



Using Technology to Encourage the Participation of Persons with Disabilities: Exploring Cultural Leisure Activities in a Theatre Environment

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Abstract. Inclusive ‘relaxed performances’ are leisure activities where people can participate, within a theatre environment, often with the use of assistive technologies, adapted texts and scripts that support interaction and social inclusion. This paper presents a participatory collaborative research project that examines the challenges faced by people living with disability when accessing theatre performances, and how design, technology and adaptations can facilitate participation and promote empowerment. Embracing a participatory approach with attention given to persons with visual impairments, wheel-chair users, persons with language and communication limitations and those on the autism spectrum, data were collected in 4 phases, from the pre-performance to the presentation of the performance. Post-performance analysis used interpretive approaches and evaluation analysis. Results include the development of potential strategies for the inclusion of people from all perspectives in performances. They also present strategies including audio description that provides information about gestures, props and the layout of the stage.

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Keywords: Inclusive theatre · Technology · Co-creation · Participatory action research · Relaxed performance · Social inclusion · Disability · Design strategies

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1 Introduction

The enjoyment of cultural activities, such as the theatre, is an integral part of leisure and social participation for everyone in society. Yet, for persons with disabilities participating in the theatre experience can be a challenge. Several theaters around the world have begun adopting new ways of accommodating audiences to include people with dementia, profound multiple learning disabilities and autism [1] with adapted

performances. These ‘relaxed performances’ facilitate participation through the use of assistive technologies, changes to the environment itself and adapted material that is integrated ^{into} the overall theatre experience, supporting interaction and social inclusion in the theatre environment. This research project presents the creation of a ‘relaxed performance’ in the Segal Centre for the Performing Arts, to understand how transforming the environment supports both performers and audiences alike in their performance experience.

2 Background and Objectives of the Project

This intersectoral project explores how cultural recreation and leisure activities, specifically in the form of a theatre performance, can become accessible to individuals with different abilities and how technology can interface to accommodate different impairments and facilitate the experience. Theatre performances are enjoyed by audiences worldwide and yet, due to stigma and stereotyping, as well as historic practice and traditions, these activities can be exclusive. Attending a theatrical performance provides an individual with a social, educational and an aesthetic experience. Artful experiences are vital for our sense of self while allowing us to find meaning [2]. Too often people with disabilities have difficulty accessing cultural activities such as going to the theatre; however, everyone has the right to the transformative experience of art.

The objectives of this multi-sectoral project include understanding what barriers exist within the theatre performance offered to the public in its current form, how the environment might be adjusted to account for different needs and desires, and what elements of the environment, social, physical, communicational and technological elements and technical aids might constitute developing universal accessibility to a theatre space. Our interest is to examine the challenges in accessing live performances. This project centers around a “relaxed performance” at the Segal Centre for Performing Arts in Montreal, Canada. The Segal Centre has taken important steps to improve physical accessibility and aid at performances. However, the theatre environment, as well as the information provided to audiences, until now, has not been universally accessible for people living with a disability such as persons with visual, auditory, motor or communication disorder, or those on the autism spectrum. In 2015, the Segal Centre committed to expanding its programming and operations to welcome everyone into the audience such that all are able to experience arts and culture without barriers. This project will enhance this initiative and expand the centre’s accessibility scope.

3 Methodology

Embracing a participatory approach, the project proceeds with four phases. The participatory approach is guided by research through design, where co-designing the various materials for the performance depends on the discussion with both the theatre personnel and the researchers at each phase of the project. This is done with the overarching goal of creating a relaxed performance that integrates technology, know-how and design elements that facilitated the enjoyment of the performance for both

persons with disabilities and for the audience as a whole. The team members are informed by input from the audience, the theatre's performers (on-stage), crew members (back-stage), ushers and theatre employees (front of house, box office, communications team and other departments). The research team consisted of researchers of differing abilities from the health/rehabilitation disciplines, architecture and design. The team also included the various personnel at the Segal Centre, local community partners and cultural groups, and rehabilitation research centres. A particularly innovative aspect of this project was the composition of a research team from the ground up, inclusive and including the theatre itself. The Segal Centre team members included both front-of-house staff, back-of-house staff and all levels of Centre administration. The active and engaged participation of the centre was both a catalyst for the research project and enabled the adaptive technologies and changes suggested for the social and environmental aspects of the theatre to be considered as integral aspects of the performance.

The 4 phases proceeded as follows: 1) Pre-performance staff training and pre-visit to determine the environmental characteristics; 2) Walk-through of the participants with researchers assessing facilitators, challenges, spatial characteristics, language and spatial barriers. The visit included the backstage, on-stage and front- and back-of-house aspects of the theatre. Researchers assessed both spatial and social characteristics might influence social and physical participation. Researchers documented the theatre spaces during the walk-through that captured the "pre-environment" using the Environment Quality Satisfaction Tool [4, 5]. Information gathered from the first two phases has been used to inform the preparation of the 'relaxed performance'; 3) Evaluation of the pre-performance conditions; and 4) Presentation of the performance itself and the post-performance. The project team and the audience participants from Phase 1 participated in a rehearsal to glean the possible issues that might arise. The Centre itself prepared for the relaxed performance by organizing a "Quiet room" for persons needing such a space. They also were able to organize on-site technological aids for access to the apps for those who might not have a connected phone. The Centre advertised the availability of the audio-description to its "friends of Segal" through multiple partners in their network. The 'relaxed performance' took place following this initial assessment, with the team members and the audience participants from Phase 1 evaluating the successes and unresolved challenges of making the event accessible as a relaxed performance. The documentation of both the participant experiences and the visual characteristics was conducted using a modified version of Visual Content Analysis [5, 6]. Finally, a post-performance analysis proceeded in two distinct stages, after the rehearsal and again post-performance using various evaluation tools and interpretive approaches.

4 Results and Discussion

Results emerged in the analysis of each phase. During the pre-performance and post-performance phases, researchers noted the aspects of the proposed relaxed performance that needed fine-tuning. During the post-rehearsal interviews, both audience participants and actors with disabilities provided important feedback. This led to the development of potential strategies for the implementation of the various support

mechanisms for the performance itself. With the collaboration of the Centre, the researchers collected both visual and auditory data and were able to suggest changes during the pre-performance and post-performance. **terms of the integration of support materials.** These were fine-tuned post rehearsal and before the actual performance, including incorporating materials such as adapted written descriptions in both large print and braille, as well as an audio description.

The outcomes and effects of this project fall into theatre-specific adaptations that will benefit the centre studied for all future events. They include i) physical aspects of the environment such as lighting/seating adjustments and accessibility; ii) security within the theatre space itself; and iii), the development of a tactile map as an accessibility technology. In terms of the physical space, access issues were documented and found to be somewhat deficient in terms of universal design principles. In terms of theatre accessibility, while arrival is facilitated by easy access off the ground level foyer area, in the theatre beyond the first row, aisles and spaces were very tight, and accessing the theatre space from the higher levels was a little more of a challenge.

The security of the environment (ii) was enhanced with support services provided and adequate lighting to allow people to be guided to the theatre. It was noted that the Quiet room provided a place for people to congregate should the theatre become too noisy, especially those on the autistic spectrum. The room included social activity tables and an area for quiet contemplation (tent) with subtle lighting.

The development of technological aids such as the tactile map (iii) were valuable tools created for the Centre, and that can easily be adapted, should the structure and layout of the building change or expand over time. From the disability/health perspective, spoken word theatre is not easily made accessible to a variety of audiences with a disability [7]. Live audio description for the visually impaired [8], sub- and supra-titles for the hearing impaired [9], or simultaneous sign language interpretation for the culturally Deaf [10] can be included. However, challenges remain in accomplishing universal accessibility for all individuals simultaneously [11]. From the technology/accessibility perspective, both spatial and technological tools were developed to measure the spatial qualities of the environment and to support mechanisms to guide the audience participants to have an improved social experience.

The audio description provides access to the visual elements of a movie, theatre performance, museum exhibit or other art form, just as captioning provides access to auditory dialogue. Narrators provide objective descriptions of scenes, costumes, actions and other key features that are integral to understanding the performance. The app used for the performance was fully accessible to blind and low vision users who rely on built-in screen reading software, magnification or braille output. Professionally trained describers were situated in another room, with camera access to the stage. They voiced descriptions throughout the play that all app users could access through their headphones and this was very well received. Patrons with visual impairments were able to understand the story more fully with the inclusion of audio description that provided information about gestures, props and the layout of the stage. This result is in concordance with Holland [8] who showed that audio description is a tool for people living with a visual impairment, to describe succinctly what is happening on the theatre stage in the silent intervals between programme commentary or dialogue in order to convey the main visual elements of a performance. Persons with hearing impairments could

also adjust the amplification as needed. The application used for this purpose was also fully accessible.

The spatial mapping of the environment and the creation of haptic tools support the theatre experience before (guidance, accessibility), during (following along, understanding) and after (reacting, leaving) the performance. The collaboration with a Montreal-based partner to create a tactile map and the collaborative efforts of all researchers and partners in creating support documents highlight an intersectoral perspective, providing an enriching support for the Segal Centre and the performers, front-of-house staff and the back-stage crew. In terms of visual and verbal adaptations, during the rehearsal researchers noted issues in terms of the lack of adapted material and also in terms of the support for way-finding in terms of signage in the environment. The Centre was very supportive of the adapted materials provided.

Overall the participants and research team were satisfied with the results of the performance about the project, and the capacity of the researchers to respond at the various phases, each time assisting with tools to facilitate the performances and add to the overall positive experiences of the participants. It is also of note that the theatre performers, the back-stage personnel and the researchers were able to engage together to reflect both on the experiences in real time, and then adjust the tools being developed for the performance at each turn. The collaboration and co-operation was a great example of research through design, where co-designing and refining was dependent upon the responses of all involved at each phase. Since the performance, the Centre has confirmed that it is engaging with interested audience members on the different ways that relaxed performances are organized, through their newsletters and targeted information mailings. Their intention is to continue to promote these types of performances and in advance via their usual communication streams.

5 Conclusion

The relaxed performance is a vital means for people to participate in cultural activities. Technological tools can enhance the participation of people living with limitations who attend a theatre performance and the tools used here were based on the groundwork of the researchers to both establish needs, and then co-design the solutions for the issues that were raised. Audio description provided access, while captioning provided access to auditory dialogue. Narrators provided objective descriptions of scenes, costumes, actions and other key features that are integral to understanding the performance. These various support materials developed enhanced the enjoyment of the performance for everyone. While the project is still ongoing, post-performance there was an enthusiasm to develop further tools and broaden the audience for whom the relaxed performance might be targeted. (And) while results are still emerging in the evaluation and analysis phases, when complete the research team will provide best practice ideas to the theatre management for improving the accessibility within the scope of the Segal Centre's existing capacity. Future research work might be useful to further explore the specific needs of different populations, and to explore further the ways that the relaxed performance might be enhanced and inclusive. Special services such as the quiet room can

be communicated to the patrons, to further encourage attendance. In this type of cultural experience, the enjoyment of the theatre performance is an experience for everyone.

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