MULTISENSORY APPROACH TO MUSEUM ACCESSIBILITY AND EXPERIENCE ENHANCEMENT

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Abstract

The study investigates a multisensory approach to accessibility in museums, highlighting the importance of its diverse dimensions in enhancing the experience for visitors with visual impairments. Utilizing qualitative research methods, the study explores the physical, intellectual, and emotional accessibility dimensions of the museum education project in the Memorial Museum *Raiņa un Aspazijas vasarnīca*. The study highlights successful approaches in stimulating intellectual and emotional accessibility. It reveals that the stimulation of emotions, memories, and imagination might play the most important role in successful implementation of the multisensory approach, allowing all visitors – both individuals with visual impairments and those without – to greatly enhance the overall museum experience and form a more intimate and personal connection with the content.

Keywords: *multisensory approach, accessibility, museums, museum education, visual impairment*.

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Introduction

The area of accessibility in museums for individuals with visual impairments has recently garnered increasing attention among researchers [Vaz et al. 2020a; Haines 2021; Cho 2021; Vasilakou et al. 2022]. Studies suggest that individuals born blind or losing sight before age three develop unique brain connections that enhance other senses, such as heightened hearing, smell, and touch, as well as cognitive functions like memory and language [Mass Eye and Ear 2017]. These individuals may exhibit superior auditory abilities in terms of orientation, auditory attention, peripheral sound recognition, and verbal skills [Boroujeni et al. 2017].

Thus, the focus of this study centres around the following research questions: (1) How does the multisensory approach enhance the accessibility of museums for individuals with visual impairments? The empirical analysis of the study focuses on the project *Sajūtu ceļojums* (Sensory Journey), aimed at increasing museum content accessibility for the visually impaired audience. Consequently, the second research question is (2) How do individuals with visual impairments experience the multisensory approach in the *Sajūtu ceļojums* project in terms of accessibility?

The structure of the article unfolds as follows: the authors highlight the specifics of multisensory approach regarding museums' physical, intellectual and emotional accessibility efforts for individuals with visual impairments in the context of their cultural perception specifics. Subsequently, authors present the methodological considerations of the empirical research design, discuss the research results and finalize with conclusions.

Multisensory approach to museum accessibility

Since 2022, museum accessibility, diversity, inclusive practices, and community involvement have become focal points globally and have been incorporated into the new definition of a museum by the International Council of Museums [ICOM 2022]. Accessibility in museums manifests in physical, intellectual, and emotional dimensions [Vasilakou et al. 2022; Haines 2021; Wagner 2021; Asakawa et al. 2018] emphasizing the need for a comprehensive approach related to the cultural perceptual specifics of individuals with functional impairments [Vaz et al. 2020]. Despite notable efforts, museums face criticism for a perceived tendency to treat visually impaired individuals as *mentally retarded* [Montsho 2020], overlooking that positive museum experiences for visually impaired people depend on their reliance on other senses besides vision [Vaz et al. 2020]. Visitors encounter difficulties accessing artworks because museums predominantly remain visually oriented, hindering a connection with exhibitions through senses other than sight and impeding independent mobility within museum spaces [Vasilakou et al. 2022]. Exclusion, as termed by Seale, Garcia, and Rix [2020], results from museums neglecting the cultural perceptual specificity

of individuals with visual impairments, associated with the loss of one sense. This can be addressed through multisensory approaches to enhance museum content accessibility.

The multisensory communication approaches are *still a fairly novel concept*, that haven't *yet found their way into museums at large* [Neves 2012: 280], although sense-stimulating gadgetry is utilised in many public spaces. Nevertheless, a recent study in Korea emphasized the importance of combining all senses for perceiving individual artworks and that the integration of multiple senses supports learning, inclusion, and collaboration, aligning with the diverse cognitive and perceptual needs of the visually impaired [Cho 2021]. The study from Portugal recognises that blind visitors positively evaluate the multisensory experience in museums, perceiving the museum collection through smell, taste, and other senses as *unforgettable* [Vaz, Freitas, Coelho 2021: 80] experience.

Regarding physical accessibility, individuals with disabilities seldom visit museums due to mobility issues, both in reaching the museum and navigating within it. Personal independence during museum visits is a central theme in research, sometimes identified as social accessibility [Wilde 2014]. The absence of multisensory accessibility, such as artworks inaccessible for tactile experiences, leads to dependence on accompanying individuals [Asakawa et al. 2018] and thus lowers the feeling of equally valued audience segment. Several key points have been formulated to ensure physical accessibility for all institutions: for example, creating detectable and safe outdoor walking paths, ensuring an easily reachable and recognizable main entrance, ensuring an access control system, facilitating easy-to-access and detectable reception areas, enabling easy and safe indoor navigation, ensuring visible and readable signage or audial descriptions or information, and providing specific provisions for equipment and materials accessible to the public, opportunities to touching the objects without gloves etc. [Wagner 2021b; Wagner 2021a]. Technologies equally suitable for both sighted and visually impaired museum visitors become crucial tools in promoting accessibility [Vasilakou et al. 2022]. However, technological solutions must be supplemented with navigation technology [Asakawa et al. 2018] that enables visually impaired individuals to orient themselves continuously in space.

Various reports emphasize that physical accessibility, while important, is just the initial step, requiring additional efforts to ensure intellectual accessibility [Haines 2021]. How to achieve a concise yet profound and engaging presentation of information for individuals who cannot read the curator's descriptions and labels commonly found in museums? How to describe two-dimensional artworks to individuals who have been blind since birth and have no concept of the qualities of the surrounding world? Researchers unanimously agree that intellectual accessibility should encompass everything that provides information – adapted websites with

inclusive language, audio guides, social networks, information dissemination to the audience in a direct and convenient manner within exhibitions and virtual environments [Istanbullu Dincer et al. 2019]. Regarding the experiences of Braille readers and users, a correlation has also been identified between the ability to read Braille and a higher level of education [Sylvester 2020]. Specialists from Scotland's oldest organization supporting the visually impaired emphasize Braille as one of the most essential communication tools, offering visually impaired individuals the opportunity to learn proper spelling and grammar, especially when perceiving and analysing complex texts [Sight Scotland 2020]. Nevertheless, other studies highlight the opposite, that *Braille cannot be considered an inclusive reading tool because not everyone has developed adequate reading skills to read it, and texts with large fonts and appropriate contrast ratios do not serve all people with low vision* [Vaz et al. 2020c: 20].

Emotional accessibility in contemporary research is closely linked to sensory accessibility – encompassing imagination, memory, and emotional formation when interacting with physically available museum objects. Moreover, the interaction process should ensure both tactile and auditory experiences. Additionally, scent, as a carrier of information, can complement a blind person's perception of objects, evoke memories, and trigger specific emotions associated with a particular experience [Maggioni et al. 2020]. The Rijksmuseum project *In Search of Lost Scents* in Amsterdam, which involved exploring paintings with the aid of scents such as frankincense, myrrh, resin, and smoke [Verbeek 2020] demonstrates this rich experience as successful enhancement. Even souvenirs can help with shaping an image and also forming personal memories with a subjective and unique emotional background [Vaz et al. 2020], thus playing a significant role as tangible objects that can be taken away after the visit of a museum.

Design of empirical research

The study adopts a qualitative design, involving 10 informants (five persons without visual disabilities and five visually impaired persons) utilizing participatory research methodological principles with the following data collection methods: (1) five in-depth semi-structured interviews with project creators (without visual disabilities) – a museum worker, a creative team leader specializing in theatre aiming at the exploration of senses, two educators from Riga Strazdumuiža Secondary School – Development Center for visually impaired people, and a member of the *SOCINTEGRA* association's board, which implements projects to improve museum accessibility for visually impaired individuals; (2) five audio diaries as a convenient data collection method when working with visually impaired individuals, capturing data at the moment of a specific phenomenon, revealing sensitive and hidden

reactions [Bartlett, Milliga 2020: 9] recorded by visually impaired students from Riga Strazdumuiža Secondary School; (3) reverse brainstorming method among the same five students, where participants identified problems and challenges; and (4) four peer-to-peer interviews (with assistance from researchers) between the same students plus one researcher (without visual impairment) were applied to allow the participants to more easily reflect on their experience and understand the expectations of visually impaired individuals towards museum accessibility efforts in this particular case and their overall experience in museums. Fieldwork took place between March 2 and May 15, 2023. Data were fully transcribed and analysed using the thematic analysis method. Data were coded using a deductive approach according to physical, intellectual, and emotional accessibility categories. To avoid the risk of subjective judgment, the codes – insights and memories of the youth and educators – were compared among three researchers.

Results and discussion

This study is part of a larger three-year project. The results focus on the museum education project *Sajūtu ceļojums* (Sensory Journey) within the Memorial Museum *Raiņa un Aspazijas vasarnīca* (Summer house of Rainis and Aspazija), aiming to enhance museum content accessibility for the blind and visually impaired audience. The project has been implemented since 2021 and awarded by the municipality as *The Creation of Outstanding National and International Cultural Events in Jūrmala* [municipality], in a museum up to an hour's drive from the capital city and is designed as a program to be registered before the visit because it shares the museum's only multi-usage space and must be installed prior the visits. It comprises ten *stations*, such as full-size mannequins of Aspazija and Rainis, great Latvian poets and public figures, dressed in early 20th century period-specific costumes and accessories, a three-dimensional tactile model of the summer house building, a wooden letter mosaic called *Letters of Love*, a tactile and aromatic coffee bean station, *Bench of Love* with an audio story, a station involving hair combing and plaiting, a *seaside station* with a lamp (sun) and a fan (wind), a tactile herbarium station, and a *Lab of aroma* where visitors can enjoy four scents linked to the life of the poets. Each station is equipped with headphones playing an audio file with accompanying text, poetry, prose, collectively forming a narrative about Rainis and Aspazija's life in intimate aspects and simulating the environment in which the poets could have lived. All stations are connected with cords – guides to assist people with visual impairments in navigating the exhibition without the assistance of a guide.

As delineated in the previously examined theoretical literature, the dimension of physical accessibility manifests in practice as an initial evaluation of general access to a specific cultural offering, followed by the assurance of accessibility to physical

entities. Although the informants in the interviews do not explicitly underscore the suitability of the Memorial Museum *Raiņa un Aspazijas vasarnīca* building for individuals with functional, specifically visual impairments, a notable observation arises. A major drawback is considered to be the fact that the program is not permanently available but requires prior request. A museum representative explains the management of the project's placement: (..) *if we have planned an event, such as a concert or an exhibition opening in the same hall,* (..) *then we remove it. And then, when we have appointments, we bring it back.* This can be seen as an effective use of museum infrastructure, but requires additional coordination between the museum and its audience, and there may not always be alignment of possibilities. For example, a representative from the association SOCINTEGRA reports: (..) *I call the museum, then someone cannot make it, someone is sick, and so on. If the project were permanent, it would of course be more convenient.* An additional shortfall is the need for a private vehicle to visit the museum, as there are no appropriate road signages for the individuals with visual impairment from the train station to the museum.

The ability of people with visual impairments to be independent of an accompanying person and to enjoy the museum experience independently is an essential part of visiting a museum. The project *Sajūtu ceļojums* is structured in such a way that all visitors, including those with visual impairments, can move independently between the stations (aided by connecting cords) and independently perceive information in audio format, supplemented by various elements that stimulate the senses, such as smell and touch. The project's accessibility, enhanced by the multisensory approach, was highly valued by the informants – educators from the school. For instance, one noted, *this is the great thing, that children and any of us can be an active and not a passive participant. And understand, participate, cooperate. It is very important.* However, it should be acknowledged that the social accessibility provided and the aim for the visitor to be independent can also present challenges for people with visual impairments. One of the young participants, reflecting on their experience in this project, revealed that despite the fact that individuals admitted that *here you can touch, hear, and understand everything, but in other museums, everything depends on the accompanying person or guide*, their previous experiences also created frustration, which overshadowed all other accessibility dimensions: *I was more focused not only on the emotions at all the stations but also on how I was going to get everywhere, how everything was going to be... more on that. So, I concentrated more the first time on the technical aspects.*

The successful incorporation of accessibility elements is strongly linked with the involvement of individuals with visual impairment during the creation of projects in museums. In that particular project the educators and individuals working with visually impaired individuals were involved, which could be the middle ground

as most museums created projects just *simply closing our eyes and imagined how it would feel* [Richardson 2019]. In the case of this museum education project, while students from Riga Strazdumuiža Secondary School – Development Center for visually impaired people were not involved in creating its objects from inception, they were invited to test and provide feedback on its content to ensure its suitability for individuals with visual impairments. Moreover, some adjustments were made according to the feedback, for example, a museum object was changed to a replica in order to provide a possibility to touch it without gloves. Nevertheless, not in all cases adjustment was possible due to the late stage of involvement.

The dimension of intellectual accessibility is more remarkably evident within the *Sajūtu ceļojums* project. As previously mentioned, intellectual accessibility refers to adapting informational materials for people with functional impairments, in this case, visual impairments, using elements that allow them to be easily and comprehensively perceived. Informants expressed particular appreciation for the opportunity to physically engage with objects, noting that this tactile experience, coupled with the information conveyed through audio narration, deepens their understanding of the narrative. Informants articulated this sentiment, stating, for example, *I would hardly remember a lot of facts* (..). *But, as far as I can touch everything and feel different sensations, I remembered more about what they liked and didn't like* (..) *how they lived.*

Furthermore, the synergistic effect of 3D accompaniment to the informative audio recordings, accessible through headphones connected to each station, is highlighted by informants: *The incorporation of various sounds, such as doors creaking, clocks ticking, the sea's ambient noise, is commended for enhancing the overall immersive experience and understanding of the environment*. Nevertheless, some informants noted occasional disappointment with the audio quality, citing crackling sounds that intermittently disrupt the enjoyment of the multisensory approach. One informant elucidated that, confronted with these disconcerting sounds, s/he found it necessary to remove his/her headphones, thereby interrupting this immersive multisensory experience.

Delving into the role of the audio format within the project, its creators recognized audio as a fundamental informational format. Following consultations with educators, project creators determined that only one text in Braille would be incorporated among the objects. This decision was motivated by the educators' perspective that not all blind or partially sighted individuals possess a comprehensive understanding of Braille. Contrary to assertions in theoretical materials emphasizing Braille as a crucial element for promoting intellectual accessibility, the project successfully prioritized the prevalence of the audio format and accompanying sensory-tactile stations.

The project *Sajūtu ceļojums* offers visitors emotional accessibility through tactile and auditory experiences that stimulate the imagination, memory, and emotions of the museum visitor. Study found that this dimension remarkably enhanced the overall experience broadening it beyond the museum content and boosting memories and imagination. Most respondents emphasize that the multi-sensory approach used in this project contributed to the formation of emotions: *Here I can actually feel something*, with several young people stressing that the tactile and aromatic coffee bean station created a very calming, relaxing, and meditative feeling. The data from the audio diaries also highlighted the peace that the experience of the project has brought, allowing one to get to know the two poets better – *I felt a great, great inner peace within myself. And it really, really helped me to get to know Rainis and Aspazija in a way that I couldn't forget*. Another reflected that *what will stay with me the most are the feelings and memories of how I perceived everything*.

Respondents noted that the multisensory experience triggered their imagination, for example, at the station, where there was a life-size mannequin of Aspazija dressed in a period costume and accessories, allowed to touch and imagine *Aspazija walking* (..) *gracefully through the streets of Riga, and everyone looking back at her*. Another example shows that the station *Lab of aroma* allowed to reminisce about the childhood – *The world of scents took me back to my home, where there are* (..) *pine trees all around.* (..) *I was already in my childhood with all my senses, running barefoot along the path where my grandmother had planted mint,* (..) *and I met my childhood in that moment.*

Study found that emotional dimension of accessibility was the least criticised as created the personal connection between the museum and its visitor and that the emotional accessibility was highly appreciated by museum visitors without visual impairments. A museum employee explains: *They just wander around the museum quite indifferently. We try to inspire them in the museum, but there's no special reaction*. At the end of the tour, the guide offered the group the *Sajūtu ceļojums*. The museum worker continues: (..) *and during the program, they blossom, emerging as completely different people. The reaction is extremely emotional and appeals to a wide range of ages; they really enjoy it.* The approach also worked well for foreign guests, despite all audio recordings being in Latvian: *It doesn't matter; they sit down and enjoy the meditation. There it is, coffee repeating, coffee, coffee. Sometimes, understanding [the language] is not necessary, just feeling*. Another museum representative adds: *She listens to that 4-minute piece several times, continuing to immerse herself in the coffee experience*. This impact was particularly notable given that the permanent exhibition in the museum is primarily created traditionally without multisensory approach.

Conclusions

The project *Sajūtu ceļojums* has been designed to be physically accessible, allowing visitors to engage with various sensory stations, it also reveals a problematic aspect of usability. The project has been created in a multi-use space and, therefore, must be installed and uninstalled on a regular basis. This creates additional coordination that serves as a barrier, along with the need for private transportation, as the route from public transportation to the museum is not marked for individuals with visual impairments. The involvement of visually impaired individuals not only in the piloting process but also in the production phase is critically important, as is the involvement of teachers or experts who work with visually impaired individuals.

The project demonstrates a strong commitment to intellectual accessibility, and the audio content successfully enhances accessibility. Braille is not widely used within the project, focusing instead on tactile and scent experiences, and audio narration, which were deeply appreciated and highly valued by visitors. Moreover, it reveals that the stimulation of emotions, memory, and imagination through its multisensory stations might play the largest role in successful implementation of the multisensory approach, allowing all visitors – both individuals with visual impairments and those without – to greatly enhance the overall museum experience and form a more personal connection with the content beyond what is provided by the museum.

The study concludes that, although theoretical sources acknowledge that accessibility encompasses multiple dimensions and emphasize the importance of engaging various senses, this research contributes the argument that the emotional dimension of accessibility in museums in combination with intellectual accessibility has the most significant impact on visitors and their positive evaluation of museum accessibility efforts, even when physical accessibility has not been fully implemented.

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