Exploring the accessibility of information in a museum space for persons with intellectual disabilities: The use of sensory trails

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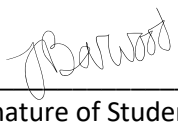

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Abstract

This research project investigates the accessibility of information for persons with intellectual disabilities within Fort St Elmo and the National War Museum through a case study approach. Research on accessibility in museum spaces is a rapidly expanding field which has raised many exciting insights and possible accessibility solutions. Sensory trails are a recent example of these solutions in heritage, focusing on learning through a multi-sensory experience. This is something that this research looks to bring to the Maltese context, expanding on previous research done on accessibility in museums on the island. A qualitative approach was used involving a participatory group for generating data centred around the personal experiences of persons with intellectual disabilities. The methods used included two focus groups, a museum experience and a sensory trail. The key findings showed the complexities of assessing accessibility using guidelines and frameworks, and how these spaces rely on dominating learning forms which create inaccessibility, and how a multisensory approach could increase accessibility to information. These findings suggest the need for further reviews of museums and heritage sites to explore other learning forms that are outside of the dominating learning narrative of the space. The findings highlight the importance of auditing accessibility through the lived experiences of persons with disabilities to ensure relevant and effective solutions. While the space occasionally met accessibility principles, participants found that this did not always translate to truly accessible information. Physical space significantly influenced information accessibility. Participants also introduced new perspectives, such as the value of rest and the need for multisensory learning methods. Incorporating these elements can help heritage sites foster deeper connections to cultural heritage for persons with intellectual disabilities.

Key words: Accessibility; Information; Inclusion; Museums and Heritage; Sensory Trail

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Table of Contents

Abstract ii

Acknowledgements iv

List of Figures vii

List of Tables viii

Chapter 1: Introduction 1

Chapter 2: Literature Review 6

Introduction 6

The Evolving Space 6

Essential Theories, Definitions and Law 7

Measuring Accessibility of Information 15

Museum Spaces and Heritage Sites: Good Practice Examples 18

The Maltese Context: Addressing the research gap 25

Conclusion 31

Chapter 3: Methodology 34

Introduction 34

The Design 34

Towards An Emancipatory Approach 35

Sampling, Methods, and Tools 37

Analysis of Results 41

Strengths, Limitations and Ethical Considerations 42

Conclusion 45

Chapter 4: Findings and Analysis 46

Introduction 46

Participants List 46

Activities 47

Focus Group A 47
The Sensory Trail 48
The Museum Space 56
Focus Group B 60
Themes 60
Space 62
Museum Forms and Learning 72
Language 81
Conclusion 85
Chapter 5: Conclusion 86
Introduction 86
Summary of Key Findings 86
Limitations of the Study 89
Recommendations for Future Research 89
Implications 90
Concluding Comments 91
Bibliography 93
Appendix 100
Appendix 1 100
Appendix 2 101
Appendix 3: Focus Group A Questions 106
Appendix 4: Sensory Trail Plan 107
Appendix 5: Museum Questionnaire 112
Appendix 6: Findings 118

List of Figures

Figure 1: Accessibility Chain Model (Sensory Trust, n.d.-c). 22
Figure 2: Heritage Malta's Accessibility webpage tool (source: Screenshot from Heritage Malta (2025), Sites - Heritage Malta) 27
Figure 3: Sensory Mapping 50
Figure 4: Sensory Trail Stops 51
Figure 5: Sound workshop items 53
Figure 6: Texture example 53
Figure 7: Texture example 53
Figure 8: Texture rubbings by participants 55
Figure 9: Room 4 Layout 56
Figure 10: Room 5 Layout 57
Figure 11: Source: Leicester Museums & Galleries. (n.d.). About Leicester Museums & Galleries. Leicester City Council. https://www.leicestermuseums.org/about/ 101
Figure 12: Source: Visit Leicester. (n.d.). Leicester Museum & Art Gallery. https://www.visitleicester.info/see-and-do/leicester-museum-and-art-gallery-p700961 ... 102
Figure 13: Source: Stamp, E. (2017, April 26). The best university art museums in America. Architectural Digest. https://www.architecturaldigest.com/gallery/university-art-museums-slideshow 102
Figure 14: Source: Hopkins, S. (2025, January 3). 31 fascinating and mostly free museums in London to visit. Secret London. https://secretldn.com/fab-free-museums-london/..... 103
Figure 15: Source: Pouhier, E. (2009). British Museum – Court and Glass Dome [Photograph]. Wikipedia. https://en.m.wikipedia.org/wiki/File:British_Museum_Dome.jpg..... 103
Figure 16: Source: Herefordshire Museum Support. (2017, October 24). [Image related to advertising the museum]. Herefordshire Museum Support. https://herefordshiremuseumsupport.org.uk/advertising-the-museum/ 104
Figure 17: Source: Living Levels. (2021, May 19). [Image related to Newport Museum and Art Gallery]. Living Levels. https://www.livinglevels.org.uk/stories/2021/5/19/newport-museum-and-art-gallery..... 104

Figure 18: Source: Museum of Archaeology and Anthropology. (n.d.). [Image of the Museum of Archaeology and Anthropology]. Museum of Archaeology and Anthropology. https://maa.cam.ac.uk/about 105

List of Tables

Table 1: Questionnaire results from Room 4 58

Table 2: Questionnaire results from Room 5 59

Table 3: Themes and sub-themes elicited from the participants' responses in focus group A and B 61

Chapter 1: Introduction

This research explores the accessibility of information in museum spaces for persons with intellectual disabilities. Museum accessibility has been developing and evolving across the globe, with it being given renewed importance as recognised in the new definition of a museum space from the International Council of Museums (ICOM, 2022).

Research into museum accessibility has been built on and developed for the past twenty years in the western world, primarily the U.K., the US and Australia. Initial studies into accessibility often used disability models or guiding frameworks for researchers to assess accessibility (Rix, 2005) without involving persons with disabilities. Early accessibility research was also focussed on the physically disabling space (Rix, 2005). Questions around accessibility of these spaces then developed to include representation of persons with disabilities (Dodd et al., 2008, 2013). U.K. based studies are now drawing a connection between accessibility, engagement, and a feeling of exclusion from these spaces (Fox and Sparkes, 2021), with persons with disabilities often feeling that they are both unrepresented and unable to access these spaces. This has led to research exploring ways in which these spaces can more actively involve disability communities. Research around co-designing exhibits, activities that actively engage with these communities has seen an increase (Accentuate, 2018). This has been expanded more recently with questions about ways persons with disabilities can be supported in careers in heritage and museums, and how museums can more effectively and directly engage with these communities (Fox and Sparkes 2021).

At the heart of much research being conducted is accessibility and supporting the space to ensure that it is engaging and understandable. An increase in the involvement of disability communities has supported our understanding and directly led to ways in which we can engage learning that is not only limited to traditional forms (Reiger, 2023). In the past few years, multiple projects have been engaged in throughout the U.K., U.S. and Australia to explore multisensorial learning as an accessibility solution (Reiger, 2023; Sensory Trust, 2020; Accentuate, 2018). Sensory trails, for example, have been a recent development in museum accessibility in the U.K. which explore sensory learning as a method of navigating and engaging with heritage spaces. More research is needed to explore multisensorial learning in these spaces, and the use of sensory trails in particular.

In Malta, the past ten years have shown an increase in research on the topic of accessibility in these spaces. When compared with the above-mentioned initiatives, however, this is still limited. In 2014, Buttigieg's work explored physical accessibility, and more recently, Mizzi (2016) undertook a project exploring intellectual accessibility of a museum space. With this research having been conducted almost ten years ago and no new research undertaken since, this study aims to both build on Mizzi's initial project and expand upon it. This research plans to provide a more recent assessment of intellectual accessibility to a museum and heritage site within Malta. Furthermore, it explores how multisensorial learning, through a sensory trail, could provide an accessibility solution for the often inaccessible and dominating learning formats found in museum and heritage spaces. There are three key aims of this study:

1. Evaluate the accessibility of information in the museum and heritage space for persons with intellectual disabilities.

2. Gain an understanding of how sensory trails can be utilised in a Maltese context to improve accessibility to information and learning.

3. Suggest possible solutions for future good practice around accessibility of information in museum spaces.

These aims directly informed the research questions the study was based around. The core of the research question was centred around the instrumental issue of the study and was then divided in relevant parts:

How accessible is the information in museum and heritage spaces for persons with intellectual disabilities?

a) How is the information presented within the museum and heritage space?

b) Is this information accessible for persons with intellectual disabilities?

c) Does the space follow the principles of Universal Design (UD) and Universal Design for Learning (UDL)?

The following research question supports the secondary aim of the study:

Would the use of sensory trails increase accessibility to information in heritage sites and museum spaces?

This research project has worked towards bridging the gap between the research into museum and heritage accessibility in Malta and the leading research areas mentioned above. Addressing the accessibility of these spaces is done to ensure museum and heritage spaces are inclusive ones, ensuring persons with disabilities can access, and ultimately connect with, culture and history. It was recognised that to achieve this in the most effective

manner, it was key to work with the personal experiences of persons with intellectual disabilities. The data gathered and research completed was done with support from the participants to ensure that the data gathered on accessibility would be more representative of the accessibility barriers that persons with intellectual disabilities face when accessing museum and heritage sites.

Dissertation Structure

This first chapter introduced the aims, research questions and research context of the study. The Chapter 2 will be the literature review. This will expand on the areas briefly discussed here, critically discussing the existing literature on key themes such as: current theory, measuring accessibility, good practice examples, and the Maltese context. The guiding framework will also be explored and developed in this section. The framework will be based around the principles of UD and UDL, built upon a social model understanding.

Chapter 3 will follow and will breakdown the approach that was taken to answer the project's research question. The research design will be summarised, including a description of participant recruitment, data generation, and the overall strengths, limitations, and trustworthiness of the project.

Chapter 4 will present the key findings gained from working with the participants and recording their personal experiences. Key themes that were generated from the data analysis will be outlined. The analysis section will use the key evidence from the findings to explore the research question with support from the guiding framework. The themes stated in the findings chapter section will be analysed and evaluated. Finally, the research will close with a concluding chapter summarising the main findings and discussing future recommendations.

Chapter 2: Literature Review

Introduction

This chapter will evaluate the existing literature relating to the study. It begins with an understanding of essential theories, definitions and related legislation. It then transitions into how accessibility can be measured and how it has been done in the past, before looking at good practice examples. Finally, the chapter will look at literature related to the study in the Maltese context and addressing the research gap.

The Evolving Space

Museums are everchanging and evolving spaces continuing to shift and adapt (Rudiger 2023). Museums have been described as a "shapeshifter over the centuries, shifting from collecting and storing, to entertaining and engaging, to educating and narrating, and will continue to have relevance in society and continue to shape knowledge" (Rudiger, 2023, p.49). This highlights the importance of assessment and reviewing of the space that ever changes, but also the essentialness to create a baseline for understanding and reviewing the spaces in relation to accessibility.

The function of the modern museum is one that contains multiple overlapping roles, putting them on the forefront of "conservation, interpretation, promotion and protection" (Aksoy, 2017, p.62). The museum space of the past acted as a gatekeeper of knowledge and power in a colonial world (Aksoy, 2017), however these spaces have changed and adapted with new social aims and functions. Many museums now, namely those that are members of the International Council of Museums (ICOM), rather than excluding communities, are aiming to embrace a social role that is focussed on social inclusion and action. This is seen

through ICOM's commitment from 2016 to continue to help museums "embrace their social role and deal with the implementation and management of activities that promote social justice and inclusion" (ICOM, n.d.).

A relationship between museums, heritage spaces and local community is now being nurtured. Engaging with local communities in this manner furthers reinforcement of preservation whilst building a deeper connection between these local communities and their heritage. In a globalised world, museums present an opportunity to promote a "cross-cultural dialogue between local populations and visitors, and bolster peace and reconciliation among communities" (Aksoy, 2017, p.62). Thus, it is essential for museums and heritage to be as accessible as possible, both for local communities to engage with their own heritage and culture, and for the wider community of the world to do so. Evaluation of accessibility in museums and heritage is the next step for growing their role of social inclusion and engagement.

Essential Theories, Definitions and Law

This research project is informed by the social model, which places disability in the disabling environment rather than an individual's impairment. It is the social environment which is disabling as it fails to account for differences and with this view the moral responsibility is placed on society to remove these barriers (Shakespeare, 2017).

One way for these barriers to be removed is to ensure a space or social environment is designed with universal accessibility in mind. To work towards universal accessibility, the guiding framework of Universal Design (UD) and Universal Design for Learning (UDL) were created by the Institute for Human Centred Design and the Centre for Applied Special Technology, and both will inform this research. UD has seven key principles, all of which

inform accessibility of space to ensure a universal approach (Institute for Human Centred Design, n.d.) with the "aim of promoting 'the design of products and environments to be usable by all people to the greatest extent possible'" (Mace, 1988 in Imrie, 2014, p.288). These principles will form part of my guiding framework for evaluating accessibility.

> **Equitable Use:** The design does not disadvantage or stigmatise any group of users.
>
> **Flexibility in Use:** The design accommodates a wide range of individual preferences and abilities.
>
> **Simple, Intuitive Use:** Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
>
> **Perceptible Information:** The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
>
> **Tolerance for Error:** The design minimizes hazards and the adverse consequences of accidental or unintended actions.
>
> **Low Physical Effort:** The design can be used efficiently and comfortably, and with a minimum of fatigue.
>
> **Size and Space for Approach & Use:** Appropriate size and space is provided for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility. (Institute for Human Centred Design, n.d.)

UD is not aimed at any specific impairment group, instead aiming to achieve universal applicability, reaching and supporting the widest range of people in the widest range of examples without special or separate design. This works to "draw attention away from people's impairment as a source or site of difference to minimise the possibilities of

social ostracism" (Imrie, 2014, p.290) again focussing, in a social model perspective, on adapting and changing the disabling environment.

Whilst UD will be used in this research project as a guiding framework for measuring accessibility, it is important to be aware of the framework's drawbacks. Often UD is critiqued on the ability of universality of design when considering all impairment groups and bodily differences (Imrie, 2014). Furthermore, the movement of UD, due to operating as a guiding framework, relies upon a "political conservatism that seeks to encourage voluntary uptake by organisations of design standards, codes and guidance" (Imrie, 2014, p.291). This means it can struggle to effectively challenge the embedded discrimination of design accessibility. It is this voluntary reliance that also makes UD, as a guiding framework, ineffective in a global disability context, particularly when considering the global south (Davidson, 2010; Imrie, 2014).

With his being said, the UD framework offers a clear understanding of accessibility with its seven principles which are beneficial to this research design. If the objective of UD is "to promote the flexibility, adaptability and interchangeability" (Institute for Human Centred Design, n.d.) of the space, the ever-evolving museum and heritage space can benefit in using its principles to ensure accessible transition. Furthermore, this research aims to improve on the criticism levelled by Imrie at the UD guiding framework. Imrie noted that "despite proponents of UD claiming that users are, or ought to be, more than passive recipients of expert opinion, there is little evidence" (Imrie, 2014, p.293) and that "most writing about UD see users in conventional terms, as consumers of a service, and only active in its productions through market based testing" (Imrie, 2014, p.293). The present research project ensured that UD operated as a guiding framework, and using the principles of emancipatory research

(expanded on in the methodology section below) was able to ensure that participants in the study played an active role in assessing accessibility and supported in informing the research at multiple stages.

Furthermore, the guiding framework of UD and its seven principles ensures accessibility to space, however this coupled with the Universal Design for Learning ensures both physical and intellectual accessibility. The UDL "is a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn" (CAST, n.d.) and focuses on the "what", "how" and "why" of learning. The aim of UDL is to provide learner agency, supporting independence, and accessibility to information and learning. If a space is to be educational and accessible, the UDL framework is needed in tangent with UD.

The UDL framework is regularly reviewed and updated with the most recent iteration of the guidelines coming from 2024. This built upon the previous versions to emphasise addressing "barriers rooted in biases and systems of exclusion" (CAST, 2024) and aiming to "fulfil the promise of the Guidelines as a resource to guide the design or learning environments and experiences" (CAST, 2024). The UDL works through considering three core principles, all of which form a key framework for this research: Engagement, Representation, Action and Expression.

Engagement

Centering, affirming, and sustaining learners' interests and identities

Emphasizing the role of belonging in teaching and learning

Promoting the role of joy and play for learners and educators alike

> Cultivating empathy and repairing harm with restorative practices
>
> Representation
>
> Authentically representing a diversity of identities, perspectives, and narratives
>
> Considering perceptions of people, cultures, and languages
>
> Valuing multiple ways of knowing and making meaning
>
> Action and Expression
>
> Honoring and valuing a wide variety of forms of communication
>
> Centering and valuing forms of expression that have been historically silenced or ignored by addressing biases
>
> Challenging exclusionary practices to build more accessible, inclusive spaces and systems. (CAST, 2024)

These UDL framework points offer this research project a basis of evaluation for information accessibility in the museum space. They also provide interesting analysis points when evaluating the effectiveness of the sensory trail as an educational learning experience tool in the heritage site.

When addressing the research gap, it must be understood that accessibility in museums and heritage sites is layered in its understanding. As researchers critiquing the design of space, we must understand that:

> Barrier Free Design Guides and documented guidelines like the Principles of Inclusive Design (Fletcher, 2006) and the Principles of Universal Design (Mace, 1985) assist designers in that they raise awareness of the needs of those with disabilities. But these standards also create limitations and challenges, where architects

> and interior design practitioners refer to codes as literal guidelines without much critical consideration. (Reiger, 2023, p.69)

To achieve accessibility, as researchers we must use these principles as guiding frameworks to support our understanding of accessible practice and evaluation but not be limited by them. This is best done through using these guiding frameworks alongside participants and conventions that have the power of impact and implementation.

The United Nations Convention of the Rights of Persons with Disabilities (UNCRPD) (United Nations, 2006) outlines articles with the aim to "promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities" (United Nations, 2006, Article 1). The UNCRPD articles have overlapping importance when applied to real life context and have been ratified by Malta in 2012, bringing them into Maltese Law (Commission for the Rights of Persons with Disabilities, n.d.). Both UD and UDL principles can act as guiding frameworks for assessing accessibility to information. When used alongside the articles of the UNCRPD their impact for measuring and then improving accessibility is seen.

For museums and heritage sites three key articles of the UNCRPD are directly relevant to the rights of persons with disabilities: Article 9, Article 24 and Article 30. The right to accessibility is recognised through Article 9 stating that governments must ensure that disabled people have "access, on an equal bases with others… to information … and to other facilities and services open or provided to the public" (United Nations, 2006, Article 9). Accessibility in article 9 is divided into both a sense of physical accessibility, the environment and transport, as well as accessibility to information, all relevant to museum and heritage sites.

Article 24 relating to education expands upon this idea of accessibility to information, with the aim of an "inclusive education system at all levels" (United Nations, 2006, Article 24). It is important to recognise that part of the role of the museum and heritage site is to educate and inform, and so inclusive educational practices also need to be included when designing and developing these sites, as per the rights listed by the UNCRPD. Whilst having educational importance, museums and heritage sites are a part of recreational and cultural life. Article 30, states that disabled people are able to take part on an equal basis in cultural life and "enjoy access to cultural materials in accessible formats" (United Nations, 2006, Article 30). The mention of accessible formats being key, as not all heritage and museums sites are initially accessible both in terms of physical access and access to the information and learning. Forms of adaptation and inclusive education practices are therefore essential to ensure cultural materials are in accessible formats. Accessibility, but also disability rights, were expanded upon with the 2021-2030 disability strategy adopted by the European Parliament with the aim to continue the support of the rights of disabled people with "equal access to participate in society" (European Union, 2021).

The International Council of Museums has also made steps to recognising the importance of accessibility. This was acknowledged in their new definition (following extensive revision) of a museum:

> A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, **accessible** and **inclusive**, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for

> education, enjoyment, reflection and knowledge sharing. (ICOM, 2022)

Through this definition, highlighted importance has been given to accessibility and inclusion within the museum space. This further encourages more research to be done on existing museum spaces and their levels of accessibility and inclusion. However, whilst this definition provides an idealised description of what a museum or heritage site should aim to be, it is not legally binding or enforceable, so limited in impact.

The definition also fails to go into depth on accessibility or inclusion, two topics that need levels of detail and description: this is seen with an entire article dedicated of the UNCRPD to accessibility and its definition. As this definition is not detailed in terms accessibility, a museum or heritage space that may engage in a limited way with accessibility, such as providing a ramp on the site, could be described as 'accessible'. Future definitions provided by the ICOM, as an international council, need to be inclusive of, and informed by, the UNCRPD.

With accessibility and inclusivity being two key features of a museum it means that measuring accessibility in museums and heritage sites is essential to ensuring that they fit both the definition of a museum given by ICOM and the rights of disabled people outlined by the UNCRPD. Measuring accessibility also becomes a comprehensive assessment of all features of accessibility, as outlined in Article 9 of the UNCRPD. When measuring accessibility, all features must be considered for full and comprehensive coverage of accessibility within the space. Some of the barriers to accessibility and participation are stated by Fox and Sparkes as: "Lack of representation of D/deaf, disabled and neurodivergent people in exhibitions and displays, Access on site, Travel, Costs, and Lack of

access information" (Fox and Sparkes, 2021, p.16). However, these are not applicable to all studies.

Measuring Accessibility of Information

Caulfield et al. offer a model for evaluation of accessibility to information in museum exhibits (specifically relating to digital interactives). They highlight key questions that arise when introducing new features which will be considered when designing the sensory trail: "Will users understand the design? Is this a good design choice for as many users as possible? Have we introduced new problems while trying to solve existing ones?" (Caulfield et al., 2020, p.95). These questions should arise as each museum or heritage site aims to develop new exhibits or redevelop old ones to ensure they are considering full accessibility. However, a full and accessible evaluation is required to answer these questions and making it a collaborative process is a way to yield the most accurate and supportive answers. A collaborative approach with members of different disability communities provides a broader set of relevant and accurate data, and an accessible evaluation process enables more disability communities to be utilised within this (Caulfield et al., 2020).

The aim of formative evaluation is to understand whether an exhibit communicates intended messages to the museum visitors and "systematically capture information, such as visitor observations, reported interest, and reported learning, so that exhibit development teams can improve an experience or inform future work" (Caulfield et al., 2020, p.95). These assessments will help to inform this research project through an understanding of formative evaluation with a focus on how to measure learning and access of information. When evaluating, it is also essential to have outcome aims. Caulfield et al., as part of their evaluation process, had four targets they wanted all visitors to be able to do: "Physically

interact with the space, cognitively engage with the materials, socially interact with one another, and, emotionally connect with experiences" (2020, p.95). These targets identify that museum and heritage sites visits are often group experiences and so, social and emotional accessibility is an important factor, something not covered in the framework of UD and UDL.

Caulfield et al. also establish the importance of using UDL to inform the evaluation process acknowledging the importance of learning in museum spaces. The evaluation process has multiple factors that all contribute as to whether the museum and heritage space is accessible. When assessing accessibility Caulfield et al. stated, it is crucial to consider a range of disabilities, as limiting to one impairment group will naturally limit the findings of how accessible the museum space is to all (Caulfield et al., 2020). However, through focusing on one impairment group, a more in-depth study can be carried out on their specific accessibility needs and is also important for removing accessibility barriers for that group.

An example of a study focussing on one impairment group can be seen in Rix's 2005 study on intellectual accessibility to heritage sites. Rix identified the research gap of persons with intellectual disabilities and the support and provision they received for accessing museum spaces and heritage sites (Rix, 2005) making this study important for the initial assessment of how to improve accessibility for those with an intellectual disability. Studies specific to one impairment group that become invisible or forgotten when assessing accessibility are essential for a fuller picture on accessibility and ensuring it across all disability groups. Rix (2005) noted that the "National Endowment for Arts' Design for

Accessibility has 12 pages on physical and sensory access and one page on cognitive disabilities" (p.342) demonstrating the gap at the time of their research.

Before evaluating one specific heritage or museum space, Rix looked more widely at recommendations to all museum and heritage spaces through NGOs. They remarked that The Disability Directory recommended "the use of plain English, supporting pictures, short sentences, clear print, and step-by-step learning opportunities" (Rix, 2005, p.342) acknowledging that these seem excellent strategies and are useful to an extent. However, these are very general and ultimately depend heavily upon the appropriateness of adaptation to their audience. Rix pointed out the generic advice these spaces operate with, which is not specific to the museum space or heritage site, can be hard to adapt to their visitors without further support and guidance. This generic accessibility advice can still be seen today (MuseumNext, n.d; Eriksen Translations, n.d.).

Due to the age of Rix's study and its importance as one of the first to address the research gap, the research has areas that future research must improve upon in relation to approach. Rix analysed the basic language audio guide used in Westminster Abbey heritage site and how accessible it was for people with Down syndrome. However, Rix does so without the involvement of the group, largely making assumptions based upon models (Rix, 2005). Due to this, the information gained does not come from disabled people themselves, with a model used to represent them. Rix operates on the assumption that the model is applicable and suitable for all those with Down syndrome, and whilst his findings and assessment are still valuable for reviewing accessibility, further study is needed to make strategies centred around persons with disabilities' experiences. This is acknowledged by Rix in his conclusion where they stated, "it is not possible to know in isolation whether these

concerns and strengths would represent the experience of listeners described as having Down syndrome, of course" (Rix, 2005, p.352).

As seen from the studies of Rix (2005) and Caulfield et al. (2020), there are different ways a museum and heritage site can be measured for accessibility to information. It can be a collaborative approach with multiple impairment groups or with just one specific group; it can also be done using a model investigated by a researcher using comparison with the model and what the space offers. Both examples acknowledge there is a need to continue to assess and monitor accessibility of these spaces. Rix stated that their research provides a basis and "out of this can grow the next stage of good practice guidelines, to enable staff to view their site from a still wider variety of more inclusive perspectives" (Rix, 2005, p.352). In fact, when measuring accessibility it is worth questioning "when we speak of inclusive design are we always describing the same thing?" (Luck, 2018, p.97). Caulfield et al. (2020) stated that even the idea of accessibility is flexible, meaning preferences can shift, thus a consistent reflection and review is necessary to ensure accessibility:

> Finally, there is always room for reflection on "best practices" and "standards." Technology can advance quickly in a short time. The tools we use to evaluate might change depending on the products tested, and accessibility tools and preferences among users can shift. Do not be afraid to re-evaluate even tried-and true methods to advance accessibility and inclusion in digital interactive design. (Caulfield et al., 2020, p.111)

Museum Spaces and Heritage Sites: Good Practice Examples

Consistent reflection and evaluation of the space is essential for ensuring an accessible space, but good practice examples show how it can be done on regular basis. One

example would be Geevor Tin Mine, a heritage site with a museum in Cornwall, U.K., that faces many challenges to accessibility due to the inaccessibility of a mine and its historical importance which means the space must be unaltered. Geevor maintains constant reflection through “Heritage Champion Volunteers” (Geevor Tin Mine Museum, n.d.-a) where they are searching for volunteers with disabilities to “liase between Geever and people with similar needs as yours, helping us remove barriers and letting others know the opportunities we can offer” (Geevor Tin Mine Museum, n.d.-a).

In fact, many good practice examples look to technology as an accessibility solution. Geevor aimed to make parts of the heritage site that were physically inaccessible, accessible through using technology. To go down into the mine is something that cannot be done by those with mobility impairments and something that the physical space cannot be adapted due to its heritage importance. However, Geevor have explored methods using technology to make this part of their heritage site also accessible. Using virtual reality (VR) technology Geevor created a virtual tour through the mine (Geevor Tin Mine Museum, n.d.-b) for those that otherwise would not be able to experience what it is like to go down into it. This virtual tour offers a creative solution to inaccessible heritage, enabling those with disabilities that prevent them from accessing that part of the site, to still gain a virtual experience of it. This example raises the question on how technology can be included in museums spaces as accessibility feature, whilst itself adhering to the principles of UD and UDL.

Involving disability groups will always be the most effective method of evaluation, even as technology grows, improves and is implemented. In the Glasgow Museum of Transport a temporary exhibition in 2007-2008 was run called ‘Lives in Motion: Transport and Disability’. It focussed on the issue of transport through a disability lens, revealing its

duality to “both hinder and enable the lives of disabled people” (University of Leicester, n.d.). Disability groups were included to ensure the message was empowering, educational and accessible (University of Leicester, n.d.). The exhibit involved multiple stories of disabled people and their interactions with transport done through a section named “Our Journey” using captioned photographs. The exhibit also identified different forms of transportation with a section dedicated to the wheelchair, showing the importance of its place in a museum on transportation exploring its important history and consequently raising awareness.

This followed Article 8 of the UNCRPD of “promoting positive perceptions and greater social awareness toward disabled people” (UNCRPD, 2006, Article 8). The awareness representation creates naturally impacts the accessibility of the space, to have a space representative of disability naturally includes accessibility. This brief exhibition displayed the importance of representation in museums, including disabled people and their stories in an empowering manner, as well as showing that even temporary exhibits can be accessible.

As stated by Gay and Fraser, the impact of representation in museum spaces should not be overlooked due to the significant impact on culture. Whilst representation of disability in film and television, is common, museum and heritage spaces play a key role for persons with disabilities to “understand our history and our place in the development of the society we now live in” (Gay and Fraser, 2008, p.25). Museum spaces and heritage sites have a central role in developing social identities that persons with disabilities can relate to. Accessibility and representation are connected, as improving accessibility of these spaces will promote curators, museums and heritage sites, to engage with disability groups. This can be both in terms of workforce and representation in the space: “Museums are keen to

diversify both their workforce and audiences, yet they want and need additional specialist support to do so" (Fox and Sparkes, 2021, p.4).

In fact, as explored above, methods of review and evaluation from Caulfield et al., and Rix do not include and review representation. Fox and Sparkes have revealed that this lack of representation is a barrier to accessibility as disability history stories and collections are "rarely shared in museums, [and those that are] included are often interpreted by non-disabled staff, leading to exhibitions that do not reflect the authentic, lived experience of disabled people" (Fox and Sparkes, 2021, p.16). This lack of representation means that these communities "rarely see themselves represented positively in museum exhibitions and displays, resulting in the perception that museums are not about nor for them" (Fox and Sparkes, 2021, p.16). Accessibility is impacted as museums show through their exhibits and collections a lack of inclusion of these communities that is then compounded further by accessibility barriers. Gaining an understanding of how disability communities feel towards these spaces is an essential first step when assessing accessibility.

Therefore, designing a museum space that actively involves disability communities is an effective way to ensure accessibility in its multiple forms. However, expanding representation is not the only way to further engage disability groups and encourage collaboration with museums and heritage spaces with other accessible educational practices being supportive of this.

The Sensory Trust are a Non-Governmental Organisation (NGO) that are pioneering accessible practice in museums and heritage sites. They are "a leading authority on inclusive and sensory design… [they] create meaningful and lasting connections between people of all ages and abilities and the natural world" (Sensory Trust, n.d.-a). Their approach combines

both accessibility and quality of experience and view accessibility not “as an obstacle but an opportunity to innovate” (Sensory Trust, n.d.-a) and work closely with people who experience accessibility barriers (Sensory Trust, n.d.-b). They developed an accessibility chain (Sensory Trust, n.d.-c), shown in Figure 1, which provides a full overview of museum and heritage accessibility and acknowledges many of the barriers stated by Fox and Sparkes (Fox and Sparkes, 2021). This accessibility chain will be a useful tool for this research project’s analysis of accessibility.

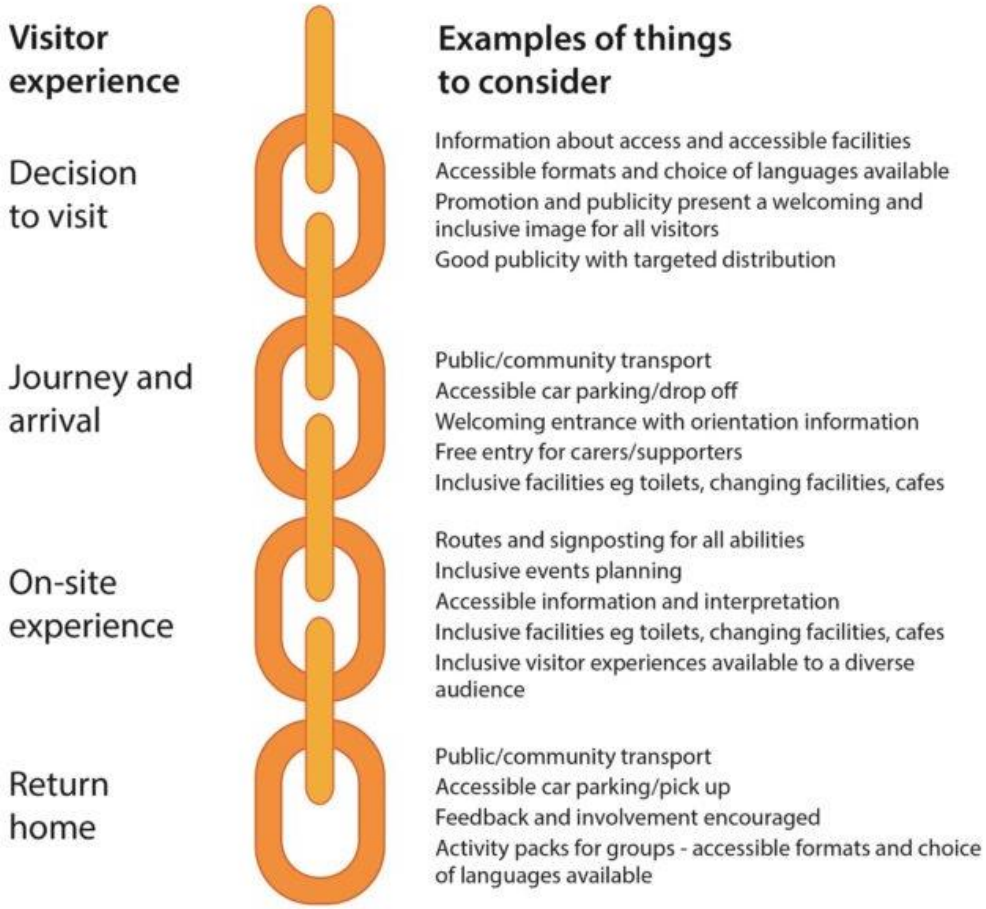


Figure 1: Accessibility Chain Model (Sensory Trust, n.d.-c).

The Sensory Trust, as part of their accessibility strategy, believe that a sensory design to museums and heritage sites is one of the best ways to ensure accessibility to information and is “key to making personal, long-lasting connections” (Sensory Trust, n.d.-d). This

overlaps with Caulfield et al, who recognised the importance of emotionally connecting with the space and others as part of the social experience of the space (Caulfield et al., 2020). The Sensory Trust achieved this through the development of sensory trails and guides for museums and heritage sites using "multi-sensory techniques [which] are designed to engage and connect more people with heritage" (Sensory Trust, n.d.-d). A sensory trail or guide is a mapped and guided experience around all, or part of, a museum and heritage site. It develops the sensory experiences that are already available on-site and maps them. It also further develops new ones with the aim of increasing accessibility and building deeper, more enriching connections for people and communities with heritage. The Sensory Trust stated that designing for the senses can not only increase accessibility but: "Extend a visit, encourage repeat visits, create new routes and experiences for new visits, to ease pressure points and overcrowding, help to plan seating and resting points" (Sensory Trust, n.d.-e, p.6).

As already identified, there are multiple accessibility barriers to museums (Fox and Sparkes, 2021), but access to information is proving to museums and heritage sites the most complicated to solve. From Fox and Sparkes' recent survey, one participant stated:

> Museums and galleries often feel like an extension of 'state' – from their signage to their covert behavioural codes. Whatever the subject, they frequently hold up the culture of a tiny minority (e.g. just Kings, landed gentry etc.) as representing the 'whole' of our country. They have a fetishism of 'objects' above ways of commemorating 'experience' or 'community' – which is not forward thinking. Experience and community are often relegated to a side room or children's activity. (Fox and Sparkes, 2021, p.17)

This "fetishism" of objects and artefacts often leads many museums to focus only on the visual, failing to engage with and capture a more engaging learning experience. It can

also lead museums to focus the principle of care on the objects or the space, and not for those interacting with it (Reiger, 2023). This has led to an imbalance of priority of non-human over human rather than a share between both (Reiger, 2023). This is echoed further by Rieger whose recent research explored the relationship of power and the "predominantly ableist and often exclusionary research designs of storytelling that prioritise speaking and writing" (Rieger, 2023, p.13) found in museums and galleries. Rieger goes on to promote an idea of "counter-storytelling" (Rieger, 2023) something that has often been used and understood "in terms of critical race theory and decolonisation practices and counter-narrative inquiry" (Rieger, 2023, p.14). Reiger defines counter-stories as "narratives that stand in opposition to narratives of dominance" (Reiger, 2023, p.14) and in relation to heritage sites and museums the counter to the dominant "fetishism" of visual narratives (through artefacts and information boards) is multisensorial storytelling.

As "multisensoriality is about the entanglement of the senses and not about privileging one sense, usually vision, over the others" (Reiger, 2023, p.14). Sensory trails in museums and heritage spaces offer an interesting solution to creating a counter-story through the senses. A multisensory story is one that "we look at, listen to, smell and taste, feel and experience" (Fornefeld, 2013, p.80). All these features can be engaged with during a sensory trail. The Sensory Trust state that the aim and use of sensory trails in heritage sites and museums is to expand understanding of accessibility, which means "ensuring that all people feel welcome and able to enjoy experiences of equal value, in ways that are meaningful to them" (Sensory Trust, n.d. -e, p.4), rather than a typical understanding of physical accessibility in spaces.

Creating a sensory trail using multisensorial storytelling works on the principle that "there is no wrong or right way to move through a space, take in a view, or react to something. Sensory experiences not only connect people at a deeper level with nature but also create stronger, longer-lasting memories" (Sensory Trust, n.d. -e, p.6). This matches neatly with Reiger's understanding that "if an environment offers a range of sensory experiences, people with sensory capacities are able to navigate and enjoy it freely, relying on the diverse sensory information they are able to process" (Reiger, 2023, p.98). Through the sensory trail, participants are guided on connecting these diverse sensory experiences that are available in heritage sites and integrate this sensory information into its historical, contextual and cultural importance, presenting a counter-story and furthering accessibility and engagement with the site.

A sensory trail, as stated above, could prove to be an accessibility solution for encouraging disability communities that heritage and museums spaces are accessible, engaging, and welcoming spaces. Spaces designed for all, following the principles of UD and UDL.

The Maltese Context: Addressing the research gap

We have seen that achieving accessibility in museums is built on the foundations of the social model, further informed by universal design and universal design for learning as guiding frameworks. This, coupled with the UNCRPD, adds a power for bringing change in making spaces accessible. Academics and NGOs have now applied these foundations to museums and heritage sites in a way to measure/identify/evaluate accessibility barriers. Some overlapping features such as access on site, costs and access to information can be seen across research and guidelines (Fox and Sparkes, 2021; Caulfield et al., 2020; Sensory

Trust, n.d.-c). New barriers, however, are still being identified such as representation (Fox and Sparkes, 2021) and connectedness to heritage (Sensory Trust, n.d.-a).

To understand where museums and heritage fit in Malta it should be said that there are multiple heritage management groups, but Heritage Malta is the largest, managing 90 different museums and heritage sites (Heritage Malta, 2025). One of the sites of Heritage Malta will form the case study for this research, the rationale for this decision will be further explained in the methodology chapter below.

An example of accessibility to information in museums and heritage outside of Heritage Malta would be the educational science museum Esplora. Esplora, through their learning approach creates an inclusive learning environment that fits well with the principles of UDL (Esplora, n.d.). Esplora also provide staff training through “EsplorAware” to “better realise the meaning and added value of inclusion and accessibility, and to learn how to interact with persons living with a disability” (Times of Malta, 2020). This accessibility focused staff training ensures that staff are able to adapt the information and practical educational exhibits that they lead to the needs of those participating, following closely the principles of UDL, although there are no details as to what this training includes.

Heritage Malta have also made attempts towards accessibility, including adapting their sites to work towards accessibility. Their website can be used to view those sites which are accessible through a narrowing search engine feature, seen below in Figure 2. It is worth noting that the autism friendly sites are only two of the 90 and have specific hours in which

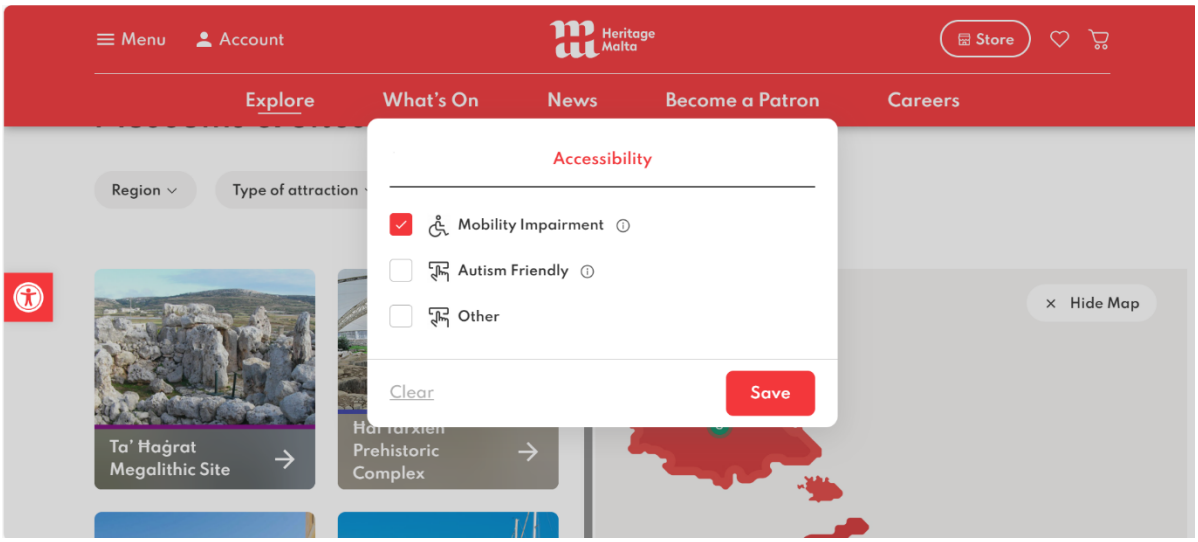


Figure 2: Heritage Malta's Accessibility webpage tool (source: Screenshot from Heritage Malta (2025), Sites - Heritage Malta)

they can be accessed.

As evident, museums and heritage sites in Malta run by various organisations, have started to accommodate disabled people into their spaces. However, the accessibility arrangements in place are yet to be fully assessed and evaluated as explored through reference to local news and websites rather than academic studies on accessibility. This information is also limited depending on the impairment group. Research on accessibility for people with intellectual disabilities is still minimal, even though, as demonstrated above, strategies in museums and heritage sites across the board in Malta have been implementing strategies in an ad hoc fashion. There is still a large improvement since Mizzis' research in

2016 that aimed to build foundations in Malta to gain an understanding of accessibility in museums and heritage sites for people with intellectual disabilities (Mizzi, 2016).

Mizzi was the first to address the research gap on intellectual accessibility in the Maltese heritage context, it is worth noting that there is a ten-year gap between Rix's initial UK based study and Mizzi's work. Their research focused on Heritage Malta as the largest organisation responsible for heritage management and museums on the islands, although their practical assessment focused on the National Archaeology Museum in particular. They drew some clear conclusions from their research, primarily that "keeping interpretation as simple as possible to keep the focus, and deserved attention, on the artifacts" (Mizzi, 2016, p. 116) was the preferred opinion of the research participants, something that contrasted with the curator's own opinions. This contrast shows the essential nature of including a diverse community to give feedback when designing exhibits, including multiple impairment groups. Interestingly, the more recent U.K. based study by Fox and Sparkes in 2021, as discussed above, encountered a preference of persons with disabilities to move away from the artifacts and objects.

Mizzi also highlighted the features that were most engaging for the participants were the "audio-visuals, 3D models and multisensory experiences" (Mizzi, 2016, p.116). The use of multisensory experiences is something that can be expanded on and further improved. As seen, some U.K. museums have recognised that a focused sensory experience as a method of exploration, learning and engagement is a way to improve accessibility as well as forge a deeper connection with museums and heritage to communities. There is also an understanding now of creating a counter-narrative, one that opposes traditional ableist forms of learning within these spaces. This is something that can further address a point

raised by Mizzi that people with intellectual disabilities “would not venture in a museum on their own as they considered museums to be too difficult to understand” (Mizzi, 2016, p.116). A sensory trail adapted to the Maltese context as a counter-story could further support the ease of understanding and accessibility through the way it is naturally informed by UD and UDL and then also create a closer connection between the disability communities and their heritage.

Recommendations made by Mizzi were only the first steps to be taken and could be considered quite limited due to the essential nature of the groundwork being laid. Furthermore, Mizzi was approaching this research project from the lens of cultural heritage management. This means that whilst disability was at the forefront of the project, the angle at which Mizzi engaged with disability was from the practical aspect of managing heritage, rather than prioritising the engagement with disability. This is seen through their conclusive statement the “myth described in the literature that each person with a learning disability requires different specific adaptations to enhance intellectual accessibility” (Mizzi, 2016, p.117). To engage different disability and impairment groups with museums, culture and heritage, it is important to involve them in the evaluation of accessibility; Statements such as this can damage the involvement of multiple impairment groups, assuming minimal engagement can create a ‘one size fits all’ solution.

As seen, assessing accessibility through a formative evaluation process working with multiple impairment groups is the best way to ensure the guiding frameworks of UD and UDL are followed. To assume that all research into accessibility would come up with very specific adaptations and strategies would be an idealisation. However, as researchers, engaging with multiple groups and accepting they may have very different needs is the best

way to discover, both, adaptations that would benefit multiple different disability communities and other wider communities, as well as highlight those specific strategies that might be individualised to one person, group, or community. Mizzi, with reference to Rix (2005), stated that logistically museums are not able to adapt to an individual's needs, whilst this may be true, particularly for smaller independent museums, this does not build the grounds that the need for individual adaptation is a myth to be 'busted'.

Overlapping strategies that can be implemented to support multiple disability groups and communities are the general way forward but are not limiting. As researched by Mizzi (as well as Rix 2005, Caulfield et al. 2020, and represented in good practice strategies above) a "consultation process with different groups of potential visitors" (Mizzi, 2016, p.27) is an essential way forward, since it provides accurate community feedback. As always, evaluation and collaboration remain at the heart of removing accessibility barriers and this can only be done through involvement and empowerment of those communities. As Reeves discussed, reasonable adjustments are complex in the accessibility issues they solve and can create (Reeves, 2012). General overlapping strategies whilst, as Mizzi stated, can be the ideal way forward, can create other complex issues which could even include psycho-emotional barriers (Reeves, 2012). This creates a need for regular review with the experiences of different impairment groups to ensure these 'reasonable adjustments' remain accessible.

In Malta, a research gap is presenting itself. Since Mizzi's ground laying research in 2016 there has been little further research or evaluation of accessibility to information in museums and heritage sites in Malta (notably for people with intellectual disabilities). As evidenced, progress has continued, however without review or evaluation it is unclear whether the sporadic strategies being implemented across Maltese museums are, firstly,

having the desired impact, and secondly, needed by disability communities. It is unclear whether consultation and involvement of disability groups has taken place in the designing and implementing of these strategies, or if the engagement with museums and heritage sites by disability groups within Malta has increased. As seen in the U.K. through Fox and Sparkes (2021), museums are wanting to increase engagement, representation and employment of those from different impairment groups. Whilst museums and heritage sites in Malta have not said the same, we can assess, from the increase in general accessibility strategies, that this is echoed in the Maltese context. In fact, this is evidenced through one museum's public commitment - Esplora in 2021 was reported as signing an agreement for increased accessibility to benefit "some 21,000 people with an EU disability card" (Ministry for Research, Innovation and the Co-ordination of Post COVID-19 Strategy & Ministry for Inclusion and Social Wellbeing, 2021). In the article Esplora acknowledges "that persons with disabilities do not form a homogenous group. Therefore, we take into consideration the needs and aspirations of the individual" (Ministry for Research, Innovation and the Co-ordination of Post COVID-19 Strategy & Ministry for Inclusion and Social Wellbeing, 2021), this highlighted both that museums in Malta want to continue engagement (in various forms) with disability groups, and that review and assessment with multiple impairment groups is essential to identify individual barriers to accessibility.

Conclusion

The literature has revealed many key factors that need to be considered when undertaking a project that will attempt to assess accessibility. Firstly, the continuous evolution of the space must be acknowledged. The essential nature for continuous and regular review is shown once this key element of constant change and evolution of the space

is understood. As explored above, many factors lead to the need for change and review. This could be the advancement and development of technologies that may offer accessibility solutions, or it could be in relation to building engagement with disability communities through improving representation.

Secondly, grounding an assessment of accessibility in a theoretical framework can ensure critical consideration of accessibility in the space. The social model, UD and UDL have all informed the present research to ensure a critical assessment of accessibility features, forming a guiding conceptual framework. This conceptual framework will use these principles, to assess the accessibility of information within the space through the participants' data gathered on the participants' experiences. Other museum accessibility theory will also be considered, such as the access chain (Sensory Trust, n.d.-) and the outcome aims outlaid by Caulfield et al. (2020).

However, the literature has shown these cannot be used in isolation. Working with disability communities and persons with disability is essential in the assessment of accessibility due to the vital information they can provide through their personal experiences, ensuring accessibility issues tackled and assessments made are relevant to persons with disabilities. Working with these groups as participants also ensures research has both a practical and impactful element to making change, when taken into consideration alongside the UNCRPD.

Finally, the debate through the literature around narratives, storytelling, and learning, forms a key part in understanding accessibility to information in museum and heritage spaces. An understanding of dominating learning formats is needed which can then be assessed for accessibility to information. Another understanding of other accessible

forms of learning is also needed, including a clear understanding of how a multisensory learning experience could further support engagement and accessibility to information with the museum and heritage site. This can even relate to a point raised throughout the literature on the social aspect of learning and accessing information within these spaces, multi-sensory learning can support this group learning and social experience. The Maltese context will be essential in developing this assessment through the present research, further exploring the importance Mizzi's research revealed on the objects and artefacts, contrasting that with recent research done in the U.K. (Fox and Sparkes, 2021). The present research will be able to explore this contrast further, working within the Maltese context, looking to both assess accessibility to information in the museum space as well as build on it.

Chapter 3: Methodology

Introduction

This chapter addresses the methods used in the present research project. It begins by looking at the design of the project understanding the philosophical framework and methods and how the research project considered and aimed to maintain an emancipatory approach. An understanding of the tools and sampling methods is given as well as a detailed breakdown of the approach taken to data generation through the participants. The chapter ends with a breakdown on how the results were analysed as well as the strengths, limitations and ethical considerations.

The Design

The aim of this research was to explore the level and quality of accessibility of information in a museum space for people with intellectual disabilities. The study's ontological underpinnings of its methodology are therefore subjectivist (Al-Saadi, 2014). This approach to investigating the accessibility of information in the museum space acknowledges that society is made up of multiple individual social realities. Whilst there is a reality of the space, it is how the individual experiences it that determines its level of accessibility, and this is personal to each individual. Due to the ontological understanding, the epistemological underpinning of this methodology is an interpretivist perspective. The reality of the accessibility of the space is unique to each individual's experience and interaction with the space. Therefore, to understand and explore accessibility, it was essential to work with participants on their experiences to assess the perceived reality of the accessibility.

This research used a case study approach to qualitative analysis. A case study approach involves the detailed analysis of a case within “a real life, contemporary context or setting” (Yin, 2014 p.16; Creswell and Poth, 2018, p.96; Yin, 2018, p.15) to gain a new understanding on a topic viewed through the lens of the case study. The case chosen for this case study was Fort St Elmo and the National War Museum. The approach was an ’instrumental’ approach to understand a specific issue, problem, or concern (Stake, 1995, p.3). The instrumental issue was how accessible the information within a museum is for persons with intellectual disabilities. This instrumental approach directly informed the key research question, which was: How accessible is the information in museum spaces for persons with intellectual disabilities?

Whilst case study research tends to be qualitative there is a quantitative aspect in ‘measuring’ accessibility. A quantitative approach was not done in this study due to the value placed on understanding the visitors’ experience and interpreting it. Using accessibility guidelines to assess accessibility whilst effective in part, can also be limiting. This can be seen through Reeves’ article that often reasonable adjustments and disability guidelines fall short of the experience of the disabled person (Reeves, 2012).

Towards An Emancipatory Approach

This research project and methodology was informed in its design by the principles of emancipatory disability research, set out by Stone and Priestley (Stone and Priestley, 1996). This research, working with an interpretivist understanding, understands that the reality of accessibility is personal to an individual’s own experience and is something that can only be understood with an emancipatory approach. Working from the social model perspective supports this research in its emancipatory approach as inaccessibility is

"culturally produced and socially structured" (Oliver, 1990, p.22). This firmly situates inaccessibility and disability in the inaccessible and disabling environment. This project used the social model to explore and analyse the ways the museum space was inaccessible and thus disabling, meeting the key principles of emancipatory research as it focused on the "identification and removal of disabling physical and social barriers" (Stone and Priestley, 1996, p.5) instead of the impairment. Grupp Flimkien Naslu (GFN), as a disabled persons' organisation, were involved throughout the research project, thus reversing the social relations of research production (Stone and Priestley, 1996). This has been done through focus groups, including an initial focus group that acted in part as an advisory group in the review of questions that were to be answered during the practical museum day.

It was a challenge for this research project to surrender objectivity; the second key principle of emancipatory research. Due to the nature of case study research, observations and analysis by the researcher form key parts of data collection, which is not entirely fitting with the principles. Stone and Priestly stated that "participant observation can only provide 'superficial information'; 'committed research' provides results." (Stone and Priestley, 1996, p.5). The importance of observation is stated by Stake (1995) as forming an essential part of case study research, however, due to this project's importance based on understanding the experience of the participants other data methods were used. The data methods chosen were other ways that case study research can be conducted to still ensure a detailed understanding of the case is given (Creswell and Poth, 2018) whilst maintaining an updated and emancipatory approach to case study research through a disability studies lens.

Furthermore, as part of an emancipatory approach the research must advance and support disability causes (Stone and Priestly, 1996). This research had a clear focus, through

the instrumental question that formed the research question, to offer solutions and assess accessibility of the museum space, giving it clear practical relevance to the lives of the research participants (Stone and Priestly, 1996). This is supported by the definition declared by ICOM renewing importance on accessibility and inclusion in museum spaces, showing that this project is partially linked to political action, "challenging oppression and facilitating the self-empowerment of disabled people" (Stone and Priestley, 1996, p.6). The research also aimed to promote the use of different accessibility features and tools that can be implemented in the heritage sites, done through the explored use of the sensory trail in the Maltese context. It should be noted that the research study was not determined by persons with disabilities, contrary to Stone and Priestly (1996). This was mitigated in part through the inclusion of an advisory group in the research process, to fit the scope of this study. Through the approach taken "to be truly emancipatory, disability research must be empowering" (Barnes, 2014, p.44). This was a key aim of the project, through opening the museum space to a wider audience, and perhaps those that did not feel this space was for them.

Sampling, Methods, and Tools

To complete research using a case study approach, detailed and in-depth data collection from multiple sources is needed. Due to its subjectivist and interpretivist underpinnings, this research acquired much of its data through participatory involvement. Data collection methods involving the participants included two focus groups, a sensory trail designed for the space by me as the researcher, and a museum room experience.

A singular case study approach was used to ensure that a full detailed reply to the research question was gained within the scope of this research project. Fort St Elmo and the National War Museum located in the Fort were selected as a case study as there was no

available research about accessibility of information within the space. It also has a shared cultural significance forming part of the UNESCO World Heritage Site that is Valletta. Furthermore, due to the large outdoor space available at the site, there was space for a sensory trail to be set up and conducted following the guidance of the Sensory Trust. The site is both a museum and heritage site as the museum is in an old fort that predates the foundation of Valletta, following the Great Siege in 1565. The Fort itself remained in use all the way up until after World War II and so has its own rich history that is also explored in the Museum. Furthermore, this site is one of many similar sites across Malta and Gozo, so the opportunity of possible replication of this study are available.

As stated above, the investigation of the case study was completed using participants to ensure the research engaged with their experiences rather than making assumptions based on theoretical models. The participants were recruited from a local disability group, Grupp Flimkien Naslu (GFN), which acted as a gatekeeper. The participatory group was kept small on both the practical days. For the first focus group there were three participants and an accompanying support member of the group. On the second practical day, which involved the sensory tail, museum experience, and a final focus group, there were six participants and an accompanying support member of the group. Small groups were used to ensure that they could be guided and supported throughout the study with enough detail gained for the case study. Approval to conduct the research and use the site was also gained from Heritage Malta.

Participants first engaged with the project through a preliminary meeting called focus group A. Here questions were asked to ascertain their current and past experiences and thoughts around museums. The focus group also acted, in part, as an advisory group, in

which the participants were able to feedback on guiding questions that supported them in understanding and noting their personal experiences within the museum.

Two weeks later, the participants engaged in a practical museum day that was divided into three sections. Firstly, the participants engaged in a sensory trail, a possible solution for future accessibility. The sensory trail was a method to explore history and heritage from a sensory learning perspective that avoided the typical learning and information methods found in museums of information boards. Secondly, the participants transitioned to the museum space where they independently went around two different museum rooms (two rooms were selected due to the constraints of the project as well as the size of the museum) and filled out the prepared questionnaires that were reviewed by the participants in advance. Finally, a concluding focus group was held where the participants could share further thoughts and feedback, both on the sensory trail and its growth for future accessibility, as well as the current museum space and its accessibility.

As stated, two rooms were the focus of the museum and so the analysis should be taken as only partly representative of the full space of the National War Museum. The two rooms selected were narratively connected to each other and the Sensory Trail. This facilitated and supported the learning experience and provided an accurate understanding of the information gained in the intended direction of exploration of the museum. Both the rooms selected form part of the National War Museum's section on World War II.

The sensory trail was designed with this historical narrative in mind. Before the sensory trail was designed a sensory mapping process took place to highlight sensory features that could be used in the design (Sensory Trust, n.d. -e, p.11). The mapping was done by exploring the site with a map and taking time to note the sensory features available.

The sensory trail was designed to be age-appropriate, informative and accessible. Since the UNCRPD Standards on Access for All (United Nations, 2006) does not include any guidelines on how to design an accessible sensory experience to engage with heritage The Sensory Trust handbook was used. They provided examples of sensory activities and good practice examples as well as important guidelines:

> The important things to remember when we are using a sensory-rich and multisensory approach are:
>
> • To not overwhelm with too many sensory stimuli at once.
>
> • To also be aware of overwhelming with an individual experience that is too strong, too smelly, too loud, too bright.
>
> • Enable people to choose whether to participate or not. Give people a means of escape.
>
> • A change in a sensory experience is more notable than an ongoing experience that remains relatively constant. Difference is key, moving from light to shade for example or from a warm room to a cold space.
>
> • Think about physical accessibility when you begin planning and throughout the process to ensure that as many people can enjoy them as possible. (Sensory Trust, n.d.-e, p.11)

These points not only informed the design of the sensory trail but also supported the analysis of its implementation alongside guiding frameworks of UD and UDL. The sensory trail was conducted in a small section of the fort that spanned from the Abercrombie bastion and along the Submariners' Walkway, with both sections playing important historical roles in World War II. To ensure participants were not sensorially overwhelmed, warning was given before activities that contained any strong sensory stimuli, such as the sound workshop that

was done in the bastion. The participants were told they could leave the room at any point they felt it was too much, and the door of the room was kept open. The sound workshops were designed with support of Reiger's 2023 study, which states the importance of experience and learning through sound: "Sound is experienced as a movement… it creates dis/ordered paths to be followed" (Reiger, 2023, p.27).

Choosing an initial location for the sensory trail proved challenging, as areas that had sensory features were not always accessible, and so selection was narrowed because of this. Difficulties of data generation were encountered on the second practical day when trying to keep within the time allotted for the data generation. We ran over slightly by around 15 minutes and meant that we did not spend as much time as initially planned in the museum itself, however, all the participants completed the questionnaires relating to the accessibility of the space.

Analysis of Results

The case study was analysed through the forms of data generated; focus group A, the sensory trail, the museum experience, focus group B. Both focus groups were recorded and transcribed, and a thematic analysis (Creswell and Poth, 2018) then took place. Reading through the transcripts initial codes were created through highlighting meaningful parts of the transcript. These codes were then examined for overlaps and patterns and grouped into broader categories which then developed the key themes and sub-themes that formed the data analysis. The process was inductive with themes emerging from the data, this was done to enable the focus of the data to remain on the participants' personal experiences. Three key themes were generated from the data gathered through the focus groups. These themes formed a framework for understanding and measuring accessibility of the case study. Each

of these key themes had their own sub-themes that supported the depth of understanding of theme.

The analysis of the museum space was supported by the questionnaire data gathered from the pre-prepared questionnaires that were reviewed in advance by the participants. The data forms contributed to providing a large case description that was explored through the themes generated from the data and interwoven with the participants' past experiences and feelings towards accessibility of information. The guiding framework of the principles of UD and UDL were supportive in the analysis of accessibility of information in the space. To ensure trustworthiness of the data the quotes from the transcripts were presented verbatim. This meant that the analysis represented the thoughts, feelings, and interpretations of the participants and their accessibility experience.

Strengths, Limitations and Ethical Considerations

The main strength of this research lies in its involvement of emancipatory principles. The use of participants to capture their experiences and feelings towards accessibility ensured that the research was guided by the accessibility issues that persons with intellectual disabilities encounter, rather than what is assumed through using theoretical models. The use of frameworks such as UD and UDL supported the work towards impactful solutions, working alongside the participants' experiences.

The assessment of the sensory trail in the Maltese context was another strength of the research, assessing a new way to engage with museums and heritage spaces. Multi-sensory learning can offer a solution to the ableist, visually dominated, learning methods of museums and heritage spaces. The testing and implementation of a sensory trail lays the

groundwork for museum and heritage spaces to build upon the ideas of accessible learning, removing barriers to accessing information.

The details gathered on the case study, through a case study approach, was another strength of this research, granting a detailed understanding of accessibility to information within Fort St Elmo and the National War Museum. The case study selected is also one of other similar sites, a museum located in an old fort. Whilst Fort St Elmo has its own specific context, the solutions and approach to the research may be replicable in these other sites, notably the implementation of sensory trails.

There are a few limitations to this study that have been considered. Whilst the group was kept small to ensure thorough support for the participants throughout, it also limited the sampling size. Detailed data of the six participants experiences were gathered, but they are not representative of all persons with intellectual disabilities. It is also important to remember that participants chose to come forward to take part in the research project and so they may have already had an interest in museums or accessibility which could have influenced the data gathered.

Due to the nature of case study research, it is difficult to generalise due to the small sample size (Stake, 1995). There is also limitation in the level of comparison that can be done, particularly in a single case study approach. However, the level of understanding on the complex issue of accessibility in terms of the case chosen, will be far greater. The inability to generalise expands from the museums space to also the study's use of emancipatory research principles. The project involves key individuals with intellectual disabilities to ensure that an understanding of their experience is gained. However, this is a

very small sample and, as stated above, only relates to their personal experience. It is ultimately not fully representative of the larger disability community.

Whilst a strength of case study research is its ability to create an in-depth picture, this can also be a limitation. If one does not have enough information about the case study to present an in-depth picture the value of the study is limited. This has been mitigated through using a variety of data and research methods that have been set out above. These methods have ensured complete understanding, enabling an in-depth picture of the case. Finally, sensory trails in heritage sites are something new to Maltese heritage sites and so unknown variables and complications came out during the designing and implementation. This has been mitigated through extensive preparation on how to design and implement a sensory trail, following guides developed by the Sensory Trust, good practice examples, and conducting initial sensory mapping exercises. The sensory trail, and the adaptations designed were site specific, any trial designed for other sites would again need specific adaptations.

Certain ethical considerations were taken to ensure that the investigation could be conducted safely. Permission was requested and gained through Heritage Malta via email and further confirmed in a meeting with the stakeholder and the research was given approval by the Faculty Research Ethics Committee (FREC) board at the University of Malta (See Appendix 1). Care was also taken when designing the sensory trail to ensure the heritage site remained respected throughout. Considerations were also taken around the recruitment of participants with intellectual disabilities and their participation in advisory groups. Throughout the project, all information presented to the participants was done so in an accessible format (except the museum space which was left as designed by Heritage

Malta to not interfere with findings). Credibility was ensured through the project while working with the participants in multiple ways. The time spent with the participants over the two research days enabled me to build a rapport and understanding with the participants. They also had an assistant with them who helped in translation where needed and was someone they knew and trusted.

Conclusion

This chapter has addressed the methods and approaches taken by this research to answer the research question: How accessible is information in a museum space for persons with intellectual disabilities. The research is emancipatory, following the principles of Stone and Priestly (1996) where possible. The research project focused on understanding accessibility through the participants' experiences, positioning them as the experts on how information is or is not accessible to them and their personal experiences. This was done through multiple data generation forms that created a clear understanding of the accessibility to information in the space and how it could be improved.

Chapter 4: Findings and Analysis

Introduction

This chapter will present the data gathered during the research, in its different forms, and analyse through themes elicited from the data. The presentation of findings and their analysis will be combined to support understanding of the participants' experiences. The chapter will be divided as follows: a list of participants, a description of activities completed for data collection, and presentation and discussion of themes and sub-themes elicited from the data. The activities and data methods will be presented chronologically; in the order the fieldwork was completed. This will enable an understanding of the participants' experiences as they engaged with the research and the accessibility of the space, supporting the epistemological and ontological approach of the research. Finally, the analysis will be explored through three sections, one section for each theme.

Participants List

Below is a list of participants through the pseudonyms assigned to them:

Focus Group A:

Lucy

Liam

Emily

Sophie

Focus Group B:

James

Oliver

Liam

Sophie

Emily

Lucy

Chloe

Activities

Focus Group A

To explore the development of the participants' experiences and engage with those directly involved, a focus group was completed at the start. Focus group A was completed on the first practical day, and the rest of the activities were completed on a second practical day. Focus group A was completed with three participants and an assistant. The aim of this focus group was to gain a base understanding of the participants' background and past experiences with museums and heritage spaces, giving opportunity for them to voice and express their opinions. It has often been argued, within heritage and disability research, that there is a lack of representation of disability in these spaces (Fox and Sparkes, 2021). This frequently leads to conclusions that "museums are not about nor for [people with disabilities]" (Fox and Sparkes, 2021, p.16).

Focus group A was divided into three parts. Firstly, a visual exercise was completed where pictures from museums around the world were shown. This was aimed at sparking initial thoughts and debates around museums and accessibility, with participants encouraged to share their thoughts and talk openly as a group. The images chosen were selected to draw upon different ideas and aspects of museums (See Appendix 2). These were related to the space both inside and outside the museum.

Secondly, the participants engaged in a group discussion which was partially guided with pre-prepared questions seen in appendix 3. Other questions were also asked to get them to expand and go into more detail about topics and areas related to museums and accessibility that they touched upon which were not considered in the questions above. This was done to draw out their personal experiences. Finally, focus group A concluded with a co-production exercise, where participants could directly inform the questions, and presentation of the questions, that were to be used in the next session of fieldwork, the museum experience.

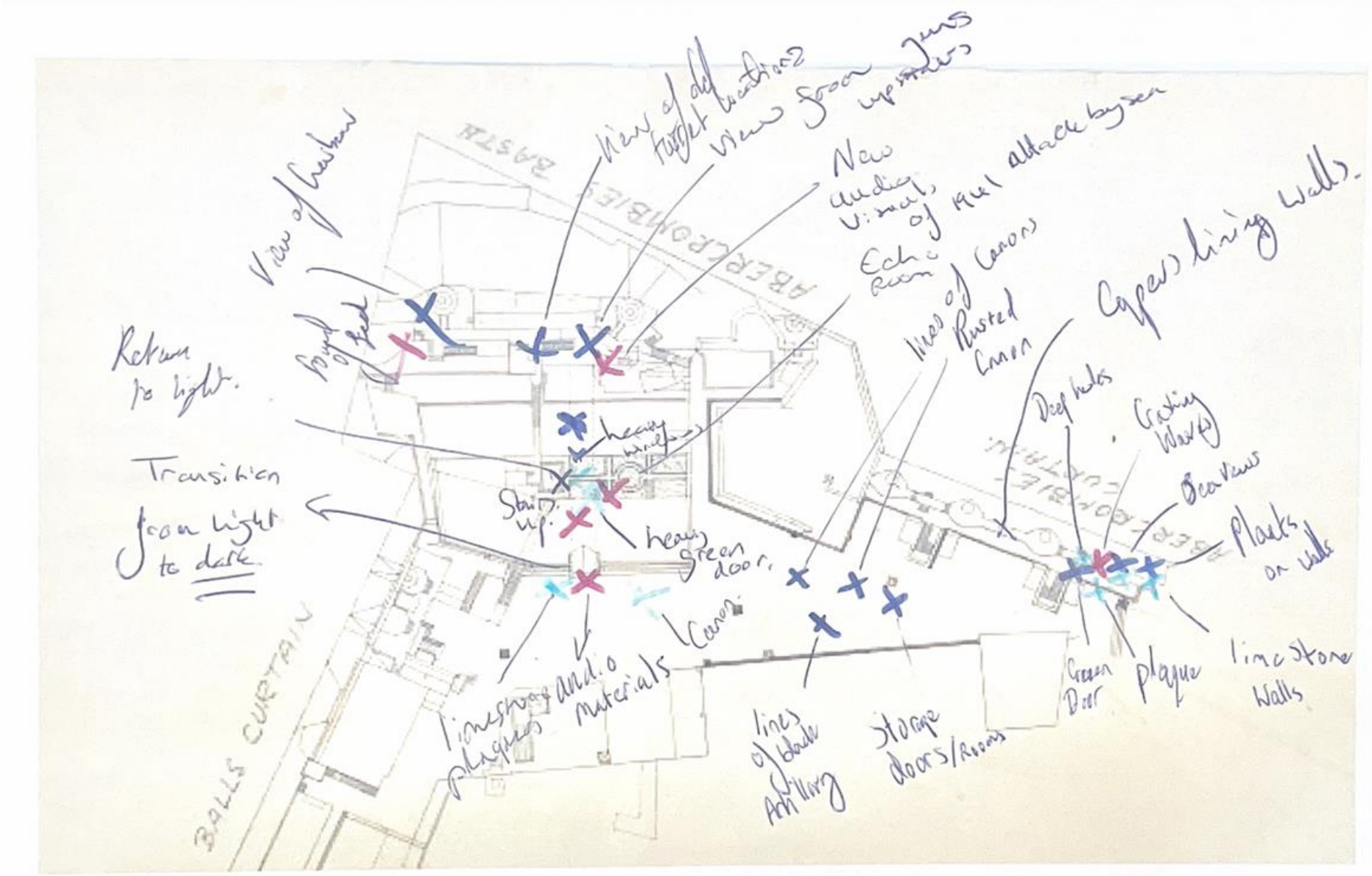
The Sensory Trail

The second practical day had six participants and one assistant and began with the Sensory Trail. As mentioned previously, museum spaces are ever changing and naturally evolving spaces (Rieger, 2023). Whilst this presents challenges to accessibility, it also provides an opportunity to implement positive changes. This research worked on developing a “counter-storytelling” (Rieger, 2023) experience, this being an experience that focuses on counteracting the dominating visual storytelling narrative in museum spaces for a multisensorial engagement experience.

To initiate the development of a sensory trail at Fort St Elmo, the main five senses were considered in ways they could occur in the space. As noted by the Sensory Trust, more exist which could be used (Sensory Trust, n.d.-e p.8). For example, an understanding on the importance of a sense of place is also needed, this being the "bonds and attachments – emotional connections – that people have with somewhere" (Sensory Trust, n.d. -e p.8). A sense of place directly relates to a visitor experience context, looking at a combination of both stories and sensory experiences "that together capture the character of a site, location or destination" (Sensory Trust, n.d. -e p.8). It is essential for a sensory trail to aim to capture this sense of place due to the powerful physical and emotional responses it can create between the individual and the cultural heritage space. As discussed in the methodology, when designing the sensory trail certain considerations were taken in the approach, notably to not overwhelm participants with too many sensory stimuli or with a strong induvial sensory experience (Sensory Trust, n.d. -e p.9).

A mapping technique was used to design and understand the multisensory experiences available that could be tapped into and developed into this sensory trail and counter-story. Sensory mapping is a technique that identifies sensory highlights aiming to create inclusive and engaging visitor experiences. In Figure 3, there is the sensory map that was initially created by me as the researcher to note strong sensory stimuli whilst exploring the site. To avoid mapping too large an area, I focussed on one part of the Fort, with an area chosen that would be physically accessible, engage with original features of the Fort, and have sensory experiences available. It is also worth noting that sensory experiences can be heavily seasonal – a sensory experience during winter months could be very different than during summer months. For the purpose of this research, the sensory mapping and sensory

Figure 3: Sensory Mapping



year may yield different sensory stimuli that could be used.

The sensory mapping highlighted numerous features around the Fort's walls, notably the Submariners' Walkway and the Abercrombie Bastion. Figure 3 shows the variety of sensory features available in a colour coded fashion to be able to determine the different features. From this sensory mapping I was then able to create a sensory trail, using some of the key sensory features noted. The map of the route taken can be seen in Figure 4 and the full sensory trail plan can be seen in appendix 4. When framing this sensory trail, it was important that it became a counter-story of the Fort, a way to access the history through all the senses. The narrative used in the trail highlighted that many of the sensory features that were explored on the trail were timeless; features that soldiers stationed at the Fort throughout history would themselves possibly have experienced. The sensory trail provided an opportunity for the participants to experience history from a different angle, no longer

Figure 4: Sensory Trail Stops

exploring the past through 'fetishised' (Fox and Sparkes, 2021) objects and artefacts or a

dominating visual narrative (Rieger, 2023), but through timeless sensory overlaps and sensory-based activities.

Another consideration when designing the sensory trail was overlapping the museum experience with its historical narrative. The aim was for the trail to be related to the museum spaces that the participants would be interacting with. This meant that the trail focussed on the history of the Fort during the World War II, when Malta was under the control of the British. Ultimately, the sensory trail is there to complement museum experiences and further support learning. The sensory trail lasted between 30-45 minutes as we moved from outside the Abercrombie Bastion, finishing just at the end of the Submariners' Walkway. The route of the sensory trail also included three activities.

These activities were two sound workshops and a texture workshop. The first sound workshop was done in a tall, small room inside the Abercrombie Bastion. The now empty room is an original feature that had a noticeable echo that would help participants relate to the history of the room through exploring how sound operated in that space. Different objects were used to create sound in that space, a few are seen in Figure 5, to allow an understanding of the sound-based challenges soldiers may have faced when communicating. The second sound workshop was done on the Submariners' Walkway. A contrast was drawn between the sounds we could hear on the wall of the walkway, sea, wind, birds, and the ominous quiet aboard a submarine. The communication methods aboard the submarine were then explained:

> Submariners use walkie talkies now, but in 1944 speaking tubes were used to communicate with the rest of the vessel. Some modern submarines still have these speaking tubes which can be used in back-up situations. (Imperial War Museum, n.d.-a)

Speaking tubes (tins with string) were then handed out for the participants to use and experiment with as a group to foster an understanding of the historical context.

Figure 5: Sound workshop items

The final activity of the sensory trail consisted of a texture-rubbing workshop. In this, the participants were given an embroidery ring with some fabric pulled tight within it and a fabric crayon. By placing the fabric over a textured surface and rubbing the crayon on top, the texture pattern was transferred to the fabric, leaving a lasting imprint. Places where texture imprints could be gained were noted (an example can be seen in Figure 6 and 7) and

Figure 7: Texture example

Figure 6: Texture example

participants were allowed to explore the space creating their own texture rubbings. The texture rubbings done by the participants can be seen in Figure 8. Each of these texture rubbings around the Fort were linked to information revealed and talked about on the trail, be that directly related to the submarines that were once linked to the military history of Malta and the Fort, or textures from the Fort itself such as the walls and doors.

Figure 8: Texture rubbings by participants

The Museum Space

The museum space was assessed for accessibility in two rooms prior to the activity. Both the rooms chosen were linked specifically to World War II, Room 4 and Room 5. This was done to create a strong connection with understanding the space of the Fort in its World War II context, with the support of the sensory trail. The participants went through the rooms in order and had the prepared co-created question sheet (appendix 5) prompt to support them in their analysis of accessibility. The questions chosen were informed by both the UD, the UDL and other examples of museum accessibility analysis and practice. As stated, the participants of the first focus group also had chance to inform any changes needed to be made to ensure the question sheet and questions were accessible. Necessary changes were then made before the second fieldwork day.

The participants filled out the sheets independently and used a new copy of the same sheet for each room. Figure 9 and Figure 10 show the layouts of room four and five.

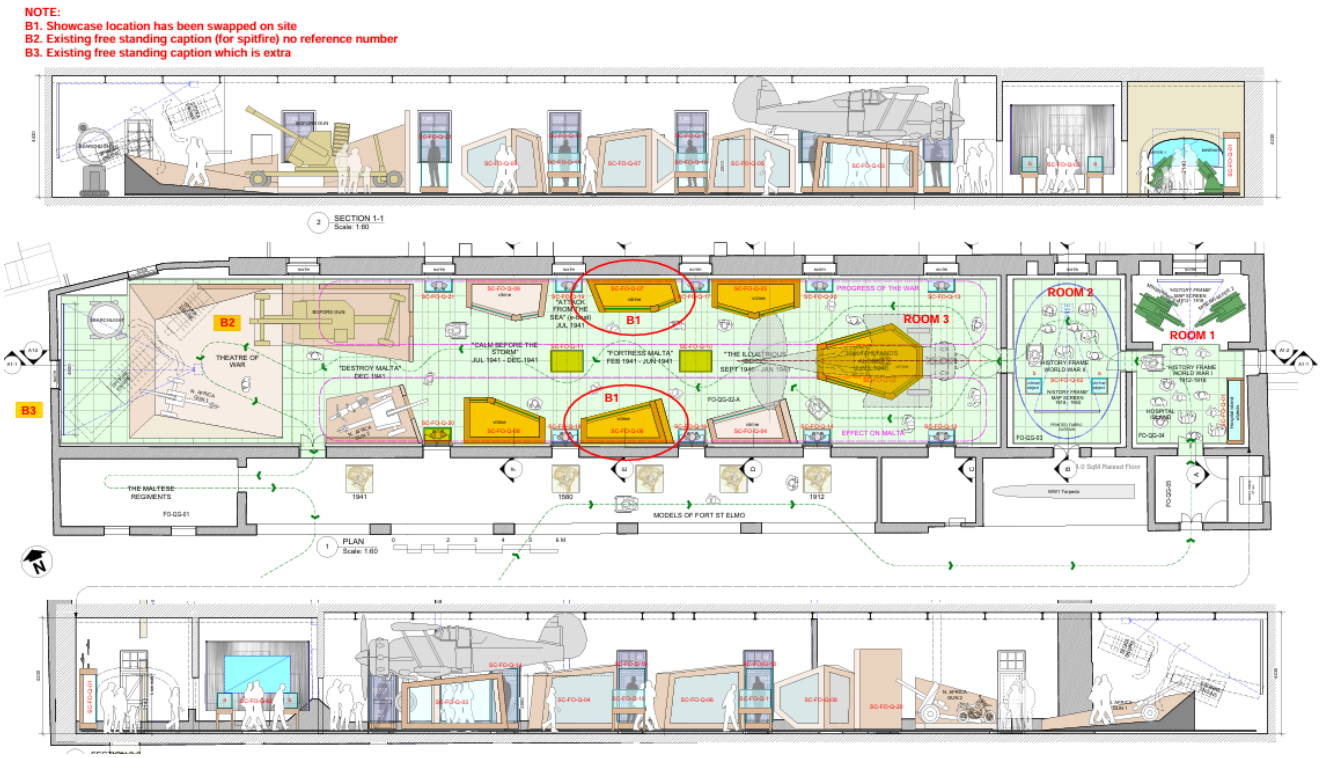


Figure 9: Room 4 Layout

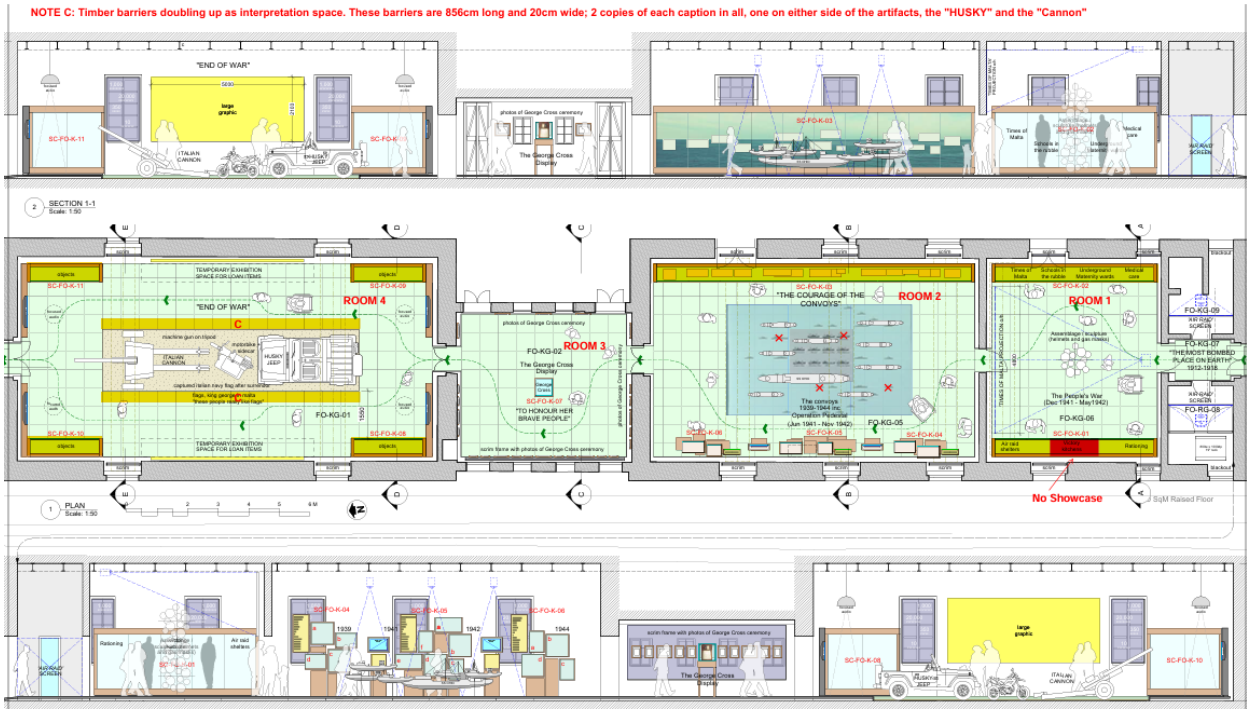


Figure 10: Room 5 Layout

Table 1 below shows the data collected from Room 4:

Table 1: Questionnaire results from Room 4

Questions:	Agree	Sort of Agree	Do not agree	No Response
I know which way to go around the room.	4	1	1	0
The objects on display are interesting.	4	1	0	1
I can understand what the objects on display are.	5	0	1	0
I can understand why they are important.	3	2	0	1
The information with the objects is easy to read.	3	0	3	0
The information with the objects is easy to understand.	1	1	4	0
The activities in the room are easy to understand.	1	2	3	0
The activities in the room are fun to do.	5	0	1	0
The audio materials are easy for me to hear.	5	1	0	0
The audio materials are easy for me to understand.	4	0	2	0
I have learnt something new from this museum room.	5	1	0	0

Table 2 below shows the data collected from Room 5:

Table 2: Questionnaire results from Room 5

Questions:	Agree	Sort of Agree	Do not agree	No Response
I know which way to go around the room.	4	0	2	0
The objects on display are interesting.	6	0	0	0
I can understand what the objects on display are.	3	1	2	0
I can understand why they are important.	4	0	2	0
The information with the objects is easy to read.	4	0	2	0
The information with the objects is easy to understand.	5	0	1	0
The activities in the room are easy to understand.	5	0	1	0
The activities in the room are fun to do.	6	0	0	0
The audio materials are easy for me to hear.	6	0	0	0
The audio materials are easy for me to understand.	3	0	3	0
I have learnt something new from this museum room.	5	0	1	0

Focus Group B

Focus group B was completed at the end of the second practical day, after both the sensory trail and museum exploration were completed. This was done to allow the participants' personal experiences and thoughts related to all the previous activities to come out. This was an open discussion that was partially guided and related to both the sensory trail and the museum. All parts of the fieldwork were completed at Fort St Elmo, the location of the National War Museum and the case study of the project.

Themes

For the focus groups, three core themes were elicited from the data. It is worth noting that focus group A focussed on the participants' past experiences and feelings towards museums, and focus group B focussed on the participants' experience of the sensory trail and the museum experience. Sub-themes were also generated from the data provided to show the breadth and variety of the participatory responses that relate to each of the key themes. Table 3 below shows the relation between themes with key themes in bold at the top, and the sub-themes listed below them. Some sub-themes bridged both focus groups (A and B) where others were only seen in one (A or B). These have been indicated with (A) for only focus group A and (B) for only focus group B. Where there is no lettering, this means both focus groups touched upon the sub-theme.

Table 3: Themes and sub-themes elicited from the participants' responses in focus group A and B

Space	Museum Forms and Learning	Language
Movement	Types of Museums (A)	Written Readability
Navigability (A)	Objects	Written Understandability
People (A)	Learning Formats	Speech (A)
Rest	Storytelling (A)	Audio (A)
Tiredness	Time (A)	
Feelings (B)	Senses (B)	
	Activities (B)	

The themes 'Space', 'Museum Forms and Learning', and 'Language' were all developed due to both their frequency and importance to the participants when asked about accessibility of information. The theme of Space relates directly to the physical space, the things within it, and the way the participants experienced it. Space was a key understanding fitting into the social model approach, of a disabling inaccessible space, expanding on ways it can be both accessible and inaccessible (Imrie, 1996; Hall, 2004). Museum Forms and Learning relates to how learning within the museum is experienced and accessed, covering the broader learning techniques seen through the UDL. The theme of Language covers the more direct understanding of learning and access to information within the space. A frequently mentioned issue in the focus groups related to ways in which language was accessed and engaged within all its forms.

The themes will now be presented and discussed. A complete list of quotations can be found in appendix 6, below key findings have been selected, quoted and discussed.

Space

Space formed a central key theme throughout the research, with a social model understanding of disability exploring the ways in which the space was en/disabling (Hall, 2004). Space is defined in the present research in the physical sense. This means, how a room is laid out and how people can interact with that physical space. It is important to note here, that whilst this research project is focussed on understanding accessibility to information, it became clear throughout working with participants that the physical space and the information/learning space were heavily connected for them. This will be further explored below.

Movement was understood in two ways by the participants, in a positive and negative light. To the participants, freedom of movement was extremely important for accessibility to information. When shown Figure 14 in appendix 2 during the first exercise of focus group A, which shows large wide stairs and long corridors one participant stated, “For ADHD and autistic people, they can use the space where they can go upstairs or where they can run” (Emily). The access to space for movement, for this participant, was a key accessibility feature, something similar to a movement break that persons with intellectual disabilities are given in education settings. In fact, this opinion was seconded by another participant: “Yes, because, for example I am a person with ADHD and for me that is good” (Liam).

The opportunity for movement in educational settings adheres to the UDL, providing support for action and expression in the form of accessing materials, as well as supporting

engagement addressing distractions and sitting tolerances (CAST, 2024). The benefits of the ability to move were listed by one of the participants, “and that is for them to be, to calm themselves down. And so that they can have, some exercises of walking and even to explore everywhere. So, they might feel comfortable when there are not people near them” (Emily). This implies that accessing the information in the space can be at times overwhelming through multiple stimulants. This places importance on the space to provide persons with intellectual disabilities the freedom to move to a quieter or emptier space, or simply participate in a physically active calming method, should they become overstimulated.

When a space provides opportunity for movement, it caters for certain accessibility needs. However, the space can also create a barrier to the accessibility of information, through the way it is accessed physically. Across both focus groups the importance of ramps instead of stairs was mentioned: Focus Group A “Why there are stairs, not a ramp?” (Lucy) or Focus Group B “There’s no ramp. If someone is in the wheelchair, they don’t- can’t go up to see it.” (Lucy). Wheelchair access generally came up when related to manoeuvrability and movement, again in both focus groups: Focus group A “I think this is [a] smaller building, if a person with someone in a wheelchair, and that person is with a group… how can they manage to go [round]?” (Lucy) or focus group B “There’s room for a wheelchair as well.” (James). A physically limiting space was related to an understanding of preventing access to information. If movement for disabled people is restricted, then they cannot access the information presented in the museum, regardless of how accessible the information itself is. While the present research did not aim to look at physical accessibility, for the participants the physical accessibility was important for understanding the accessibility of information.

Fort St Elmo, including the National War Museum, situates itself neatly within this duality of movement accessibility positives and negatives. The space of the Fort is very large, meaning opportunities for visitors to have freedom of movement is possible, away from crowds and information. The rooms are even separated by outdoor spaces, so all visitors can engage physically with the space as they move around the site, maintaining movement breaks that are free of information. However, as discussed by participants, the fort remains inaccessible in areas where ramps have not been constructed. One lift connects the ground floor with the first floor where all the museum rooms are located, with the participatory group having to use the lift in two small groups due to its size. Principle 7 of UD, related to size and space for approach is met, with the space being accessible to move around and through it (Institute for Human Centred Design, n.d.). However, the space is limited at times through physical access, not always meeting this principle.

Furthermore, as seen in figure 9 and 10, whilst the space of the Fort is large, the rooms themselves are quite long and narrow, notably Room Four and Five which were central to this study. Whilst accessible physically, with one participant confirming the ability for wheelchair manoeuvrability in focus group B, if large numbers of visitors are present in one room space, this could create an inaccessible environment, failing to meet an outcome aim for the visitors to physically interact with the space (Caulfield et al., 2020). When talking initially about museums in focus group A, participants often touched upon their concerns in accessing information with others around: “however, if they can be too close together with other people, it might be hard to make themselves comfortable, because they can have panic attacks, and even need to go out for fresh air” (Emily) or, “seeing those nice and beautiful things without chattering, and not thinking a lot of thoughts in our heads” (Emily).

Large numbers of people present an accessibility barrier both for the UD in principle 5 of perceptible information, as well as the UDL's engagement principle (CAST, 2024).

On the day of the visit, there were not many people in the space with the participants. However, as noted when designing the sensory trail, this was during the winter, where the number of tourists in Malta is far less than during the summer months. A key tourist attraction such as this, with these narrow rooms, may prove to be an inaccessible space were this study to be repeated during peak tourism season. This creates a new aspect of inaccessibility based around the times of the year to visit. Persons with disabilities who cannot function well in crowded spaces would have fewer options to choose from regarding when to visit. The amount of people in a space can negatively impact the accessibility of information creating both distractions and/or making persons with intellectual disabilities feel anxious and uncomfortable. From the questionnaire completed of Room 4 which was busier than Room 5, four out of six participants stated that they did not find the information accompanying the objects understandable. Perhaps this could be related to the people in the museum with them on the day that made it difficult to access the information. In fact, accessing this information is only partly influenced by the people in the space. There is the important aspect of whether the information is easy-to-read, as well as easy to get to physically to both physically interact with the space and cognitively engage with it (Caulfield et al., 2020). Here it is clear that for information to be accessible there are multiple barriers which must be addressed.

The duality of space was seen again in the subtheme related to tiredness. It has already been seen that large spaces and opportunity for movement was an accessibility positive to some participants, however, this must be carefully managed. One participant

shared their struggle with large spaces that were physically demanding in focus group A when speaking on their past experiences in museums and heritage sites:

> When we went to the castle [pause] There was a lot of stairs. And not a lift, they don't have a lift. Only stairs. And I tell my mum, listen, I am tired, OK. To go [pause] and to have to go see more. There were many things to see, but there was the bigger problem, you know, it's the stairs isn't it. (Lucy).

This participant, while able to use stairs, grew tired navigating around the large and physically demanding space, which then prevented them from being able to access the information due to being tired and fatigued. There is a relationship between their experience and the National War Museum at Fort St Elmo due to the large space the fort covers and the distance between the rooms of the museum. Principle 6 of UD on low physical effort states that "the design can be used efficiently and comfortably, and with a minimum of fatigue" (Institute for Human Centred Design). Again, this is only partially met in this case study, whilst the participants did not relate their personal experience to a physical tiredness traversing the space, they were only required to go around a small section of the museum and Fort. When they were asked in focus group B how they might have felt going round four more of the museum's rooms, there was a mix of feelings: "Ok, tired, yes I think." (Lucy), "I'd be tired." (Emily), "Happy" (Liam) and "Excited" (Chloe). Ultimately, a balance is required where participants can navigate the museums with low physical effort, but able to access a larger space for movement if needed.

This already indicates a complex accessibility issue to solve with there being two dimensions to the large space that affords places for rest from sensory overload but creates physical tiredness. Creating a space that has both size and space for those who need it, but creating one that is low in physical effort is a challenge. However, the participants discussed an accessibility solution to this tiredness that is brought on by the demands of the space.

One of the subthemes of space shows an understanding that rest was essential if people were to access the space and the information in it. In focus group A, participants discussed the importance of places to rest in museums and heritage sites: “and even we need to have refreshments with each other and some time to do our business” (Emily) or “I like it because you can take rests, if you want. But urm, I am thinking that [Emily’s point] was very good, that we had a break for half[way through]. Its good. And they give us some refreshments” (Lucy). To the participants, it was clear that to access the information, there would need to be opportunities to take breaks from the demanding physical space, and learning formats of a visual nature, such as reading written text. This was even related to the space of Fort St Elmo, in focus group B when asked if there were enough places to rest three participants stated “No, it was not enough” (Chloe) and one directly stated, “for me it needs more chairs” (James). The principles of UD and UDL do not directly discuss the need for spaces that provide opportunities for rest. However, from the results of the present research, it is clear that, for these participants, spaces to rest were important to their accessibility. This is an example of how spaces may follow some of the principles of UD and UDL whilst still not being fully accessible.

Taking this further, we can see that principle 6 of UD covers low physical effort (Institute for Human Centred Design, n.d.), but this is not inclusive of an understanding of rest. This could also include a relation to principle 3, with designs needing to be simple and easy to use (Institute for Human Centred Design, n.d.), but again, this principle does not discuss the need for rest in a space. It could be argued that a space can require low physical effort, and be simple and easy to use, but this would not necessarily remove the need for rest for persons with intellectual disabilities or with other disabilities. Working through the participants’ experiences, we can see that the principles of UD and UDL are not always

inclusive of the full experience of persons with disabilities. The eventual need for rest, even in spaces that closely follow the principles of UD and UDL perhaps relates to the engagement with information and learning. If the average time of a visitor spent in a museum is 4 hours, this is a long period of time to take in information without a break or rest. This highlights the arguments by both Reiger (2023) and Imrie (2014), that whilst guiding frameworks such as the UD and UDL are supportive in designing an accessible space they might not be directly representative of the disabled persons' experience. As discussed by Imrie, UD has been applied without the involvement of disability groups (2014), which as highlighted here, could lead to missing important parts of accessibility for persons with disabilities.

The participants expanded on the ideas of rest, incorporating an understanding of the outdoors and the natural environment: "Especially, where they have a garden outside. Because people they can go for a walk around the garden and to rest themselves" (Emily). This is an important point, as mentioned already, Fort St Elmo has several large outdoor spaces operating as a passageway between rooms. This outdoor space is something that could be utilised as areas of rest to ensure accessibility to the museum exhibits and the information about them. Providing a place of rest in this outdoor area would not only cultivate this stronger connection to the heritage, but it would also support in accessing it (Sensory Trust, n.d.-a; Caulfield et al., 2020). These outdoor spaces, as explored, may even provide methods of alternative accessible sensory learning using sensory trails (Sensory Trust, n.d.-d).

As discussed already, the Sensory Trust believes these outdoor spaces support visitors and communities in building an emotional connection to the space (Sensory Trust,

n.d.-d). In fact, use of the outdoor space engaged with the subtheme of participants' feelings and emotions directly. When discussing the sensory trail, an outdoor experience, in focus group B participants relayed a positive experience with one stating, "I felt good, I enjoyed it" (Sophie). Challenges of the spaces were also found in the sensory trail relating to one of the sound workshops. When designing the sensory trail, as mentioned in the methodology, specific considerations were taken: "To also be aware of overwhelming with an individual experience that is too strong" (Sensory Trust, n.d.-e, p.11) and to "enable people to choose whether to participate or not. Give people a means of escape" (Sensory Trust, n.d.-e, p.11). As described, the sound workshop was completed in a small room with a loud echo, where the participants were given objects to make noise with. Before this began, participants were told that any point if they felt overwhelmed, the door was open, and they could move out of the echoey room. They were also encouraged to inform me should they not be able to reach the door. When asked whether participants felt overwhelmed from this exercise in focus group B they stated no, but there were mixed feelings about whether participants would have felt comfortable to leave the activity or inform me, as the guide of the trail, should this have not been the case: "So Emily said that they would have felt comfortable telling you, however Liam said he wasn't sure if he would have felt comfortable telling you" (Sophie).

These replies indicate that the trail was designed well, as there was not a sensory overload. However, whilst steps can be taken to ensure accessible practice, a sense of comfortability and psycho-emotional disability are at play (Thomas, 2004). As Reeves (2012) explored, if the reasonable adjustment is too distressing to use, persons with disability will not use it. The idea of psycho-emotional disability is not directly covered within the guidelines and framework of UD and UDL. A site may follow all the guidelines yet still not create a sense of comfortability and as such have accessibility barriers. The participants of

the present research, by explaining that they would not necessarily feel comfortable asking to leave the exercise, shows the essential nature of review and co-creation of accessibility and accessibility features with persons with disabilities (Caulfield et al., 2020), to ensure the features are supportive and useable.

The understanding that the participants had of navigability overlapped with this aspect of accessibility features being simple and not distressing to use. In focus group A the participants were shown an example of a museum that used different coloured feet on the floor to ease understanding on where to go in the space (see figure 17, appendix 2). This is something participants directly related with: “Those footsteps, they show us where we can get out or where we can have a canteen, like a drink or a snack” (Emily). In this example the participant touched upon two key accessibility themes that the discussion on space has already brought out. First, the idea that movement and breaks are needed, and this navigability feature could provide it more easily. Secondly, rest from engaging with the learning is needed and these footprints can support locating that. Finally, the markers decrease the cognitive load required to make one’s way to the next part of the museum, supporting their experience. The understanding was clear that these would provide a reasonable adjustment that was not distressing to use: “So the people with autism and other types of disabilities, it will lead them to a right place. So, they will not end up confused and frustrating themselves, on where they have to go. It's so they won’t get lost” (Emily). It was even relatable to one participant’s experience of other services, where they described how hospitals sometimes use the same system: “I think this is, this is like for the MRI. This is like when I go to get X-rays and MRIs, they have the footsteps and they tell you where to go, for example on blue, on the blue line” (Lucy). This shows that, where common accessibility features are used within multiple services, they would support understanding and

confidence of use due to frequency and familiarity of use. These navigational accessibility features are key for supporting both access to information, as well as understanding the museum design (Fox and Sparkes, 2021; Caulfield et al., 2020).

The museum at Fort St Elmo does not operate with this system, nor does it hand out maps to the visitors to help guide them around the large space. This shows it does not follow the first part of the accessibility chain for the on-site experience with clear routes/sign posting (Sensory Trust, n.d.-c). However, the participants were not able to directly comment on this as I led them to the specific museum rooms for the study. A larger study might reveal that it would be unclear which room to start and end with, were the whole space to be used. The participants were able, through the questionnaire, to give their thoughts on the navigability of the two museums rooms as can be seen in tables 1 and 2 above. In Room 4 (table 1), from the six participants, one participant did not know how they were meant to explore the room to support accessing the information, and another felt they sort of knew. In Room 5, two participants out of six stated they did not know which way to go around the room. This shows principle 3 of UD (Institute for Human Centred Design, n.d.) on simple intuitive use was somewhat met, but not for all participants, so when assessing accessibility this design was not universally accessible nor did it follow the access chain (Sensory Trust, n.d.-a). Furthermore, there was no support to further assist those participants that were unsure, with no map or member of museum staff nearby to support. If one cannot navigate the space in the way intended for engaging with the information, then the information is not accessible. Once again, the close connection is seen between access to information and physical access of the museum space.

Museum Forms and Learning

The key theme of Museum Forms and Learning developed from the participants' responses, directly addresses the research question: How accessible is information in the museum space to persons with intellectual disabilities? From engaging with the participants in the focus groups, it was clear that many factors supported their understanding and access to information and learning within these spaces. This key theme relates to the ways information was presented and accessed but also relates to an understanding of the roles and forms museums and heritage spaces take, with all of these forming a clear basis for learning. The overlap between this theme and space is worth noting, as it has been stated without an accessible space, the information cannot be accessed regardless of how the information is presented; here we address the accessibility of the information if the space was not limiting its accessibility.

In focus group A, time was taken to discuss the forms that different museums can take. It was demonstrated that the participants felt that museums could take many forms, some being old in design, with others having a more modern approach. One participant's experience showed a preference for more modern style museums: "Prague was very nice, but urm, it's like antique" (Lucy). It was also shown that museums and the buildings themselves were often related to history and culture. Whilst museums can take many forms, it was agreed upon by the participants that the purpose of these spaces was storytelling: "When I go to the museum, it is a story about a famous person, a composer, his works and his life and his death" (Emily) or "I see many different things, I like all of the museums. Story of politics, story of old places" (Liam). For these participants accessing the information was accessing the story the museum was trying to present as a part of history. This raises the

question of how and in what ways the narrative of Fort St Elmo and the National War Museum was presented.

The objects and artefacts on display are a key connection to these stories and the communication of them; offering a contextual visual object that directly relates to the story within the museum. However, just having an object on display does not necessarily mean the information is perceptible, as per UD principle 4 (Institute of Human Centred Design, n.d.). In focus group A, participants were able to give opinions on pictures of museum spaces filled with objects (See figures 13 and 18, appendix 2). One participant found that these objects directly related to excitement for learning: “the more there are the more excited [Emily] feels.” (Sophie translating for Emily). But it was also understood that the more objects, the more time would be needed to understand them: “I think you can spend a lot of time in this room” (Emily). Another participant felt differently and related the overload of objects to an overload of information: “I think that for persons with disabilities, there are too many… not persons with disabilities only, but people in general” (Lucy). It was felt that too many objects in space would achieve the opposite of the learning and storytelling aim, with participants feeling “a person with a condition of epilepsy… they could be confused” (Lucy).

In the National War Museum, in Room 4 and 5, there are many objects and artefacts on display, all of which support in telling the story of Malta’s role in World War II. During focus group B the participants were asked how they felt about the number of objects on display, all stated that the large amount was a good thing. However, this does not necessarily fit with the data gathered from the questionnaires seen in table 1 and 2. Whilst all participants for both rooms found the objects on display interesting with 10 agreeing, one

partially agreeing, and one no response recorded, understanding these objects was different. In Room 4, only one participant did not understand what the objects on display were, in Room 5, this number increased to two and one only partially understanding. This means that, in Room 5, whilst the participants found all the objects interesting, only half of the group was able to fully understand what they were. This is furthered by the question: I can understand why they are important. In Room 4 only half the participants agreed with this statement, with two partially agreeing. In Room 5, four agreed, but then two participants disagreed. The lack of understanding of the objects in Room 4 could relate directly to the shape of the room and the number of objects within it. Looking again at figure 9 we can see how the small walkways are lined with object cabinets, more so than Room 5 seen in figure 10.

Relating this to an understanding of accessibility of information and the guiding framework of UD and UDL is particularly relevant. The interest in the objects from the participants was clear, with almost all agreeing that they found the objects on display interesting. This meets the principle of engagement in UDL, with the learning sustaining interest (CAST, 2024). However, the principle regarding action and expression was less engaged with, the variety of communication forms was limited to the objects being displayed with information panels next to them (CAST, 2024). For UD principle 4, the perceptibility of information (Institute for Human Centred Design, n.d.) was not fully met, with half the participants unable to either understand what the objects were from the information provided, or why they were important. This also means that the design was not following principle 3, with the design not being easy to understand “regardless of the user’s experience, knowledge, language skills, or current concentration level” (Institute for Human

Centred Design, n.d.). It also fails to meet the access chain of the sensory trust and outcome aims (Sensory Trust, n.d.-c; Caulfield et al., 2020)

This discrepancy between the focus group and the questionnaire results relating the enjoyment of seeing lots of objects, but not being able to access them, can also be related to the information which accompanies the objects. If the information is not accessible, such as being in easy-to-read formats, then the number of objects on display would not impact the accessibility of understanding. The challenges of accessible design are seen clearly here, where the barriers to accessibility either overlapping or not always clear. As stated by Luck "when we speak of inclusive design are we always describing the same thing?" (2018, p.97). The barriers to accessibility are varied and so individual assessment of space is needed.

Furthermore, the participant's responses somewhat counter current accessibility in museum research. As discussed previously, Sparkes and Fox (2021) found that participants in their recent study critiqued the overuse of objects on display, with museums reliant upon a "fetishism" of these objects to engage visitors and tell stories. The participants of this study did not share this opinion, actively enjoying the variety of objects. However, it was clear that the dominating visual narrative in the museum space, as a method of storytelling, was not fully accessible with understanding being lost, hence the fundamental importance of understandability in the way information is presented.

To understand why the objects on display were not understood, participants' experiences of learning formats present in the museum needs to be analysed. There were a few varieties of learning formats available across the two rooms that the participants engaged with. One participant was a fan of the use of audio to create noises and sounds related to the period: "The audio is very good with the sound [pause] the bombs" (Liam).

Technology was also interwoven with the objects on display: “I like that car with the screens” (Liam). Videos with audio were also used in both the rooms, in Room 5 the screen was on the floor with visitors standing above it. One participant found this supportive of learning “because [Liam] said that he was aware of the convoys with the food, but he could understand better how they worked” (Sophie translating for Liam). However, another participant found this interactive display more difficult to understand: “Ok, so [Lucy] would have put something for people to understand what it is” (Sophie translating for Lucy). Finally, in Room 4 there was an interactive digital tablet that could be used to bring up pictures and information by touching the screen, but this proved inaccessible to the participants: “the touch screen is defect [pause] difficult to use [pause] it doesn’t respond immediately, so we have to press a lot” (Liam). The learning formats used, other than information with objects, included audio-visual materials with one video in Room 4 and one video in Room 5. Room 4 also included the only interactive technological display across the two rooms.

Here it is clear that use of technology in these spaces can be in/accessible, and what is important while introducing new features is to refer to initial questions on exhibit design, has this introduced a new problem while trying to solve an existing one? (Caulfeild et al., 2020). In theory, using the principles of UD and UDL, accessibility was achieved, but this was not fully supported by the questionnaire results or the focus group, as seen above. These learning formats aimed to ensure that all three of the UDL principles were achieved: Engagement, Representation, Action and Expression (CAST, 2024). Only principle one of UD on equitable use (Institute for Human Centred Design, n.d.) was not met when engaging with the touch screen interactive, with the design disadvantaging participants as they could not use it.

The results of the questionnaire were reflective of the participants' views from focus group B. As discussed, the participants struggled with the touch screen interactive in Room 4, with three of the participants disagreeing with the statement 'the activities in the room are easy to understand', and two partially agreeing. However, nearly all the participants felt that the activities in both the rooms were, or could be, fun to do with 11 agreements and one not agreeing. What this suggests is that activities and interactives within the space would be very positively received and further support accessibility for persons with intellectual disabilities, were they easier to operate. This supports an understanding on the importance of counter-storytelling (Reiger, 2023). These dominating designs that prioritise speaking and writing are ableist and exclusionary. Whilst the interactive activity could have been easier to use, the participants still enjoyed the opportunity to break from away the dominating ableist narrative that the museum encourage through ableist forms of learning.

In fact, this is further reflective of the active and practical experience the sensory trail provided to the learning. As stated previously, the sensory trail was created to be complementary of the museum experience and further facilitate learning, being centred around the World War II experience. When the participants were asked if the trail allowed them to experience history in a different way, the group response was yes. Many were able to relate it directly to the natural sensory experiences available:

> James: For me it's nice to see the sea.
>
> Sophie: could you imagine what it was like in the time of the war?
>
> James: Yes

Another agreed that the experience enhanced a historical understanding: “Yes it’s like taking me back” (Emily). As discussed, this can forge a deeper connection through their experiences with the heritage (Sensory Trust, n.d. -e, p.6).

The ability to interact directly with the heritage site posed a new learning experience for one participant, who focused on the ability to tactfully learn with “objects and feel the objects” (Chloe). This supports a UDL framework that values multiple ways of knowing and making meaning in the form of representation (CAST, 2024). Often, the participants spoke on their learning experiences that involved sensory activities on the trail. The texture rubbing exercise done around the Submariners’ Walkway allowed the participants to interact physically within the environment, learning from it without damaging the heritage. In focus group B many participants touched upon how they enjoyed this learning experience: “I like this texture rubbing, yes, yes,” (Lucy) or “Yes a fun way yes, a very fun way” (Chloe). This was also found in the activity that was done on the walkway with the speaking tubes creating a usable recreation of ones that would have been used in the submarines during World War II. Two participants recalled the experience and related it to the history “That telephone” (Emily), “yes that telephone for example” (Liam) and one participant added to this further stating “I thought it was fun” (James). The engagement principle of the UDL was closely followed throughout these activity designs and implementation, “promoting the role of joy and play for learners and educators alike” (CAST, 2024). The sensory trail can be seen to operate as a counter-story, bringing forth stories through the heritage that remain untold to support the learning in the museum space, “disrupting the ableist foundations of storytelling that remain unquestioned” (Reiger, 2023).

Counter-storytelling is multimodal, meaning that all the senses are aimed to be engaged with through one form or another (Reiger, 2023). This is something which was achieved on the sensory trail. Most notable for the participants was the first sound workshop done on the trail inside a small and tall room of the bastion. This proved divisive as the participants discussed their experiences, with one participant relating it to the possible experiences of other people with intellectual disabilities: “When I was there, urm, I was thinking that, that the noise urm, the persons with the condition of autism, they don't like it loud, they don't like loud noise” (Lucy). Here the participant showed concern for the experiences of others as the sound workshop engaged directly with loud noises that could overstimulate or overwhelm. As discussed above, the participants were prewarned and given opportunities at any point to leave the activity, but feeling comfortable with accepting this accessibility feature was complicated with a psycho-emotional factor, with some sharing hesitation on leaving. However, this experience was aimed at supporting the participants’ understanding of what engaging with this space might have sounded like in the past. Lucy was able to relate the sound created in the sensory trail to represent the historical context to their disability experience. This directly engaged with the learning and contextual information forging a personal connection with the space: “sound tells us of our own relationship to what we hear in sound and of our own relation to the surrounding environment” (Reiger, 2023, p.26). This participant understood that this level of sound may create sensory issues for persons with autism, both now and in the past.

Other participants were also able to relate this sound workshop to their personal experiences, particularly the contrasting nature of the sensory trail. As the sensory trail focussed on highlighting the differences of the senses: “When we went inside that little room, it was fun with the noise and when we came out, we watched the sea, and I felt

relieved and [it was] relaxing" (Emily). Following the guide of the Sensory Trust (Sensory Trust, n.d.-e), to best support engaging with the senses, change and difference to the senses was used, for example going from a light room to a dark room or a quiet space to a loud space. The participants went from a small, dark and loud space, to a large, bright and quiet space on the bastion walls. This supported their connection with the space, heritage and history, with the sensory trail working to capture and share "these lived experiences even further by emphasising how people of all abilities experience environments through all their senses and not just vision alone" (Reiger, 2023, p.20). The participants' overall feedback of this sound workshop was positive: "For me I liked the noises" (James). This supports possibilities of learning through acoustemology (Reiger, 2023), which is learning through sound. Furthermore, as argued by Pallasmaa, sound is a unifying experience in contrast to the solitary visual observer (Pallasmaa, 2012), the sound workshops engaged in during this sensory trail allowed the participants to experience learning as a community experience, acknowledging the important social aspect of accessing museums and heritage, as discussed in the literature review above (Caulfield et al., 2020; Sensory Trust, n.d-d).

The use of the sensory trail operated as a counter-story, aiming to shift the narrative and discourse of the museum space that was visually dominated. Accessibility was supported by the sensory trail and the way it naturally interlinks with the principles of UD and UDL. The understanding provided by the Sensory Trust helped expand beyond the principles of UD and UDL to further design and create accessible learning within the space. This is notable as it was seen that in the museum space, parts of the information did prove inaccessible.

Language

Language formed its own key theme as the dominant learning narrative of museums and heritage spaces even though it overlapped with the other themes. This was due to the significance placed on the language for accessibility to information due to the visually dominating learning formats of museums (Reiger, 2023). Language includes written and spoken forms of communication. Written communication was divided into readability and understandability, with readability relating to whether the information is readable such as font size and use, and where understandability relates more to the word choice and sentence structure translating the message across. Spoken communication is related to speech, which could be from a guide or museum staff member, and audio, which would come from a prerecorded format such as a video or audio guide.

During focus group A, an initial discussion was had on language based around past museum experiences and picture examples. Written understandability and readability were both touched upon as pictures of other museums were shown: “I think, with the font they are using. I think urm, that this poster is urm, I'd change it in easy-to-read. Easier language, urm because for me and other people with disabilities or people in general the words” (Lucy) or “I think the font is too small” (Liam). It was clear that the participants felt strongly about the way written language was used and presented and this directly related to accessing the information. Speech was also covered in this focus group and whilst it was not relevant to the participants’ museum experience of the National War Museum, it still has importance. One participant discussed how their experience with museum guides and their speech was an inaccessible one: “I really enjoy it... when the people do not talk so quickly. Urm, because when we went to the museum in Valletta [they spoke] too quickly” (Lucy) or “I

think they have to be slow, not too much, just a bit slower. But I think they, they go fast, fast, very fast" (Lucy). Even from this discussion on the participant's past experiences, it is clear to see that language forms a barrier through the dominating, ableist, written and spoken narrative of museum experiences (Reiger, 2023; Fox and Sparkes, 2021). It is important to note that this is furthered through the fact that the National War Museum and Fort St Elmo do not operate with any guides. This means that the museum rooms are reliant on the resources placed within them to facilitate learning and storytelling. The space is entirely left of up to the visitors' interpretation of the artefacts and information, which for persons with intellectual disabilities can be challenging.

On the National War Museum and Fort St Elmo, the participants did discuss readability in the focus groups with font size being a key discussion: "Urm, the fonts... because there are some sentences with fonts with large fonts and there is a lot with small fonts" (Lucy). The participant felt most fonts used in the space were too small, hindering their accessibility to the information. The questionnaire supported this understanding with the statement: the information with the objects is easy to read. Participants felt strongly with half (three) of the participants in Room 4 disagreeing with this statement, and in Room 5, two of the participants disagreed with the statement. When relating this to UD and UDL, the inaccessibility to information within the space is clear. Principle 4 of UD is not met, with information not perceptible due to its lack of readability (Institute for Human Centred Design, n.d.), which can be directly related to font size as touched upon by the participants. When related to UDL, action and expression is limited through the view of language, where it does not use a wide variety of forms of communication. Representation for the UDL was also limited, with no support opportunities to customise the display of information, as well as limited ways the information can be perceived (CAST, 2024).

Understandability of written information also proved inaccessible in the National War Museum rooms. The written information around the museum rooms was in both Maltese and English to support learning and accessibility. Despite this the understandability proved to be barrier to the information: “So some people understood a lot. Some people understood nothing. Some people understood bits here and there… and that was for the Maltese version as well” (Sophie). The participants felt that certain words and phrases used added to the inaccessibility and prevented learning, with one participant stating a supportive feature would be “explanation of difficult words” (Sophie). The data from the questionnaire was also reflective of this in part. For Room 4 most of the participants had difficulties understanding the information in the room with half (three) of the participants disagreeing and two partially agreeing. However, this was contrasted by Room 5, where only one participant disagreed with that statement and the rest fully agreeing. This shows that even between the rooms of the museum there are different levels of accessibility. This can hinder a full understanding of the story being told by the museum, especially with the continuity of the narrative between rooms. The lack of understandability of information in Room 4 can be related to the representation principle of UDL and how there is need to “clarify vocabulary, symbols, and language structures” (CAST, 2024) due to the ways information was presented through the information boards. The difference also suggests that the language or space itself in Room 5 is more accessible, this could be related to the amount of objects in the room and the space given, as Room 5 is a larger space that has more room for visitors and less objects within it, seen from Figures 9 and 10.

The difference in understanding the information between the two rooms did not translate to the audio materials. All participants stated the audio materials were easy to hear with only one partially disagreeing, and the rest agreeing. However, the accessibility of

understanding the information in this format was similar across both the rooms. In Room 4, two participants did not agree that the audio materials were easy to understand, with the rest agreeing. In Room 5, half (three) of the participants did not agree with the statement, with the other half agreeing. The questionnaire shows that the audio materials are not fully supportive of understanding and form an accessibility barrier to the information, and this is across both rooms. The information again proved not perceptible, failing to meet UD Principle 4 (Institute for Human Centred Design, n.d.), but the design itself, with the audio being able to be heard by all participants, clearly showed that the other principles of UD were met. Using UDL to analyse why the barrier to learning was held we can see more clearly that this may be related to the language used in the audio, showing that the principle of action and expression was not fully met (CAST, 2024), with the accessible material of the audio visual not optimised for accessible learning. The lack of understanding of the audio materials could also be related to a point the participants raised previously on the speed of speech, which may have furthered its inaccessibility.

As shown through this language analysis, the dominating storytelling form of the museum was language based, however this often proved inaccessible. Even if the language was clear and readable, or loud enough for the participants to hear, this did not directly translate to understanding. To improve understanding and accessibility, the exploration of storytelling methods must be expanded, and a multisensorial storytelling could prove the most effective. Participants unanimously agreed that the sensory trail was supportive of the learning done in the museum rooms, allowing them to understand more of the story being told: “I asked if the sensory trail helped them understand more upstairs, and they said yes” (Sophie). One participant expanded on this experience stating, “[Liam] said they could appreciate more the noises that were going one when he was [engaging with] the things

upstairs" (Sophie). A sensory trail should not replace the museum experiences already in place, with two participants clear on stating that the upstairs museums space for them was more interesting for the objects available. However, it is clear to see that accessibility through multisensorial storytelling should be investigated further. This counter-storytelling through a multisensorial narrative can start to disrupt the ableist storytelling narratives that have dominated these spaces (Reiger, 2023).

Conclusion

This section has presented the key findings of the present research and analysed the key themes that emerged from the data. Space, Museum forms and Learning, and Language, all impacted the accessibility of information within Fort St Elmo and the National War Museum through interconnecting ways. It was important to assess these themes separately to gain a clear understanding on the depth that they impact accessibility, before then understanding them as a collective in how they impact accessibility.

Chapter 5: Conclusion

Introduction

This chapter will summarise the main findings of the present research, drawing back to the research question and guiding framework. The recommendations, limitations and implications of the study will also be discussed.

Summary of Key Findings

In this research, it was clear through the participants' experiences that accessibility had to be divided into its parts and then assessed as a whole. Here the division took the form of the three key themes which were elicited from the data: Space, Museum Forms and Learning, and Language. However, even when dealing with these themes it was clear there was connectedness between them.

When discussing the theme of Space, the research revealed its duality, both the accessible and inaccessible nature of the same feature. The element that something can both provide accessibility, whilst at the same time creating inaccessibility proved an interesting accessibility challenge to assess, and a more difficult one to solve. The solution to this was touched upon by the participants through the data. The large space in the museum is essential for accessibility, but can cause tiredness. The participants' solution was simple and direct - opportunities for rest are needed. This idea of rest proved to be a key insight from the participants, with the idea of rest for accessibility not being covered by either of the supporting frameworks, the principles of UD and UDL. This showed how essential it is to assess spaces for accessibility with the support of persons with disability to harness their experiences and insights.

In fact, rest and tiredness were expanded on by the participants in an interesting way. The research project aimed to focus upon accessibility to information, however the participants frequently brought this back to an understanding of the physical and inaccessible space. For them to assess the accessibility of information, you had to first have an accessible physical space. The relevance and importance of this was clear to see as without an accessible physical space, the level of accessibility information would not matter. Furthermore, the inaccessible and wearying physical space would tire visitors with intellectual disabilities, meaning that they would have more challenges to accessing the information.

There were other factors to accessibility within the space that would fluctuate in their accessibility. The amount of people in space, particularly a small one, was impactful on accessibility as described by the participants. It was also clear that at times 'reasonable adjustments' or accessible features had a level of psycho-emotional disability, such as the activity on the sensory trail which could be overstimulating for some, and so using accessibility features is not always guaranteed to improve accessibility.

When describing rest, the participants touched upon the importance of a sense of place. Opportunities to sit and rest in the space not only allow persons with intellectual disabilities to rest from the physically demanding space, but it also provides opportunities for them to form a sense of belonging in the space. As discussed through the Sensory Trust, this sense of place can directly support visitors' attachments and connection to the space, thus further the connection of persons with disabilities and heritage (n.d.-e). This was also touched upon through the outcome aims of Caulfield et al. (2020)

Resting clearly allowed and supported forms of learning, ensuring the visitors were alert when engaging with the materials. The theme of Museum Forms and Learning, for the participants, directly related their understanding to the stories the space told. This shared a strong interconnectivity to the key theme of Language, which was separated due to the importance the participants placed on it and the ways in which they broke down their understanding of language. Both these themes were connected through their relationship to the dominating visual narratives of the museum space. The objects and the information that accompanied them were two key parts of this dominating visual narrative - if participants were unable to access these, then they were unable to access the story of the museum.

Whilst the objects on display often proved inaccessible in terms of understanding, the participants were clear in that they felt they were interesting, even if not accessible. This presented a different response to other research, where it was noted in the U.K. that persons with disabilities wanted a shift of focus to community and activities in these spaces rather than keeping the focus on objects within museum spaces (Fox and Sparkes, 2021). However, the present research showed a continuation on the findings by Mizzi (2016) and could suggest a cultural difference.

The nature of counter-story telling did prove effective when engaging the participants within the space and supporting learning. The multisensory engagement through the sensory trail was supportive for the participants placing the history and the place in the context of the time. They were able to directly relate their personal experiences on the trail with the history they were learning about. The sensory trail also helped to remove the isolating learning experience of these places. The group engaged with learning together through their senses, as a group, exploring the power of learning through sound

and their other senses. This supported the community aspect of learning in these heritage spaces. What was clear is that if these dominating visual learning forms are not accessible then multisensory learning is a way forward that can support accessibility and engagement.

Limitations of the Study

This research did encounter some limitations. The full museum space was not assessed as a whole. This means that the accessibility picture of Fort St Elmo and the National War Museum is only partial. To gain a complete understanding on accessibility it would be essential to assess the space in its entirety, which may reveal more accessibility barriers. Another limitation was the participant sample size. Whilst the participants gave essential data, the pool of participants was small and not representative of all persons with intellectual disabilities. The data generated and analysed, is not fully representative of the disability community. Despite this, the insight from the participants provided insights into the case study that otherwise would have been omitted.

Recommendations for Future Research

As seen from the limitations of this research project, there are opportunities for further study on the assessment of accessibility to information in museum spaces. This research recommends further assessment and expansion of the ideas of counter-storytelling in museum spaces, and engaging with visitors outside of the visual narrative methods. Multisensory engagement may be the best way to do this, and a sensory trail is just one of the methods through which we can engage with heritage and history in a multi-sensory manner. There are many sites and museum spaces around Malta which could benefit from sensory trails specifically to support accessible learning. Multi-sensory learning can then be expanded both inside and outside of the museum space. The replication of this study with

different participants would also support the understanding of accessibility and provide important points of comparison.

Implications

The implications of this research are clear. The National War Museum and Fort St Elmo are very interesting and engaging sites; however, the information in the space is not universally accessible. The guiding framework of assessment throughout the present research of using UD and UDL through a social model perspective revealed how often the site proved inaccessible even when evaluating specific accessibility features. The framework shaped the interpretation of the data as used in tangent with the participants' experiences it was clear to see where the principles of UD and UDL were strong for evaluation, but it also revealed that at times the principles were not fully inclusive of the lived accessibility experience. This study has shown through the guiding framework that access barriers within museum environments are not inevitable but are constructed through exclusive design choices. The voices of participants revealed a clear need for more inclusive, flexible, and accessible information. These insights affirm that adopting UD and UDL principles is not only a matter of good practice but a necessary step in dismantling the disabling features of cultural spaces. However, it is also clear that our understanding of accessibility to information in these spaces must not be limited to these frameworks. New understandings and methods of evaluation are essential for ensuring that the stories of these sites are accessible. Looking at the way information is presented though the dominating narrative, and the counter-storytelling narrative can help support new ways of presenting the information.

Frequently, the visually dominating narrative prevented participants from engaging with the space and accessing the information. When compared to the UNCRPRD Articles 9, 24, and 30, findings showed that they can all be improved upon within this case study. Information was not found to be accessible for the large part, and the formats in which information was presented, was very limited. Sites such as this would benefit with engaging with counter-stories and learning through multi-sensory engagement, to expand learning formats. There is a clear need to evaluate the use of space and establish more resting points as an important part of the nature of accessibility. A sensory trail can provide a solution to both these features. Firstly, it can engage visitors with the storytelling and context of the history. Secondly, it can utilise areas of large outdoor spaces that currently do not serve a clear learning role. Finally, it can establish clear resting points through mapping visitor movements and places to stop and engage with the culture.

Concluding Comments

This research has demonstrated that accessibility in museum spaces is a layered, complex, and, at times, a contradictory experience, particularly for visitors with intellectual disabilities. Using the guiding framework of Universal Design and Universal Design for Learning through the lens of the social model of disability enabled a critical evaluation of barriers that are actively constructed and prevented access to information. Most importantly, it was the voices of the participants that revealed where these frameworks both aligned with and fell short of lived experiences. Their insights pointed to the essential need for participatory, user-informed design and evaluation practices. Accessibility cannot be fully achieved through design principles alone - it requires ongoing dialogue, critical reflection, and a willingness to reconceptualise what access looks and feels like in practice. The use of

multi-sensory learning, specifically the use of a sensory trail, was shown as a powerful form of counter-storytelling, challenging the dominant ableist learning methods and offering alternative, inclusive pathways to understanding and connection. Heritage sites, by embracing this dynamic and inclusive approach, can evolve into spaces that not only preserve the past but welcome all into meaningful engagement with it.

"I think that museums [should] all [be] accessible. But if that museum is not accessible, I wish to make it accessible." (Liam)

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Appendix

Appendix 1

SWB FREC <research-ethics.fsw@um.edu.mt>
to me, Anne-Marie, Vickie, Dr

Thu, 29 Aug 2024, 11:31

REDP Application ID: SWB-2024-00315

Dear Joshua Jack Donald Barwood,

Since your supervisor has confirmed that the changes have been carried out AND/OR the gatekeepers' permissions have been obtained and uploaded (as per email below), your ethics application regarding your research titled *Exploring the accessibility of information in a museum space for adults with intellectual disabilities: The use of sensory trails* has been **approved**.

Faculty Research Ethics Committees are authorised to review and approve research ethics applications on behalf of the University of Malta, except in the case of sensitive personal data. In this regard, your ethics proposal **does not need to be sent to UREC-DP**. Hence, **you may now start your research**.

Disclaimer: *The research team should note that only the English versions of the documents submitted have been reviewed by FREC. It is the duty of the research team to ensure that all documents in Maltese (or any other language) are faithful translations of the English version.*

Regards,

L-Università ta' Malta

Faculty Research Ethics Committee
Faculty for Social Wellbeing

Appendix 2

Figure 11: Source: Leicester Museums & Galleries. (n.d.). About Leicester Museums & Galleries. Leicester City Council. https://www.leicestermuseums.org/about/

Figure 12: Source: Visit Leicester. (n.d.). Leicester Museum & Art Gallery. https://www.visitleicester.info/see-and-do/leicester-museum-and-art-gallery-p700961

Figure 13: Source: Stamp, E. (2017, April 26). The best university art museums in America. Architectural Digest. https://www.architecturaldigest.com/gallery/university-art-museums-slideshow

Figure 14: Source: Hopkins, S. (2025, January 3). 31 fascinating and mostly free museums in London to visit. Secret London. https://secretldn.com/fab-free-museums-london/

Figure 15: Source: Pouhier, E. (2009). British Museum – Court and Glass Dome [Photograph]. Wikipedia. https://en.m.wikipedia.org/wiki/File:British_Museum_Dome.jpg

Figure 16: Source: Herefordshire Museum Support. (2017, October 24). [Image related to advertising the museum]. Herefordshire Museum Support. https://herefordshiremuseumsupport.org.uk/advertising-the-museum/

Figure 17: Source: Living Levels. (2021, May 19). [Image related to Newport Museum and Art Gallery]. Living Levels. https://www.livinglevels.org.uk/stories/2021/5/19/newport-museum-and-art-gallery

Figure 18: Source: Museum of Archaeology and Anthropology. (n.d.). [Image of the Museum of Archaeology and Anthropology]. Museum of Archaeology and Anthropology. https://maa.cam.ac.uk/about

Appendix 3: Focus Group A Questions

Questions from focus group A

A. What sites of historical importance have you been to before?

B. What is the purpose of a museum?

C. Have you been to a museum before?

    a. If not, why?

D. How often do you go to museums?

E. Do you enjoy going to museums?

F. What kinds of things do you expect to find or do in museums?

G. Are museums easy to understand?

    a. If not, why?

H. Can you think of past museum experiences and say what you either enjoyed or didn't enjoy about them?

I. What do you think would improve museums?

Appendix 4: Sensory Trail Plan

Before moving down, stop by Submariners walkway and explain

What is a sensory trail?

A sensory trail is a method of exploring and learning history and the history of places through using the senses. It is a preplanned route focussing on using the sensory experiences available at the site to connect with history and stories available.

Before we begin the sensory trail, it is important for me to say, that if at any point the sensory experience becomes to much or you are uncomfortable, just let me and we can move on/you can take some space away from the group.

Starting outside the doors of the Abercrombie Bastion:

1) Sound

Today, on this Sensory Trail we are going to go back in time. Many of the sounds, sights, smells, touch, and tastes are those that soldiers spanning across history, whose job it was to work and protect the fort, are the same ones that we can experience today.

With that in mind I want you to imagine you are a WW2 soldier, patrolling the bastion and we will use our senses to take ourselves back and help our imaginations.

We are stood outside the Abercrombie Bastion, as you can hear, it sounds very busy in there. The Abercrombie Bastion played a very important role for Fort St Elmo, particularly in WW2 when it was essential for the British to stop an attack led by Italy in 1941 that came by speedboats over sea.

The British renamed this Bastion after Sir Ralph Abercrombie, a very famous British General from history that helped fight the French all the way back in the 1800s. (Show Printed Picture of Abercrombie)

In fact, deep within the bastion, Abercrombie's body was initially buried before being moved to the cathedral later.

2) Sight

As we move into the Bastion you can see that our eyes have to quickly adjust from the bright Maltese sunlight to the dark deep corridors safe inside the thick walls of the bastion, something that the soldiers stationed here throughout history would've experienced.

3) Sight and Touch

Throughout the Fort the colour green has been used on doors and windows. Green is a very military colour, invoking thoughts of camouflage and helps us place this in its military context. You can also feel how heavy these doors are as original features of the fort. Keep an eye out for other green features!

4) Activity: Sound Workshop

Entering the small room, we will engage in a sound-based activity in the tiny space. Exploring the deep echoey landscape of the building and also gaining an understanding of what it might have been like for the soldiers to work and operate in these small spaces.

- Clunking of boots
- Wooden Clackers for the whirring of machinery (x2)
- Bag of bottle caps for metal clanking
- Rattle of instrument.

Ask to communicate with each other through the noise: Now imagine trying to communicate with each other!

Can use speaker to show example sounds from the Imperial War Museum dating from 1945.

5) Sight and Touch

Walking back out of the bastion we are greeted by the bright sunlight and change from light to dark the soldiers would have to get used to. Surrounded by cannons and large ballistic guns. The more modern looking guns are Rifled Muzzle Loading guns that were installed around the fort in the second half of the 19th century. Due to their large size, many changes to the fort had to be made for their installation. The older cannons all have their own character and textures, weathered and bumped from time which can help us to understand just how old some of these are (don't forget to tell them to touch). Even comparing these two different types of guns, from size and shape alone we can see the advancements made in technological warfare.

6) Sight

Walking away from the guns we come across lots of examples of the painted green doors again, this time on stores, originally constructed around 1880, their function became ammunitions and ammo stores for their nearby guns as well as shelters for the soldiers.

7) Sight and Taste

Approaching the Submariners' Walkway, the walkway was named this for the amount attack submarines that were based here by the British during the second world war. However, sadly many of these submarines were lost at sea. (For those that are able) Climbing the steps of the walkway, you can see magnificent sea views that show the view

and significance of the fort in sea and naval defence. You can see the power of the blue sea as it crashes on to the rocks below. Around the wall edges you can see natural plants growing including capers. For those that would like, you can try some capers here and now to help feel the saltiness of the natural environment.

Take a moment in this to close your eyes and share what you can hear, feel and taste.

8) Sound

Atop the Submariners' Walkway you can hear the powerful wind and sea. It can start to help you understand the dangers that those soldiers that went into these submarines faced. You can also start to imagine the contrast of the ominous silence being aboard a submarine to the loudness of the waves and sea above.

9) Activity: Sound Workshop - Speaking Tubes

While imaging what life might have been like for the submarines that docked and set off from this harbour, to help our understanding of life aboard the submarines we can look at their methods of communication.

"Submariners use walkie talkies now, but in 1944 speaking tubes were used to communicate with the rest of the vessel. Some modern submarines still have these speaking tubes which can be used in back-up situations" (Imperial War Museum, n.d.-a)

Today we are going to look at homemade examples of speaking tubes which use the same physics for carrying sound of voices that you would have found on the submarines in WW2.

(Take out premade string cans for participants to explore and use.)

10) Activity: Texture Rubbing

On this Walkway three submarines have received a special plaque and mention of the great sacrifice the soldiers made costing their lives. HMS Uplifter, HMS Upholder, and HMS Olympus have all been named and their crest place on the plaque. Each ships crest is special to that submarine and the men on board and all had amazing and interesting designs.

In pairs now we will attempt to do some texture rubbings, using thin fabric and a fabric crayon we are able to make an imprint of the design from the plaques onto our fabric without damaging the plaque or leaving any marks.

It is important to place the fabric directly on the textured or bumpy surface you want to map and to lightly rub the crayon over the top of the fabric transferring the imprint of the plaque onto it. Before trying your own, watch the demonstration to get an understanding on how to do it!

There are four locations I can recommend for texture rubbing that will give you some cool designs, but feel free to explore the walkway to see if you could find your own. All that it needs to be is a flat surface with an interesting texture or pattern, it could even be the floor!

I would recommend the badge of the HMS Uplifter, Olympus, as well as the dolphins and royal crest of the plaque of the HMS Upholder as well as the one below the Walkway.

Appendix 5: Museum Questionnaire

Feelings Chart

Below is a table, read the first part and then select the feeling accordingly as to how that part of the museum has made you feel and whether you agree with the statement. Do this while you are walking around the museum room.

	Agree	Sort of agree	Do not agree
I know which way to go around the room.			
The objects on display are interesting.			
I can understand what the objects on display are.			
I can understand why they are important.			

The information with the objects is easy to read.			
The information with the objects is easy to understand.			
The activities in the room are easy to understand.			
The activities in the room are fun to do.			
The audio materials are easy for me to hear.			
The audio materials are easy for me to understand.			

I have learnt something new from this museum room.			

If you want to write down any further thoughts or feelings you have, please feel free to do so below!

Tabella tas-Sentimenti

Hawn taħt hawn tabella. Aqra l-ewwel parti u mbagħad agħżel is-sentiment tiegħek skont kif dik il-parti tal-mużew għamlet li tħossok u jekk taqbilx mal-istqarrija. Agħmel dan waqt li tkun qed timxi madwar il-kamra tal-mużew.

	Naqbel	Naqbel xi ftit	Ma naqbilx
Naf minn fejn għandi ngħaddi fil-kamra.			
L-oġġetti esposti huma interessanti.			
Nista' nifhem x'inhuma l-oġġetti esposti.			
Nista' nifhem għaliex huma importanti.			
L-informazzjoni mal-oġġetti hija faċli biex tinqara.			

L-informazzjoni mal-oġġetti hija faċli biex tinftiehem.			
L-attivitajiet fil-kamra huma faċli biex jinftiehmu.			
L-attivitajiet fil-kamra huma pjaċevoli biex isiru.			
Il-materjal awdjo huwa faċli biex nisma'.			
Il-materjal awdjo huwa faċli biex nifhem.			
Tgħallimt xi ħaġa ġdida minn din il-kamra tal-mużew.			

Jekk tixtieq tikteb xi ħsibijiet jew sentimenti oħra li għandek, tħossok liberu li tagħmel dan hawn taħt!

Appendix 6: Findings

Key theme: Space

Sub-theme: Movement

> Why are there stairs? Not, not a ramp? (Lucy)
>
> I think this is small, smaller building, because urm, if a person with someone with a wheelchair. And that person is with a group, I think they can see but how the person can manage to go [around]? (Lucy)
>
> There's no ramp. If someone is in the wheelchair, the don't... can't go up to see it. (Lucy)
>
> There's room for the wheelchair as well. (James)
>
> For ADHD and autistic people, they use the space where they can go upstairs or where they can run. (Emily)
>
> Liam: Yes, because, for example I am a person with ADHD and for me that is good.
>
> And that is for them to be, to calm themselves down. And so that they can have some exercises of walking and even to explore everywhere. So [that] they might feel comfortable when there are not people near them. (Emily)

Sub-theme: Navigability

> Those footsteps [on the floor], they show us where we can get out or where we can have a canteen, like a drink or a snack. (Emily)
>
> So, the people with autism and other types of disabilities, it will lead them to a right place. So [that] they will not end up confused and frustrating themselves, on where they have to go. It’s so they won’t get lost. (Emily)

This is like when I go to get X-rays and MRIs, they have the footsteps and they tell you where to go, for example. (Lucy)

Sub-theme: People

However, if they can be too close together with other people, it might be hard to make themselves comfortable, because they can have panic attacks, and even they need to get out for fresh air. (Emily)

Just seeing those nice, beautiful things without chattering and not thinking a lot of thoughts in our heads. (Emily)

Sub-theme: Rest

Even we need to have refreshments with each other and some time to do our business. (Emily)

Especially where they have a garden outside, because people they can go for a walk around the garden and rest themselves too. (Emily)

I like it because you can take rests, if you want. But I am thinking that Emily [point] was very good, that we have a break for half[way] its good, and they give us some refreshments. (Lucy)

Like going to the bathroom, having a coffee. (Emily)

And there was seats to sit down. (Emily)

No, it was not enough. (Chloe)

For me it needs more chairs. (James)

Sub-theme: Tiredness

Because when we are going to go, at the beginning, when we are going to visit the museums, we need to wait for an hour, because of the queues. (Emily)

I become tired at some point. (Emily)

When we went to the castle [pause] there was a lot of stairs, and not a lift [pause] I tell my mum, listen, I am tired ok. To have to go and see more, there was many things to see, but the bigger problem, you know, it's the stairs isn't it. (Lucy)

Ok, tired [pause] Yes, I think. (Lucy)

I'd be tired. (Emily)

Good, yes, tired. (Liam)

Sub-theme: Feelings

Emily: I felt good, I enjoyed it.

Me: Did anyone feel like they were overwhelmed in the small space? No? [All participants confirmed through shaking of heads].

Sophie: So, Emily said they would have felt comfortable telling you, however, Liam said they weren't sure if they would have felt comfortable telling you.

Sophie: Okay, they aren't sure they would have told you, because they might have thought you would be offended.

James: Happy.

Chloe: Excited.

Key Theme: Museums and Learning Formats

Sub-theme: Museum Types

I like it very much, but urm, Prague was very nice, but urm, it's like antique museums. But Portugal I think it's more modern. (Lucy)

And when I also went to Switzerland… the other museums I've been there…they can tell us all about the chocolates. (Emily)

There are very interesting buildings in Malta, the ministries in Malta. There is history there, as the buildings of Castille. (Liam)

Subtheme: Objects and artefacts

I see, the more there are the more excited she feels. (Sophie translating for Emily)

I think that for persons with disabilities, there are too many, I think not persons with disabilities only, but [also] people in general. (Lucy)

If there was half of them [pause] this will be good, no? (Lucy)

Because a person with a condition of epilepsy. I think they could be confused. (Lucy)

There are pots, little statues. You can see they're quite exciting to me. To tell who the people are and what they use[d] in those historic times. (Emily)

A good thing. (Chloe but confirmed by all)

About the soldiers [pause] and the shelters [pause] even the George Cross. (Emily)

Sub-theme: Learning Formats

I was happy when I go to many museums. Going in the guardia, the soldiers in the guardia to [them]. I was very happy. (Liam)

You can see the information of the stories of the people and after you can buy from a bookstore about it. They sell books and souvenirs. (Emily)

Sub-theme: Learning Formats (Sensory Trail)

For me, for me, it's nice to see the sea. (Question in Maltese) [Could you imagine what it was like in the time of the war?] Yes. (James)

Yes, it's like taking me back. (Emily)

Me: Do you feel like you've learned something new from the sensory trail? Do you feel like you experienced history in a different way?

All speakers: Yes.

Objects and feel the objects. (Chloe)

I like this [pause] this texture rubbing. Yes, yes. (Lucy)

And this, this texture, yes okay. (Liam)

Emily: [I enjoyed] That telephone.

Liam: Yes, that telephone for example.

I thought it was fun. (James)

Yes, I would do it again. (Chloe)

Sub-theme: Learning Formats (Museum Experience)

The audio is very good with the sound [pause] the bombs. (Liam)

I like that car with the screens. (Liam)

The touch screen is defect [pause] difficult to [use], yeah. So it doesn't respond immediately, so we have to press a lot. (Liam)

For me, the touch screen. (Liam)

Ok so you would put something for people to understand what it is. [translated by Sophie] (Lucy)

[Sophie translating for Liam] because he said that he was aware of the convoys with the food, but he could understand better how they worked. (Liam)

Upstairs was more interesting. (Liam and Emily)

I asked if the sensory trail helped them understand more upstairs, and they said yes. (Sophie)

For examples, Liam said they could appreciate more the noises that were going on when, you know, when he was watching the things upstairs, looking at the things upstairs. (Sophie)

Sub-theme: Storytelling

That they have many patterns of lovely furniture [pause] the background, and even it tells the stories of their families. (Emily)

That teaches me the stories of their life. (Emily)

Because I'm interested of the Maltese stories, the political Maltese stories, the old Maltese stories. (Liam)

When I go to the museum, it is a story about a famous person, a composer, his works and his life and his death. (Emily)

I see many different things; I like all of the museums. Story of politics, story of old places. (Liam)

And even types of different cultures like Japanese, Chinese, Egyptian and chocolate. A chocolate factory where you taste that delicious chocolate. (Emily)

Sub-theme: Time

I love visiting those museums, as long as it doesn't take [too] long. (Emily)

Sub-theme: Senses

When I was there, urm, the I was thinking that, that the noise urm, the persons with the condition of autism, they don't like it loud, they don't like loud noise. (Lucy)

For me, I liked the noises. (James)

Sub-theme: Activities

When we went inside that little room, it was fun with the noise and when we came out, we watched the sea, and I felt relieved and relaxing. (Emily)

Yes, I liked this. (James)

Yes, a fun way, yes, a very fun way. (Chloe)

Key theme: Language

Sub-theme: Written Readability

[When talking on a picture showing writing on information boards] It's too small. (Lucy)

I think the font is too small. (Liam)

Focus group B also touched upon it:

I understood. (Emily)

[When asked did you understand the written text] No, no no. (Lucy)

So, some people understood a lot. Some people understood nothing. Some people understood bits here and there... and that was even with the Maltese version as well. (Sophie clarifying and speaking with group in Maltese)

And explanation of the difficult words. (Sophie)

Sub-theme: Written readability

I think, with the font they are using. I think urm, that this poster is urm, I'd change it in easy to read. Easier language, urm because for me and other people with disabilities or people in general the words. (Lucy)

Ok, I would urm, I'd change the museums, I think all, all of it to easy, easy language. I think that yes, that easy language is good, no? (Lucy)

Urm, the fonts [pause] being because there are some sentences with fonts [pause] with large fonts and there is a lot with small fonts. (Lucy)

Sub-theme: Speech

I really enjoy it... when the people do not talk so quickly. Urm, because when we went to the museum in Valletta. [they spoke fast] (Lucy)

I think they have to be slow, not too much, just a bit slower. But I think they, they go fast, fast, very fast. (Lucy)

Sub-theme: Audio

Urm, I think that, urm. That for people like Maltese people, I think they should give headphones. Also, because if I am Maltese, and you are English, for example, they give us headphones like CRPD. (Lucy)

Yeah. And if this is, for me very helpful to not distract the other people. The person to give me the instructions of what they talk about. (Lucy)