

Participation of people with disabilities in science museums: reflections from research and practice

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Introduction

All human beings have the right to participate in the community's cultural life, enjoy the arts, and share in scientific advancement and its benefits, according to the Universal Declaration of Human Rights ([UN, 1948](#)). In 2006, the United Nations organized the *Convention on the Rights of Persons with Disabilities* and its *Optional Protocol* to “promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities, and to promote respect for their inherent dignity” ([UN, 2006, article 1](#)). The Convention, which works alongside the Universal Declaration, was signed by [164 countries](#), committing to implementing actions to promote access and all the rights of people with disabilities. It entered into force in May 2008. Especially about the access to cultural life and scientific-cultural places, the signatory countries undertake responsibility to take all appropriate measures to ensure that they: “a) Enjoy access to cultural materials in accessible formats; [...]; c) Enjoy access to places for cultural performances or services, such as theatres, museums, cinemas, libraries and tourism services, and, as far as possible, enjoy access to monuments and sites of national cultural importance” (UN, 2006, art. 30).

Although the fight for the rights of people with disabilities has been underway for many decades, only more recently has this right to be included in the scientific and cultural lives begun to be systematically acknowledged by institutions and organizations. The definition of “museum”, approved by ICOM in August 2022, brings new qualifiers -- “accessible”, “inclusive” and “to foster diversity” -- and highlights the urgency of the theme.

Science museums, through their unique and multisensorial formats of presenting their exhibitions and activities, are places that can guarantee these rights. They are places of science communication, informal science education, and leisure and are potent platforms for promoting science and technology for equity, diversity, and inclusion. Many challenges, however, are faced when different cultural and scientific institutions, educators, curators, science

communicators and other professionals are planning, implementing, and providing accessible and inclusive programming for a diverse population.

The participation of people with disabilities in science museums as visitors and professionals has gained some ground in the literature, research and practice, but still needs to be discussed and shared. Initiatives from the perspective of social inclusion, special education, disability studies, science communication, and sociomuseology interact, attempting to promote a better relationship between science museums and their varied audiences. Yet, we still have a small amount of research about how people with disabilities experience, learn and work in this context. At the same pace, not many documents, papers, case studies and lessons learned reports, and opinions of people with disabilities are published.

In Latin America, in 2016, the research Brazilian Research Group Accessible Science Museums and Centers (Grupo MCCAC) and the Latin American and Caribbean Network for the Popularization of Science and Technology (RedPOP), with the support of many organizations, developed a survey among the regions' science museums and centers to understand how they were tackling accessibility. As a result, 110 institutions from 10 countries answered the survey and the data shows an increase of concern towards engaging people with disabilities in science and technology issues through the science centers. This study culminated in the *Guide of Accessible Science Museums and Centers from Latin America and the Caribbean* ([Norberto Rocha et al., 2017](#)), published in Portuguese and Spanish, which contains information about each institution's auto-declared accessibility strategies and practices.

Although this survey showed that more than one hundred science museums and centers in the region are concerned and are implementing strategies toward accessibility and inclusion, it also brings evidence of a significant lack of active and systematic practices for promoting full and equal enjoyment. We noticed that most of the accessibility actions were performed on the institutions' physical infrastructures, and this strategy by itself does not guarantee effective inclusion. Regarding communicational and attitudinal accessibilities, for example, the participant museums still have only a few actions aimed at people with disabilities. The issue of accessibility and inclusion was not incorporated into institutional policy and allocation of financial resources. The data reinforced the absence of institutional practices that sustain a long-standing history of thinking about the inclusion of people with disabilities ([Norberto Rocha et al., 2020](#)). Given this broad panorama and acknowledging the gaps identified, Grupo

MCCAC decided to dive into specific contexts – mainly from the point of view of audiences with disabilities, institutions and professionals – to understand how accessibility and inclusion are being addressed locally.

Our studies and the session presentation

In this session, I will explore methods, results, discussions, lessons learned and challenges that emerged from the qualitative and exploratory studies on the participation of people with disabilities in science museums that we developed in the last years.

Our studies are concerned in learning the experiences, opinions and perspectives of people with disabilities when visiting and being professionals in science museums. From the point of view of the museum professionals', we approach their experiences, formations, and expectations related to the theme. Also, we study institutions aiming to generate a comprehension of museological contexts, practices and constraints that can empower (or not) the provision of accessibility and inclusion as an institutional policy. We also attempt to learn from processes that sustain a long-standing history of inclusion of people with disabilities from skilled museums. The results obtained from research help to understand individuals better, making it possible to identify what needs to be improved. We investigate successes, needs, challenges, and barriers and share these experiences with other institutions to build new hybrid museological practices.

Based on bibliographical references and practical guidance and experience, we developed an analytical tool called “Indicators of Accessibility in Science Museums and Centers” ([Norberto Rocha et al., 2020](#)), which can be used to analyze and diagnose accessibility potential and identify fundamental features of inclusion of people with disabilities. This framework helps us organize and analyze the data collected from three main perspectives: physical accessibility, attitudinal accessibility and communicational accessibility.

Data are collected in different ways depending on the study objective, participants and approach. The most used are technical visits and field reports from the researchers, questionnaires, interviews, focus groups and recorded visits through subjective cameras. The data are collected during in-person and online visits to museums and exhibitions. In every study, all data collection material (consent terms, forms, interviews, focus groups) is accessible. We

are always considering intersectionality and in search of diversifying and bringing in marginalized communities. In Marinho's dissertation (2023), for instance, with the guidance of a blind researcher, we investigate the experience of people with visual disabilities visiting an online science exhibition – culminating in a newly version of the “Indicators of Accessibility in Science Museums and Centers” adapted to address features of the online universe.

Through this amalgamation of data, experiences and results, we: 1) provide education and training of human resources from varied levels of expertise, especially from the fields of science communication and education and museology; 2) connect research and practice to advance the themes and best practices for inclusion of people with disabilities; 3) create and disseminate content through bibliographical publishing, educational and training materials. During this process, we engage people with different types of disabilities, museum professionals, scientists, educators, students, local communities, government agencies and other relevant stakeholders from different parts of the country, who actively cooperate and contribute to the planning, design, implementation, and evaluation of our actions.

We have governmental grants (CNPq and FAPERJ) and the various studies are also part of graduate degree courses, mainly: Doctorate and Master's programs in Bioscience and Health Education; Master's in Science, Technology and Health Communication and Specialization in Science and Technology Communication – at Fiocruz; and the Specialization in Science Teaching at IFRJ/Campus Maracanã. Grupo MCCAC relies on the associated researchers' and professionals' voluntary work and expertise: [15 members](#) from education, museology, biology, physics, cultural production, chemistry, graphic design, language teaching, engineering, social sciences, sociomuseology and arts. Four members speak Brazilian Sign Language, two are professionals in audio descriptions, and two are experts in accessible web and graphic design.

Finally, I invite you to explore our [website \(grupomccac.org\)](http://grupomccac.org), developed by members of our group aligned with strategic partnerships with companies specialized in accessibility -- [Web para Todos](#), which offered mentorship during its creation and maintenance and [HandTalk](#), which provides a plugin for automatic interpretation in Brazilian Sign Language. Materials we produce are free and available online. They are often in more than one language, mainly Portuguese, English and Spanish, and have accessibility features. Among them, we highlight the [book](#) “Acessibilidade em museus e centros de ciências: experiências, estudos e desafios” (Accessibility in museums and science centers: experiences, studies and challenges)

comprising 32 chapters from 66 authors (including some people with disabilities) from Brazilian museums and institutions, the [Collective Glossary of Signs of Brazilian Museums, papers, book chapters](#), the [research topic](#) in *Frontiers in Education* and the event “[Encounters for Diversity in Science and Culture](#)”.