there are no professionals specialized in architectural assessments in schools, the guiding documents may not be sufficient to cover what is requested in the instruments used in the School Census. In this sense, INEP's concern in seeking refinement in its information, detailing some of the issues assessed in relation to physical accessibility in the data collection

instruments, may represent an advance in the definition of the issue, with the inclusion of more items and with alternative answers that allow for better assessment of accessibility conditions; however, the change in the way information is captured, with changes in the infrastructure and accessibility issues in the School Census data collection instruments, makes it difficult to analyze the historical series that would allow for comparison of indicators, due to the difference in the number and types of items and the alternative answers.

In short, some financial resources were allocated to improving school accessibility, including physical accessibility, so that programs such as the PEA can help reduce inequalities between regions of the country, one of the major problems to be faced, as pointed out by Soares Neto *et al*. (2013). However, studies such as those by Santos (2017) and Silva Filho (2017) show that these actions still need to be revised to improve school conditions.

In general, the data generated is still subject to subjective interpretations and allows us to conclude that we are still far from guaranteeing physical accessibility in Brazilian schools, in addition to the legislation containing provisions, in this case, the idea of "reasonable adaptations," which can interfere with and slow down the changes that schools need in this regard.

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ABOUT THE AUTHORS

ENICÉIA GONÇALVES MENDES holds a PhD in psychology from the Universidade de São Paulo (USP). She is a full professor in the Department of Psychology of the Postgraduate Program in Special Education at the Universidade Federal de São Carlos (UFSCar).

ROSÂNGELA GAVIOLI PRIETO holds a PhD in education from the Universidade Federal de São Paulo (USP). She ia a professor at the School of Education at the same institution.

MÔNICA DE CARVALHO MAGALHÃES KASSAR holds a PhD in education from the Universidade Estadual de Campinas (Unicamp). She is a full professor in the Postgraduate Program in Education and Volunteer Senior Researcher at the Universidade Federal de Mato Grosso do Sul in the Pantanal Campus (UFMS).

GABRIELA SCHNEIDER holds a PhD in education from the Universidade Federal do Paraná (UFPR). She is a professor in the Department of Planning and Administration and in the Postgraduate Program in Education at the same institution.

ANA LORENA DE OLIVEIRA BRUEL holds a PhD in education from the Universidade Federal de Rio de Janeiro (UFRJ). She is a professor of higher education in the Department of Planning and School Administration at the Universidade Federal do Paraná (UFPR).

CRISTINA BROGLIA FEITOSA DE LACERDA holds a PhD in education from the Universidade Estadual de Campinas (Unicamp). She is an associate professor II in the Bachelor's Degree in Special Education and in the Graduate Program in Special Education at the Universidade Federal de São Carlos (UFSCar).

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