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A framework for organizational change to promote inclusion of people with disabilities in museums and science centers

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Initiatives to include people with disabilities (PWD) in museums and science centers have been documented worldwide for over 80 years; however, there is still a need to implement systematic changes to sustain inclusive practices over time. Including people with disabilities in museums and science centers requires intentional efforts from these organizations. While research from various fields has explored museums' accessibility and inclusion strategies for PWD, few studies examine them from an organizational change perspective. We propose a framework outlining aspects that favor organizational change in museums and science centers, along with areas and actionable recommendations. This framework can support the complex process of organizational change to promote inclusion and accessibility for PWD and aid future research and practice.

KEYWORDS

 $people\ with\ disabilities,\ organizational\ change,\ inclusive\ science\ communication,\ social\ inclusion,\ accessibility$

1 Introduction

The growing debates advocating for inclusion in museums in the past decades (Moutinho, 2024) led, in 2022, to a new definition of museums, describing them as "[o]pen to the public, accessible, and inclusive" (ICOM, 2022). To meet this new definition, museums need to engage with a diverse range of visitors—among them, groups of people with disabilities (PWD). This involves removing barriers "that hinder their full and effective participation in society on an equal basis with others" (UN, 2006, p. 2). Besides recognizing the museum's role in creating welcoming, participatory, and safe spaces for different audiences, this perspective shifts from previous views of disability, which saw it as an individual and medical issue, suggesting that the person should adapt to the environment (Oliver, 2013; Martins, 2015). These contemporary perspectives of the social role of museums align better with what is considered, in both practice and theory, as the social model of disability (see Barnes, 1997; Barnes and Mercer, 2006; Oliver, 2013; Watson and Vehmas, 2019).

Initiatives to include PWDs in museums and science centers have been documented worldwide for over 80 years. Among these, we can mention: in the USA (Perkins, 1939; Hayes, 1952; Moore, 1968; Davidson et al., 1991), in the United Kingdom (Nature, 1949), in Niger (Saley, 1976), and in Brazil (Novaes, 1989). The topic has also been significant in international discussions, as shown by the debates at the UNESCO Brooklyn Seminar (Thompson, 1953) and in the "Museums and disabled persons" edition of the *Museum International Journal* (ICOM, 1981).

Despite extensive documentation of these initiatives over the decades, PWD still face significant barriers and are underrepresented in museum settings. From an intersectionality perspective (Crenshaw, 2002; Boda, 2024), we understand that the group's heterogeneity, marked by their various overlapping identities and characteristics (IDA, 2025), requires museums to adopt complex and diverse approaches to address the different experiences of PWDs—and that museums often encounter challenges in successfully implementing them (Norberto Rocha et al., 2021; Gómez Blázquez, 2015). Discussing and promoting inclusion is a complex issue that involves processes and products from projects built and refined through collaborative, ongoing, and iterative relationships (Quick and Feldman, 2011).

Museums and science centers, as organizations, are responsible for promoting intentional efforts toward inclusion and accessibility and ensuring the rights of PWD to access knowledge and culture. Since exclusion of PWD was historically ingrained in societies (Martins, 2015), and many elements of museums can also be exclusionary—such as their organizational culture (Sandell, 2003; Taylor and Kegan, 2017)—systemic, deliberate, and deeply rooted changes in institutional processes and activities are essential to foster effective inclusion (Garibay and Migus, 2014).

An overview of inclusion and accessibility initiatives at 110 Latin American museums and science centers, conducted by Norberto Rocha et al. (2020), revealed that these institutions still lack established practices. Recent publications on volumes 1 and 2 of the Research Topic, Inclusion in Non-Formal Education Places for Children and Adults with Disabilities, demonstrate that, despite numerous initiatives worldwide—such as Rojas-Pernia et al. (2025) in Spain, Zakaria (2023) in Egypt, and Norberto Rocha et al. (2025); Ferreira et al. (2023), Fernandes and Norberto Rocha (2022) in Brazil—there remains a need to implement systematic changes to sustain inclusive practices over time in the universe of museums.

Therefore, museums and science centers need to undergo organizational change. Organizational change results from new practices and beliefs and are essential for sustaining inclusive practices in long-term (Reich, 2014). Reich (2014) performed a literature review on inclusion across various organizations, however, she noted that few studies analyzed this theme from an organizational change perspective.

Organizational change in museums should be guided by robust empirical and theoretical knowledge. As we explore the theme further, we have observed that some studies on diversity and inclusion in museums, despite their different theoretical approaches and fields of knowledge (such as museology, science communication, education, interdisciplinary, etc.), emphasize similar challenges and propose similar solutions. This shared understanding can serve as a foundation for both academic and practical efforts in museums and aid organizational change.

Hence, drawing on these published experiences and research, the present work outlines, in a framework, aspects that favor organizational change to promote the inclusion and accessibility of PWD in museums and science centers.

2 Procedures for structuring the framework

The proposed framework is based on a narrative literature review of 13 empirical studies published after 2001. They include reports, theses, and peer-reviewed articles in museum, cultural, and inclusion studies that critically examine the experiences and structures of museums and science centers from an institutional perspective (see Supplementary material). More specifically, we searched for publications in English, Portuguese, and Spanish, with no geographical restriction, that address the following question: "What are the facilitators and barriers that museums faced in their efforts to develop and sustain diversity and inclusion?"

Narrative reviews critically analyze the published literature on a topic and are not necessarily systematic or exhaustive (Sukhera, 2022). They can include a wide range of studies and offer an overall summary with interpretation and critique. In this effort, we aimed to analyze and synthesize findings from previous research (Collins and Fauser, 2005; Sukhera, 2022) because we have observed studies from different fields that, although based on different theories, present similar findings and recommendations and still have not engaged in dialogue with each other.

After thoroughly reading the studies, which are based on case studies and interviews, we identified common themes and described and discussed them. Since narrative reviews involve interpretation and can be considered aligned with subjectivist and interpretivist paradigms (Sukhera, 2022), it is important to consider the positionality of both authors, whose backgrounds are in research and practice in science communication and inclusion in museums and science centers. Therefore, in the next section, we outline the aspects and facilitators found across the studies, organized by topics (3.1 to 3.12). Following that, we present actionable recommendations for organizational change to promote inclusion of PWDs in the form of a framework.

3 Aspects for developing and maintaining inclusion in museums and science centers

3.1 Socio-historical contexts and local realities

Museums and science centers are immersed in broader sociohistorical contexts and local realities. As such, they influence and are influenced by them. Political accomplishments in the social justice and human rights field, along with recent policies and international treaties (UN, 2006; USA, 1990; UK, 1995; Brasil, 2015), can contribute to societal change toward inclusion (Dodd and Jones, 2010; Reich, 2014; Martins, 2015). However, legal documents alone may not be enough to effectively change practices and culture in long-lasting, hierarchical, structured organizations like museums. First, museum professionals and administrators must be aware of regulations, policies, and international treaties (Sarraf, 2008; Dodd and Jones, 2010). Secondly, there are still

beliefs and practices ingrained within society and/or museum professionals that can hinder the museum from fulfilling its social role. This involves the public comprehension of museums for specific social groups, that can be symbolic represented by its architecture (Sweeney and Schonfeld, 2018), the traditional museum focus on the collection rather than the audience (Dodd and Jones, 2010), as well as different types of prejudice and systems of oppression, such as white normative culture (Haupt et al., 2022) and ableism (Martins, 2015), and their connections. Additionally, assumptions and unwritten norms can bias the organizational procedures and understandings of inclusion and accessibility, leading to mistaken inferences. For instance, the absence of marginalized audiences is attributed to their own deficits and lack of interest rather than to the critical examination of how the museum's practices actively aim to include them (Feinstein and Meshoulam, 2014). Lastly, the museum's local conditions and historical contexts also influence inclusion initiatives (Feinstein and Meshoulam, 2014). Museums and science centers need to acknowledge and understand the surrounding contexts and sociohistorical aspects so they can be intentional and successful in their organizational change efforts.

3.2 Organizational principles and guiding concepts

Organizational self-reflection to understand their purpose and role as agents of social inclusion is essential for change (Dodd and Jones, 2010). Museums that embrace this role become more open to dialogue with communities and agencies and to addressing exclusion (Sandell, 2003).

Consequently, museums need to define their core concepts, institutional beliefs, and values related to accessibility and inclusion (Tlili, 2008; Lin, 2018; Sweeney and Schonfeld, 2018; Haupt et al., 2022), incorporating inclusion-focused principles into decision-making and strategy development processes (Lin, 2018), such as establishing plans and goals (Haupt et al., 2022). These can be articulated in strategic plans (Martins, 2015) and reflected in the museum's mission and vision. Simultaneously, the organizations must eliminate exclusionary practices and principles to avoid regression or "institutional inertia" (Feinstein and Meshoulam, 2014). The advantages of doing so include preventing misunderstandings about inclusion and inclusive practices (Tlili, 2008; Haupt et al., 2022), consolidating, regulating, and guiding organizational practices (Martins, 2015; Haupt et al., 2022), aligning institutional priorities with social inclusion to prevent an "organizational identity crisis" (Tlili, 2008, p. 140), reducing internal tensions and conflicts (Lin, 2018), fostering staff commitment (Tlili, 2008) and co-creation (Haupt et al., 2022), and supporting distributed leadership and "bottom-up" change (Lin, 2018).

3.3 Leadership

Organizational leadership plays a critical role in either catalyzing or derailing organizational change efforts. The ideal

role of formal leaders is supportive (Reich, 2014; Haupt et al., 2022)—the "sympathetic Director" (Dodd and Jones, p. 100). This active role must be "vocally official and visibly present" (Haupt et al., 2022, p. 15) and recognize the risks and discomforts associated with change (Haupt et al., 2022). By supporting change, leaders help foster staff commitment, align values, improve communication among departments and teams, and represent the museum externally in its social inclusion efforts and to build external support (Sandell, 2003; Haupt et al., 2022). Therefore, increasing awareness and advocacy among museum directors and administrators (Sandell, 2003; Sarraf, 2008; Haupt et al., 2022) is essential for driving change, such as engaging in public debates on inclusion (Martins, 2015). Additionally, museum leaders must support and create opportunities for reflection among staff members (Feinstein et al., 2025). However, caution is necessary because over-reliance on a single leader (whether formally or informally designated) is inadequate, especially when it involves a wide range of initiatives (Tojal, 2007), which can impair the spread of the inclusion agenda across departments and affect the durability of practices (Reich, 2014).

On the one hand, "top-down" change initiatives can be unsustainable (Reich, 2014), and when they lack transparency and participation in decision-making, they are likely to provoke negative reactions (Lin, 2018). On the other hand, when "bottom-top" changes lack direction and cohesion, they lead to "value misalignment, tensions and conflicts between co-workers" (Lin, 2018, p. 184). Hierarchical processes and structures can pose challenges (Sweeney and Schonfeld, 2018; Haupt et al., 2022), as rigid management structures hinder staff contributions and the adoption of new solutions (Dodd and Jones, 2010).

The shift toward inclusion can be spontaneous and non-linear, involving multiple individuals within the organization (Reich, 2014; Lin, 2018). Organizations must, therefore, seek to be flexible and adopt different forms of leadership (Lin, 2018; Sweeney and Schonfeld, 2018), distributing the pressure of change across multiple leaders, encouraging change actors to participate actively in the process, and reducing resistance to change (Lin, 2018).

3.4 Community relationship building

Building community relationships is beneficial for change in the museum because it can be perceived by the community (Taylor, 2017), while also helping to understand the community's needs (Sandell, 2003) and facilitating information exchange and prioritysetting among the actors (Feinstein and Meshoulam, 2014).

Additionally, when museums challenge the role of the museum as the "expert" by including communities in decision-making, it encourages engagement between these groups and the museum and builds support as the museum co-creates its work with the community (Sandell, 2003). This can be achieved by developing specific mechanisms, such as focus groups (Feinstein and Meshoulam, 2014), long-standing community advisory groups (Feinstein and Meshoulam, 2014; Taylor, 2017), assigning professionals responsible for ensuring the community perspective is included in all museum activities (Feinstein and Meshoulam, 2014), partnering with organizations focused on

the target group and involving continuous contact and targeted activities (Martins, 2015; Sweeney and Schonfeld, 2018), using controversial situations to create dialogue opportunities and strengthen connections (Sweeney and Schonfeld, 2018), and developing systematic pathways to museum employment (Sweeney and Schonfeld, 2018).

3.5 Staff composition

Limited diversity among staff members is a barrier to organizational change (Sandell, 2003; Dodd and Jones, 2010). Without new perspectives in the team, patterns and traditional work practices are not questioned, and innovation and creativity are not encouraged (Dodd and Jones, 2010). There are some options to remedy this, such as examining hiring policies to remove biases (Taylor, 2017) and eliminating exclusionary requirements (Lin, 2018; Feinstein et al., 2025); developing specific training programs and work policies (Taylor, 2017); facilitating internal staff promotion (Feinstein and Meshoulam, 2014); creating opportunities for staff to develop meaningful networks (Sweeney and Schonfeld, 2018); providing resources to support volunteers (Dodd and Jones, 2010) and internship opportunities (Sweeney and Schonfeld, 2018); and tracking individual experiences after hiring to prevent staff turnover (Haupt et al., 2022).

and opening volunteer Hiring opportunities underrepresented groups in the museum promotes change. It provides opportunities for other professionals to learn (Sarraf, 2008; Reich, 2014), creates concrete demand for the organization to make the workplace accessible, provide proper accommodations, and be innovative in its work structure, brings representation to the organization as well as someone connected to the community (Sandell, 2003; Tojal, 2007; Martins, 2015), inspires youth (Sweeney and Schonfeld, 2018), and offers a tangible example of who that change is aimed at (Reich, 2014), contributing to the organization's understanding of its social role (Dodd and Jones, 2010). Especially when involved in leadership and decision-making roles and acknowledged for their expertise, they contribute to dismantling ableist conceptions and ensuring their protagonism (Reich, 2014).

3.6 External institutions and partnerships

External institutions and partners play a vital role in driving change within museums. Learning from the experiences of other organizations can serve as a source of knowledge about inclusive practices, encouraging similar initiatives across different institutions (Reich, 2014). Investing in various formats to reach diverse audiences, such as inclusion-oriented traveling exhibitions and initiatives, and making space for receiving temporary exhibitions from external partners (Feinstein et al., 2025), can inspire and create opportunities for change. Additionally, when organizations take the next step by forming partnerships and networks, they can bring in external experts who develop new resources and train their staff (Reich, 2014; Martins, 2015). On a further level, a broad network supports change by building institutional confidence (Dodd and Jones, 2010), aiding in program

planning (Martins, 2015), centralizing and integrating activities, and helping establish new projects and partnerships (Tojal, 2007).

3.7 Trainings

Staff training about accessibility and inclusion contributes to organizational change. Initially, staff training enables a shift in beliefs and attitudes, the dissemination of best practices, the development of social responsibility awareness, and the identification of biases and skills (Sandell, 2003; Taylor, 2017). These trainings must be continuous and offered to professionals at different career phases (Sandell, 2003), be strongly connected to daily work and priorities (Haupt et al., 2022), and address both individual and team levels through individual and group learning opportunities (Taylor, 2017). Additionally, professional development opportunities can be utilized to challenge the notion that inclusive practices are specialized and beneficial only to a narrow range of individuals, thereby ensuring their long-term sustainability (Reich, 2014). Nonetheless, organizational perception of training as the most effective practice, without addressing other systemic practices (Haupt et al., 2022), can inhibit change.

3.8 Data gathering, evaluation, and assessment

Systematic data gathering, including collection, analysis, and report (Dodd and Jones, 2010) about inclusion processes, bias, exclusionary practices, barriers, etc., can provide evidence and information to support change. Within the museum level, it can reveal staff beliefs and conceptions (Reich, 2014; Taylor, 2017; Feinstein et al., 2025) and map structural barriers (Haupt et al., 2022). At the audience level, it provides feedback on the audience conceptions (Feinstein et al., 2025), the museum's impact (Dodd and Jones, 2010) and the potentialities (Feinstein and Meshoulam, 2014), explicates the audience's relationship with the museum, and highlights engagement barriers (Sweeney and Schonfeld, 2018). Additionally, it can provide empirical evidence to help organizations determine whether they are meeting their goals, especially for external audiences and funding agencies (Dodd and Jones, 2010).

Internal evaluation can play a key role in driving change (Sweeney and Schonfeld, 2018). Also, evaluation of inclusion with feedback from PWD is crucial for change (Sarraf, 2008; Reich, 2014). This enables organizations to evaluate whether their practices are being experienced as intended and implement changes when necessary, as well as identify practices that are crucial for PWD (Reich, 2014). Organizations and funding bodies must consider establishing flexible and realistic requirements and goals (Sandell, 2003). Performance evaluations based solely on numerical goals and social inclusion are likely to conflict; for example, strict standards and performance indicators, such as diversity quotas, can lead to tokenism, unsustainable practices (Sandell, 2003), efforts focused on groups that attract more audience (Lin, 2018), among other economically or instrumentally oriented practices within the museum (Tlili, 2008). Therefore, caution is strongly recommended when adopting assessment methods.

3.9 Interdepartmental and integrated work

Organizational change requires integrated work and coordinated efforts to ensure that an inclusion-oriented approach is implemented across all museum departments, teams, and levels of seniority (Tlili, 2008; Reich, 2014; Sweeney and Schonfeld, 2018; Feinstein et al., 2025). This can be achieved by reorganizing teams, hiring liaisons or interdepartmental roles, and identifying areas for collaboration among departments to reduce tensions (Sweeney and Schonfeld, 2018). Otherwise, if social inclusion becomes fragmented, it can lead to inconsistent practices and place responsibility on only a few professionals (Tlili, 2008; Lin, 2018). Concerning department relations, it can become "differentiating markers of professional and workplace identity" (Tlili, 2008, p. 144), and as recognition and resource distribution evolve, it may generate internal conflicts and tensions (Tlili, 2008).

Additionally, creating and consolidating accessibility and inclusion departments that focus specifically on visitors with disabilities and accessibility standards is crucial and they should be transversal to museum departments (Tojal, 2007; Martins, 2015). In this process, clearly communicating and making explicit the inclusive practices organization-wide is essential (Reich, 2014).

3.10 Communication

Internally, clear and systematic organization-wide communication about inclusion and inclusive practices contributes to staff support and builds knowledge of the practices being implemented, preventing all responsibilities from being centralized in one leader (Reich, 2014). Internal communication about inclusive practices can be facilitated through formal leaders (Haupt et al., 2022), training, large-scale projects, effective internal communication methods (Reich, 2014), and institutional documents (Martins, 2015). In environments with distributed leadership, internal communication can be utilized to encourage best practices (Lin, 2018).

Externally, despite being underrated (Tojal, 2007), the ongoing communication and marketing of inclusive practices are crucial for driving change (Tojal, 2007; Martins, 2015). Traditional communication strategies tend to reach conventional audiences; therefore, they must be tailored to meet the demands of the target audience, both in terms of content and approach (Dodd and Jones, 2010; Martins, 2015). Conversely, if the marketing and communication sector is focused on economics and performativity, it conflicts with social inclusion (Tlili, 2008)—shifting the focus more toward public relations, such as showing they are "doing the right thing" (Tlili, 2008, p. 143), rather than genuinely fulfilling the museum's social role.

3.11 Budget and funding

Museums frequently cite budget constraints as a reason or explanation for not adopting and maintaining inclusive practices (Sarraf, 2008; Feinstein and Meshoulam, 2014; Reich, 2014). In this sense, grants and funding initiatives serve as important supports for sustaining these practices (Sarraf, 2008; Feinstein

and Meshoulam, 2014; Feinstein et al., 2025), although their "year-to-year variability" (Feinstein and Meshoulam, 2014, p. 384) impacts the longevity of organizational change. Additionally, the lack of financial revenue and, at times, the costs associated with developing social inclusion programs can create internal tensions (Tlili, 2008; Martins, 2015). However, initiatives are regarded as "costly" only when viewed as "specific" to PWD (Reich, 2014). If programs already incorporate inclusion intentionally, there are no additional costs.

Funding can also lead to change. Organizations funded with public money are expected to have an audience representative of the taxpaying public (Tlili, 2008; Dodd and Jones, 2010). Moreover, diversifying audiences can help attract funding from external social inclusion initiatives (Dodd and Jones, 2010), especially since many private companies, donors, and others are willing to contribute for performative motives. Internally, developing strategies to guarantee diverse and inclusive board members is important to organizational change (Sweeney and Schonfeld, 2018), as well as directing investments toward innovative and pilot inclusive projects, which provide opportunities for staff development (Sandell, 2003).

3.12 Programs, exhibits, and activities

Museum activities, programs, and exhibits aimed at PWD and their communities, crafted with accessibility and inclusion as core principles from the start and developed through collaboration with community members during planning, implementation, and evaluation (Tojal, 2007; Feinstein and Meshoulam, 2014; Reich, 2014), promote organizational change. This prevents the need for later modifications, which tend to be more challenging than planning for accessibility from the beginning, as well as allows previous successful initiatives to perpetuate and improve, and encourages innovation toward greater accessibility (Reich, 2014). They must be connected with ongoing experimentation and reflection—"trial and error" process allows the museum to test ideas and keep learning (Reich, 2014). Therefore, it requires a reflective space where its members can discuss and debate issues related to inclusion (Lin, 2018; Feinstein et al., 2025). Furthermore, a vast portfolio, including spontaneous and scheduled activities and various multisensory and multimedia resources (Tojal, 2007; Martins, 2015), helps address the challenge museums face in meeting the diverse needs of different visitors (Feinstein and Meshoulam, 2014). Also, museums can include discussions on inclusion and accessibility in their programming for visitors (Martins, 2015) and foster a broader understanding among communities and the local context in which they are immersed.

4 The framework for organizational change to promote inclusion of people with disabilities in museums and science centers

Based on the studies, we propose a framework (Table 1) that integrates the key aspects identified to foster inclusion in museological organizations, along with "areas" and "actionable recommendations." By offering insights into how these aspects can

TABLE 1 Framework for organizational change to promote inclusion of people with disabilities in museums and science centers.

Areas	Aspects	Actionable recommendations
Policy and socio-historic contexts	1, 4, 12	Develop an understanding of international, national, and local policies and treaties related to the rights of PWD, and stay informed.
		Apply the legal requirements of accessibility.
		Promote organizational advocacy for PWD rights and representation, and recognize intersectionality and diversity across communities.
		Learn about local PWD communities and understand their backgrounds and unique characteristics.
External relations	1, 4, 6	Implement PWD participation mechanisms.
		Maintain active engagement with the PWD communities and develop capacity-building partnerships with PWD organizations and experts.
		Build a museum network focused on accessibility.
		Seek external inclusion-oriented institutions and partners.
Communication	4, 10, 12	Implement flexible, multimedia, multimodal, communicational accessibility resources (e.g., sign language, braille, alternative text, captioning, audio description, alternative communication boards, etc.).
		Promote inclusive practices and activities across all communication channels, materials, and interfaces media.
Administration	2, 3, 4, 9, 10	Develop institutional documents detailing key principles of inclusion and accessibility, including strategies and assessment methods for all departments.
		Ensure that accessibility and inclusion are incorporated into the institution's vision and mission statements and strategic plans.
		Develop effective and accessible internal communication mechanisms.
		Document and register practices, challenges and learnings.
		Develop accessibility plans along with budget and funding sources.
		Establish accessibility committees comprising professionals from various departments and community members.
		Support and finance inclusion initiatives and large-scale interdepartmental projects.
		Establish flexible and visitor-centered performance standards and assessment tools for staff and programs.
Human resources	1, 4, 5, 7, 8	Reevaluating HR practices, including requirements and potential ableist bias.
		Hire PWD and open volunteer and internship opportunities in different roles and departments, ensuring representation and proper accommodations to support their full potential development and wellbeing.
		Investigate, develop, and expand staff skills with a focus on diversity and inclusion.
		Gather data to understand staff experiences, expectations, and needs, analyze it, and use it for improvement.
		Implement ongoing training at individual and team levels for all professionals on inclusion best practices, PWD rights, and aligning values.
Leadership	2, 3, 5, 7	Implement non-traditional and flexible leadership models.
		Serve as an encouraging and supportive leader.
		Manifest, verbalize, and advocate for inclusion and accessibility as foundational principles
		Praise for PWD protagonism, representation, and fostering their decision-making skills regarding accessibility and inclusion.
		Create opportunities for PWD to develop leadership skills and achieve those positions.
Exhibits and programming	1, 3, 8, 11, 12	Target PWD, inclusion and accessibility from the start of any new project, focusing on representation, wellbeing, and engagement.
		Implement accessibility resources and strategies in all activities, either in-person, remote, or online.
		Develop and maintain diverse programs tailored to various audiences with disabilities and their communities.
		Ensure PWD, their culture, and history are publicly represented in the galleries, visual arts, collections and exhibitions.
		Have consultations with PWD professionals and visitors.
		Foster ongoing experimentation and interdepartmental reflection.
		Promote activities to foster discussions about PWD's rights, inclusion, and accessibility with local communities, wider audiences, and visitors.
Visitor studies	4, 8	Carry out studies to understand the PWD current and potential visitors' profiles, expectations, and experiences in the museum.
	1	

be applied in real-world practice and recognizing that there are intersections among them, we expect to assist museums and science centers with their organizational change.

These aspects and actions may intersect and complement one another, and can be disseminated and shared across various departments within the museum or science center, existing at different hierarchical levels.

5 Conclusions: contributions and limitations

This work brings a contribution by organizing, in a framework, aspects that can favor a change toward inclusive museums for people with disabilities. It is important to bear in mind that change does not depend solely on a single initiative, such as training or funding, nor is it limited to the aspects and actionable recommendations introduced in this framework. Organizational change is an ongoing, non-linear, and non-immediate process and is influenced by various factors that—although presented here separately—complement, support, and interact with one another. It is influenced by each organization's unique history, local and political contexts, and involves multiple internal and external actors. It also requires the commitment of all museum departments and professionals, supported by leadership, governmental and financial support, strategic planning, and opportunities for continuous learning.

We acknowledge that a narrative review can have limitations, as it does not encompass all existing literature on the subject and is restricted to the languages in which the authors are proficient. Nonetheless, the present study offers a meaningful outline and synthesis of experiences and reflections, grounded in empirical evidence, ideas originating from case studies and interviews, through the lens of organizational change, which can support further research and practice and advance the inclusion of people with disabilities.

Author contributions

ACAV: Conceptualization, Writing – original draft, Writing – review & editing. JNR: Supervision, Writing – original draft, Writing – review & editing.

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Supplementary material

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References

Barnes, C. (1997). "A legacy of oppression: a history of disability in Western culture," in *Disability Studies: Past, Present and Future*, eds. L. Barton and M. Oliver (Leeds: The Disability Press).

Barnes, C., and Mercer, G. (2006). Independent Futures: Creating User-Led Disability Services in a Disabling Society. Bristol: Policy Press.

Boda, P. (2024). "Science for all and intersectionality," in *Encontros para a diversidade na ciência e cultura: diálogos sobre inclusão*, ed. J. Norberto Rocha, J. Norberto Rocha, G. S. Heck, and L. Marinho (Rio de Janeiro: Fundação Cecierj e Grupo MCCAC). Available online at: https://grupomccac.org/wp-content/uploads/2024/09/Norberto-Rocha-et-al-2024_Encontros-para-a-Diversidade.pdf (Accessed October 28, 2025).

Brasil (2015). Lei n° 13.146 de 6 de julho de 2015. Institui a Lei Brasileira de Inclusão da Pessoa com Deficiência (estatuto da Pessoa com Deficiência). Rio de Janeiro: Diário Oficial da União.

Collins, J. A., and Fauser, B. C. J. M. (2005). Editorial: balancing the strengths of systematic and narrative reviews. *Hum. Reprod. Update* 11, 103–104. doi: 10.1093/humupd/dmh058

Crenshaw, K. (2002). Background paper for the expert meeting on the gender-related aspects of race discrimination. *Estud. Fem.* 10, 171–188. doi: 10.1590/S0104-026X2002000100011

Davidson, B., Heald, C. L., and Hein, G. E. (1991). Increased exhibit accessibility through multisensory interaction. *Curator Mus. J.* 34, 273–290. doi: 10.1111/j.2151-6952.1991.tb01473.x

Dodd, J., and Jones, C. (2010). *Redefining the Role of Botanic Gardens: Towards a New Social Purpose*. Leicester: Research Centre for Museums and Galleries, University of Leicester.

Feinstein, N.W., and Meshoulam, D. (2014). Science for What Public? *Addressing equity in American Science Museums and Science Centers. J. Res. Sci. Teach.* 51, 368–394. doi: 10.1002/tea.21130

Feinstein, N. W., Hsu-Borger, E., Bequette, M. B., Garibay, C., Jones-Rizzi, J., Ronning, E. C., et al. (2025). Racial equity, reflection, and organizational change in museums. *Curator* 68, 243–257. doi: 10.1111/cura.12643

Fernandes, M., and Norberto Rocha, J. (2022). The experience of adults with visual disabilities in two Brazilian science museums: an exploratory and qualitative study. *Front. Educ.* 7:1040944. 10.3389/feduc.2022.1040944

Ferreira, A., Alves, G., Vasconcelos, I., Souza, T., and Fragel-Madeira, L. (2023). Analysis of an accessibility strategy for deaf people: videos on a traveling science center. *Front. Educ.* 8:1084635. doi: 10.3389/feduc.2023.1084635

Garibay, C., and Migus, L. (2014). The Inclusive Museum: A Framework for Sustainable and Authentic Institutional Change. Unites States: Cultural Competence Learning Institute.

Gómez Blázquez, Á. L. (2015). La accesibilidad para personas ciegas y con deficiencia visual al patrimonio cultural y natural. *Herand Mus.* 16, 47–54. Available online at: https://raco.cat/index.php/Hermus/article/view/313253 (Accessed November 21, 2025).

Haupt, G., Bequette, M., Goeke, M., and Her, C. (2022). `... Yet, it is still very White': structural and cultural impediments to DEAI change in science museums. *Mus. Manag. Curatorsh.* 37, 196–213. doi: 10.1080/09647775.2022.2052161

Hayes, J. L. (1952). Museum program at the Connecticut school for the blind. *J. Vis. Impair. Blind.* 46. doi: 10.1177/0145482X5204600502

ICOM (1981). Museums and disabled persons. *Mus. Int.* 33, 127–195. doi:10.1111/j.1468-0033.1981.tb01944.x

ICOM (2022). Museum definition. Available online at: https://icom.museum/en/resources/standards-guidelines/museum-definition/ (Accessed July 23, 2025).

IDA (2025). Global disability inclusion report: Accelerating disability inclusion in a changing and diverse world. p. 308. Available online at: https://www.globaldisabilitysummit.org/wp-content/uploads/2025/03/GIP03351-UNICEF-GDIR-Full-report_Proof-4.pdf (Accessed August 21, 2025).

Lin, W. L. (2018). Understanding organisational change in museums: an investigation of evolving museum priorities and practices at the national museum of natural science, Taiwan (Doctoral Dissertation). University of Leicester.

Martins, P. R. (2015). Museus (In)capacitantes: Deficiência, Acessibilidade e Inclusão em Museus de Arte (Doctoral thesis). Universidade de Lisboa, Lisbon, Portugal.

Moore, G. (1968). Displays for the Sightless. Curator Mus. J. 11, 292–296. doi: 10.1111/j.2151-6952.1968.tb00899.x

Moutinho, M. C. (2024). Sociomuseologia: esino e investigação, 2019-2023, repositório documental anotado. Lisboa: Edições Universitárias Lusófonas.

Nature (1949). Special science exhibition for the blind. Nature 163:948. doi: 10.1038/163948c0

Norberto Rocha, J., Fernandes, M. P., and Massarani, L. (2021). "Inclusion and accessibility in science museums: voices from Brazil," in Theorizing Equity in the Museum Integrating Perspectives from Research and Practice, eds. B. Bevan and B. Ramos (London: Routledge), 133–146.

Norberto Rocha, J., Marinho, L., Heck, G., Carmo, M. P., and Abreu, W. V. (2025). Accessibility in online exhibitions of Brazilian science museums and centers: identifying strategies and barriers. *Front. Educ.* 10:1542430. doi: 10.3389/feduc.2025.1542430

Norberto Rocha, J., Massarani, L., Abreu, W. V. D., Inacio, L. G. B. and Molenzani, A. O. (2020). Investigating accessibility in Latin American science museums and centers. *An. Acad. Bras. Ciênc.* 92:e20191156. doi: 10.1590/0001-3765202020191156.

Novaes, L. R. (1989). Education in Brazilian museums: a constant concern. *Mus. Int.* 41, 42–44. doi: 10.1111/j.1468-0033.1989.tb00756.x

Oliver, M. (2013). The social model of disability: thirty years on. *Disabil. Soc.* 28, 1024–1026. doi: 10.1080/09687599.2013.818773

Perkins, H. F. (1939). Museum exhibits for the blind. J. Vis. Impair. Blind. 33, 120-121. doi: 10.1177/0145482X3903300409

Quick, K. S., and Feldman, M. S. (2011). Distinguishing participation and inclusion. J. Plann. Educ. Res. 31, 272–290. doi: 10.1177/0739456X11410979

Reich, C. A. (2014). Taking Action Toward Inclusion: Organizational Change and the Inclusion of People with Disabilities in Museum Learning. [Doctoral Thesis]. Boston College, Boston, United States.

Rojas-Pernia, S., Sanahuja-Gavaldà, J. M., Macho de Cos, I., and Montero-Camacho, M. (2025). Opening the doors: inclusive creative projects and community engagement in Spanish museums. *Front. Educ.* 10:1595816. doi: 10.3389/feduc.2025.1595816.

Saley, M. (1976). Action to help the blind and physically handicapped, Niger National Museum, Niamey. *Mus. Int.* 28, 210–211. doi: 10.1111/j.1468-0033.1976.tb02012.x

Sandell, R. (2003). Social inclusion, the museum and the dynamics of sectoral change. $Mus.\ Soc.\ 1,45-62.\ doi: 10.29311/mas.v1i1.13$

Sarraf, V. P. (2008). Reabilitação do Museu: Políticas de Inclusão Cultural por Meio da Acessibilidade. [Masters Dissertation]. Universidade de São Paulo, São Paulo, Brazil.

Sukhera, J. (2022). Narrative reviews: flexible, rigorous, and practical. *J. Grad. Med. Educ.* 14, 414–417. doi: 10.4300/JGME-D-22-00480.1

Sweeney, L., and Schonfeld, R. C. (2018). Interrogating Institutional Practices in Equity, Diversity, and Inclusion. Ithaka S+ R.

Taylor, C. (2017). From systemic exclusion to systemic inclusion: a critical look at museums. $\it JME$ 42, 155–162. doi: 10.1080/10598650.2017.1305864

Taylor, C., and Kegan, M. (2017). Organizational Culture and Change: Making the Case for Inclusion. MASS Action Toolkit: Museum as Site for Social Action.

Thompson, S. (1953). The museum and the handicapped. *Mus. Int.* 6, 257–265. doi: 10.1111/j.1468-0033.1953.tb00228.x

Tlili, A. (2008). Behind the policy mantra of the inclusive museum: receptions of social exclusion and inclusion in museums and science centres. *Cult. Soc.* 2, 123–147. doi: 10.1177/1749975507086277

Tojal, A. P. F. (2007). Políticas Públicas Culturais de Inclusão de Públicos Especiais em Museus. [Doctoral Thesis]. Universidade de São Paulo, São Paulo, Brazil.

UK (1995). Disability Discrimination Act 1995. London: The Stationery Office. Available online at: https://www.legislation.gov.uk/ukpga/1995/50/contents (Accessed July 18, 2025).

UN (2006). Convention on the Rights of Persons with Disabilities. Available online at: $\frac{1}{2} \frac{1}{2} \frac{1}{$

USA (1990). Americans with Disabilities Act of 1990, as amended. Washington, DC: U.S. Government Publishing Office. Available online at: https://www.ada.gov/pubs/adastatute08.htm (Accessed July 18, 2025).

Watson, N., and Vehmas, S. (2019). "Disability studies into the multidisciplinary future," in *Routledge Handbook of Disability Studies*, 2nd Edn, eds. N. Watson, A. Roulstone, and C. Thomas (New York: Routledge).

Zakaria, N. N. (2023). Assessing the working practices and the inclusive programs to students with disabilities in the Egyptian museums: challenges and possibilities for facilitating learning and promoting inclusion. *Front. Educ.* 8:1111695. doi: 10.3389/feduc.2023.1111695