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# Editorial: Inclusion in non-formal education places for children and adults with disabilities

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## Editorial on the Research Topic

### Inclusion in non-formal education places for children and adults with disabilities

Despite ongoing advocacy for the inclusion of people with disabilities (PWD), the systematic recognition and inclusion of PWD in scientific and cultural contexts have only gained traction over the last few decades. The research on accessibility and scholarly literature on practical activities for people with disabilities in spaces of non-formal education are still limited, and this is the gap we targeted when proposing this Research Topic.

The five papers presented by authors from Brazil, Egypt, Italy, and Spain demonstrate a commitment to improving inclusion and accessibility to PWD. The texts address various aspects of this goal, from specific strategies and technologies to broader practices and programs. Moreover, they reflect diverse experiences and theoretical and methodological approaches and methods suited to their audiences—mainly through qualitative research methods centered on analyzing accessibility practices, media and strategies and understanding the user experiences in different educational settings.

The study by [Zakaria](#) assesses the practices and inclusive programs for students with disabilities in eight Egyptian museums. Through qualitative research, including observations and interviews with 23 representatives from the country's Ministry of Tourism and Antiquities, it explores how the museums contribute to the learning and social inclusion of students with disabilities. It examines the institutional practices and the challenges faced in implementing inclusive education. In another study, [Fernandes and Norberto Rocha](#) address the experience of adults with visual disabilities in the context of two Brazilian science museums. Through interviews and by recording visits through a camera placed on the head of one of these visitors, the authors provide evidence on physical, attitudinal and communicational accessibility and barriers from the perspective of the PWD themselves.

In another Brazilian study, [Ferreira et al.](#) analyze video guides in Brazilian Sign Language as an accessibility strategy for deaf students visiting a traveling science center. The focus was on evaluating how well these videos met the audience's needs by examining the video content and accessibility features through content analysis and feedback from 128 deaf students from high and middle schools. Similarly, [García-Terceño et al.](#) investigate the

participation of deaf and hard-of-hearing children in a workshop at a university outreach event in Spain. The study discusses the suitability of a dynamic and flexible workshop methodology. The scientific inquiry, observation, manipulation, analysis and dialogue during the activities compensate for the theoretical scientific content load, which reduces the mental fatigue of lengthy theoretical explanations. In their study, [Varano and Zanella](#) present the development and evaluation of a specific educational tool for representing scientific data on astronomy for people with visual disabilities and blindness. The results culminated in an exhibit used for education in various non-formal education spaces.

By the texts, it is not possible to know if the authors are PWD themselves, but most of them involved PWD directly in their research. More specifically, the papers focus on deafness and hearing disabilities as well as blindness and visual disabilities. Within these groups, they still highlight the heterogeneity of PWD, not only concerning the character of their disability but also their language, backgrounds, and personal stories. They demonstrated that not all accessibility strategies entirely meet the needs of every person of the PWD audience and the challenges institutions and professionals face in delivering non-formal education. Exhibitions and activities need to offer wide-ranging strategies with options to explore through multisensory stimuli and complementary and redundant actions, diversifying the ways to access information. For instance, the group of 15 children from [García-Terceño et al.](#) reflects the great diversity within the deaf and hard-of-hearing communities, whose members require different strategies of communication: they were mixed between using Spanish sign and oral language as their mother tongue; some displayed sufficient knowledge of oral code to cope with ordinary communication, and some had little knowledge of sign language. Among the visual disabilities, [Fernandes and Norberto Rocha](#) worked with groups of adults with various levels of education, from elementary to graduate school, and with assorted levels of experience in museums and cultural activities—demonstrating varied expertise and demands regarding accessibility in these spaces.

These studies show that human resources are still precious in promoting accessibility. Adults with visual disabilities had fully guided tours in the two Brazilian science museums and they highlighted the educators' participation as favorable to the experience and beneficial for the communication of science and attitudinal accessibility ([Fernandes and Norberto Rocha](#)). [Zakaria](#), in turn, points out that there is still a need for more human resources training in Egyptian museums. According to her results, educators need more focused training to work with PWD (for instance, knowledge of accessibility issues, disability etiquette and respectable language in addressing and communicating PWD) and this should be a museum-wide commitment to ensure access and inclusion.

Technology is also discussed throughout the texts regarding research development and the promotion of accessibility in non-formal learning spaces. On the one hand, [Fernandes and Norberto Rocha](#) used GoPro<sup>®</sup> cameras placed on a participant's head to collect data from the perspective of the science museum visitors. The recording data were coded in a software program, facilitating the qualitative analysis. The research results show that when museums do not offer varied assistive technology (e.g., texts

and audio texts, multimedia), their exhibits and content may pose barriers to people with visual disabilities, leading to low communicational accessibility. In the study of [Ferreira et al.](#), through tablets, deaf students visiting a traveling science center were able to navigate guide videos in Brazilian Sign Language, with subtitles and illustrative images of the technical terms. The authors argue that using this technology can make scientific knowledge more appealing to them because they have a dynamic, kinesthetic and visual way to interact with the presented content. Moreover, such activities highlight the linguistic aspects of the material and allow the science center to approach the contexts and experiences of deaf visitors and their communities.

Lastly, one of the aims of this Research Topic was to inspire the activism and activity of PWD as agents of research and practice in matters related to accessibility and inclusion. We advertised to networks of schools, colleges, and associations of PWD from different countries and engaged them in peer-reviewing. Therefore, we expected to highlight their voices, perspectives and opinions as the protagonists in this process. The result is that the texts presented cover many important issues and perspectives. However, some research themes, such as intellectual disabilities and accessibility in online environments, have not been addressed. This indicates that there is still much to explore in future publications.

## Author contributions

JN: Conceptualization, Writing – original draft, Writing – review & editing. WA: Writing – original draft, Writing – review & editing.

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## Conflict of interest

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