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Authors: [Simon Hayhoe, Helena Garcia Carrisoza]
Contributions from: Jonathan Rix, Kieron Sheehy, Jane Seale
Reviewers: [Jonathan Rix, Rotraut Krall]

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Abstract

This report discusses: 1) the work conducted in the museum groups and an evaluation of the participatory practice in three countries, over the course of two years; 2) guidelines and recommendations for future research and the development of inclusive museum cultures. The participatory practice is measured against six validities.

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|---------------------------|---|----------------|---------------|-------------------------|
| Authors (Partner) | [Simon Hayhoe (UBAH), Helena Garcia Carrisoza (OU)] | | | |
| Responsible Author | Name | [Simon Hayhoe] | E-mail | [s.j.hayhoe@bath.ac.uk] |
| | Partner | [UBAH] | Phone | [0044 01225 383328] |

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Recommendations, Guidelines & Policy Briefing

1 GLOSSARY

Cultural Institutions – Institutions whose primary purpose is to preserve, promote or teach about cultural objects, environments, periods or practices. Cultural institutions can include museums, national parks, monuments or art centres.

Epistemological Model – The way a topic or subject is understood by studying the development of knowledge about the topic. For example, an epistemological model of disability (or access preferences in this report) is developed by understanding what people have previously written about disability at different points in time, and for what reason this writing was done.

Inclusive Technology – Mainstream technology that can be adapted or used easily by people with various access preferences.

Access Preferences – Participants in ARCHES did not wish to be defined by their impairment labels, but in the context of Cultural Heritage felt it was more appropriate and useful to be defined by their access preferences – NB it was understood that most if not all people have some form of access preference, even if they do not identify themselves as disabled or having an impairment. Examples of access preferences include: larger text, higher resolution sounds or easy read texts.

Technologies – In this project, this referred to digital hardware, software or firm ware, but it could also refer to mechanical devices such as wheelchairs or sensory back-packs.

2 POLICY BRIEFING

Collectively known as The Guidelines, this report evaluates the activities and exercises carried out since the beginning of ARCHES. The aim of The Guidelines is to develop ideas about how best to access, support and develop research and policies that lead to inclusion in cultural places.

2.1 The Context of ARCHES

ARCHES began as a cultural access project in 2016, to develop accessible technologies as a means of promoting inclusion for disabled people in cultural institutions. The first group was formed in London, in January 2017.

From the outset, a wider conceptualization of 'participant' was formed, one which was context dependent, and went beyond being a member of one of the single groups. It was understood that participants included all those who visited or communicated with these groups in any regular manner. In this way, as a minimum, a commitment to a collective relationship was developed. This relationship was encouraged through visits from the technologists and providing them with recordings of activities aimed at answering questions they had.

Technology and university partners produced ways-of-working documents, as did the museum-based groups, which formed a blue print for participation. This helped participants and partners recognise that everyone came with skills and experiences which could lead them in different directions.

External issues that disrupted progress arose, however. After the dissolution of the original lead partner, some technologies were either delayed or did not appear. Subsequently, a smaller number of technologies that suffered fewer delays were tested by the groups, and the results appear in the deliverables in Work Package 6. Meanwhile, the museum groups maintained their participant sessions, and looked at broader issues of inclusion and access.

2.2 The Dissemination of Findings from ARCHES

The dissemination of the findings thus far from the participant groups and broader research at the time of writing includes keynote, invited and peer-reviewed presentations at national and international conferences, workshops and university research days on four continents. In addition, the work at the time of writing is published or in press in internationally disseminated academic

journals, edited collections, monographs, charity websites, open access websites and conference proceedings.

2.3 ARCHES Research Methodology and Methods

The methodology used to gather data on museum practices, pilot studies with technologies and exercises in ARCHES is discussed in deliverables 2.1 and 2.3. This data was then analysed using grounded methodology (Hayhoe, 2012, 2019). The data used for evaluations was largely qualitative. The annex briefly outlines these methodologies.

The constraints to the research included: the project being conducted in a limited number of museums, which had their own organisational cultures and existed within particular and different European cultures; the museums were mainly art museums, and although some visits were made to alternative museums, the focus of the findings was largely limited to artworks; three of the four host cities for the participant groups were capital cities.

Data was collected during ARCHES's sessions through formal consultations within groups, interviews with participants, sound recordings of sessions and tours, visual methods, art making tasks, participant and personal observational diaries, systematic literature reviews, topical reviews based on less formal literature searches and logs by participants. The London group also employed a scribe for people with access preferences for a note taker, and this data was available as formal written data for use by the participant researchers.

During the evaluation of the participatory practice, interviews were conducted by four of the partner researchers from the Open University and University of Bath, from December 2018 through to May 2019.

For the evaluation, more than fifty people were interviewed. These interviewees included the following types of participant: supporters, facilitators, a rich mix of participants to ensure a representation of different access preferences and impairments, museum research coordinators, an education or access manager, if available a director of the museum, and the research associate from the Open University. Interviewees from the technology partners included the following participants: developers / engineers, managers.

Where interviews were conducted in Spain and Austria, interpreters were sub-contracted. In addition, it was also decided to base the evaluation questions on six "validities" – i.e. markers of successful participation - as follows: intersubjectivity, context, participation, catalytic, ethical, empathetic.

With the exception of the technology partners, who were interviewed via Skype, all the group interviews were conducted face-to-face, and recorded using MP3/4 recorders, tablets, smartphones or laptops.

2.4 Dissemination and Findings from ARCHES

Thus far, ARCHES participants have presented the results or models developed during the study and had publications made available or "in press". These are listed in the Annex. From this work, four models of research and practice were developed, three of which related to the participatory practice and the fourth to achieving access and inclusion:

1. Model 1 – Access and Inclusion: Inclusive Capital and Human Value – Adapted from articles by Hayhoe, Tonin & Lunardi (2017); Hayhoe (2019). In the literature, it was observed human capital was found to be an effective way of understanding our personal knowledge, activities and skills during participation in cultural heritage. In particular, human capital can also be used to show how these elements shape our personality, memory and character traits. It was also observed from studying this philosophical literature, participatory practice and evaluating case studies that there appeared to be a form of human capital developed to gain inclusion in a group. This capital was re-named inclusive capital, and its outcome was referred to as a sense of inclusion. It was observed inclusive capital was gained in a cycle of five stages: connecting and bonding with people; learning inclusive practices; collecting information; physically or virtually accessing spaces and places; mobility within spaces, networks, information and learning.
2. Model 2 – Participatory Practice: An Ethical Model of Participation – Adapted from a model of ethics developed within the participant groups – please see work package 8 for details. Ethically, participant groups are founded on the following three core principles: Consent,

Privacy and Security/Ownership of the Data. 1) Consent and assent should be ongoing throughout the project and research teams should be alert to consent through engagement; 2) interventions and equipment should carry non-potential dangers; 3) All research notes, images and interview recordings and transcripts are stored securely and registered with the Open University's Faculty Data Protection Officer.

3. Model 3 – Participatory Practice: Cultural Difference and Participation – Adapted from an article by Helena Garcia Carrisoza, et. al. (2019). During the course of the project, the museum professionals faced challenges working with the different technology companies, which appeared to show that professionals had conflicting cultures. In particular, the technology companies' sense of participatory practice was different from the museums' in many instances. Subsequently, it was felt that the whole project would benefit from a more unified understanding of its different aspects, possibly facilitated by partners having more time to meet informally and socialise. The following list of headings summarises this model as a set of recommendations for future project designs: Overall Factors; Approaches to Attract Participants; Attending to Different Needs; Strategies for Working with Mixed Abilities; From Inside to Outside: How to Establish Communication Within the Consortium.
4. Model 4 - Participatory Practice: The While of Participation is adapted from a systematic literature review by Jonathan Rix, et. al. (in press). In looking across the fifty-four studies, multiple moments of interaction were evident, that were responsive (or not) to the participants' need. This allowed us to identify the component parts, outcomes and tensions which were in evidence in the participatory research projects. It allowed us to describe the while of participatory research. The while involves the underpinning tensions around power, support and voice, whose participatory nature are evident in the learning, value and representation which emerge and constructed through the practicalities of participation. These components parts emerge and are constructed through: shifting language, roles and attitudes; a capacity to adapt practices and spaces that emerge from and enable relationships; a recognition of the need for being flexible, taking time, and for people to enjoy themselves.

2.5 Summary of Findings from the Evaluation

In all categories, there seemed to be two sides to participation. However, positive outcomes of the work outweighed the negatives on a number of occasions, and the tensions that occurred showed aspects that could lead to improvements. What follows is an analysis of the evaluation interviews, split into their six respective validities (ICPHR, 2013):

- Intersubjective Validity - Museum and technology partners felt their participation added to their skills-base and their knowledge of other participants. As a result, the general proficiency base of the professionals widened. Furthermore, numerous participants stated a need to learn and a social need to feel part of a community. There was also a correlation between the intersubjective needs of participants' access preferences and catalytic validities.
- Contextual Validity - In the interviews, there seemed to be a significant correlation between the contextual and catalytic validities, and there was often a general agreement that the local communities could gain from the participatory groups.
- Participatory Validity - There appeared to be significant participation within the group and many participants provided illustrations of how they took part in the groups. The participants also generally felt they were heard by others in the group on the whole, and the coordinators and participants appeared to form a real bond – although it was felt that simply bonding was not enough to feel a sense of participation.
- Catalytic Validity - There appeared to be a correlation between contextual and catalytic validities. There was a general sense of optimism and a feeling that even small changes would lead to a greater understanding of access preferences. There was also mention in the interviews with the museum groups that ARCHES could possibly change the public's perceptions of access and inclusion.
- Ethical Validity - There was ethical validity throughout the course of the project, with the majority of participants feeling they had been treated fairly. Participants also felt that they had been treated equally and the groups sessions felt like a safe place to voice concerns

confidently. However, a number of participants believed that the power other participants held could challenge a sense of fairness.

- Empathetic Validity - Empathy was amongst the strongest element of participation during sessions. After different members of the group worked with others over a period of time they noticed that participants grew in confidence and understood others more. Empathy was also expressed for the responsibility and roles of professionals. Others felt that working on the tasks also helped participants gain a sense of empathy for others' access preferences. However, this validity was tempered by a feeling that having empathy could not help form an understanding of all participants' needs completely.

2.6 Discussion

For over a century, museums have attempted to develop models of inclusion for disabled people. However, many of these projects have siloed different access preferences.

ARCHES began with the intention of developing un-siloed participant groups in the museums of three countries. This was the first time this had been attempted, and the groups have now functioned consistently for two years or more.

Through its work, ARCHES has used participatory research and practice to develop models of participation based on participatory spaces, ethical practices developed by participants themselves, a model of cross-cultural participation and a model of inclusive capital. Thus, ARCHES has broken boundaries of participation, by connecting museum professionals, technologists and people with a range of access preferences across national boundaries.

This participatory practice has led to tensions. However, these tensions have not disrupted the business of the groups but served to improve it. Moreover, these tensions have served as lessons for participants to develop a sense of resilience and their own distinctive practice.

What is now needed is the legacy of this project to remain with all the partners and participants. Of equal importance, ARCHES must be a catalyst for future projects, funding structures and pan-European policies. Without these further steps, the developments we have worked towards will not achieve their full promise.

3 GUIDELINES AND RECOMMENDATIONS

Our recommendations and guidelines are based on the models of practice, research and evaluation discussed in the full report below, and developed during ARCHES.

3.1 Recommendations for Access and Inclusion in Cultural Institutions

3.1.1 Inclusive Capital to Develop Human Value

- During their stay at museums, parks or monuments, visitors should feel a sense of inclusion according to their own identity – e.g. whether they see themselves as visually impaired, blind, hearing impaired, deaf, Deaf or having no disability at all.
- Moreover, visitors should be given the power to determine their own cultural, social and individual needs or preferences during their visits either through prior consultation or when they arrive
- Importantly, access and inclusion guidelines, policies and practices should consider the following five stages of inclusive practice:
 - Visitors should be given the opportunity to connect or bond with people who make them feel comfortable, such as friends, family or people with similar access preferences
 - Visitors should be given the opportunity to learn inclusively either through people they feel comfortable with or alone– for example, if people want to tour museums with family members rather than with people with similar impairments, then they should be supported to do so; if visitors feel more comfortable with similar impairments, then support should be adapted to these specialist groups
 - Visitors should be given access to information that leads to inclusion and knowledge by whatever means they feel comfortable with. This access could include alternative forms

of text or signing, or it could mean alternative ways of providing information, such as through telephone apps or through papers for those who refuse technology

- All visitors should have access to public spaces and places, including cyberspace as well as a physical space. Access to spaces and places should also include considering how visitors will get to the museum and enter and exit buildings and cyberspaces, not just how people navigate buildings
- All visitors should have access to mobility and a means to navigate their way around the four stages above – mobility through physical and hyperspace, the ability to navigate information, mobility between different levels of learning – i.e. the potential to reach different levels of learning – and mobility with groups of people they feel comfortable with.

3.2 Guidelines for Participatory Practice and Evaluation

3.2.1 The While of Participation

- Activities within participatory projects fall into 7 broad categories:
 - Accessing information
 - Capturing ideas
 - Expressing ideas
 - Analysing information
 - Developing skills
 - Building relationships
 - Organising process
- When we consider any of these activities, the multiple interactions of participation will be happening while the activities are - through them, within them and around them.
- Participation and activity are inextricably linked. Participatory practice is therefore not about activity type but the manner in which all activity is undertaken.

3.2.2 Practical, Considerations for Cross-Cultural Participation

- Overall Factors
 - Open and transparent communication from the beginning is important for collaboration
 - No one is an “expert,” thus all voices need to be heard during participation
 - Being flexible during exercises and practice is key
 - Ensure there is a good representation of people with a wide range of access preferences at all stages of practice
 - Identify what everyone brings to the project
 - Be aware of the limitations of the project
 - There will be different rhythms of participants and partners, and flexibility needs to be shown to these rhythms
- Approaches to Recruiting Participants
 - Museums need to engage from the beginning with the recruitment process
 - The wider the recruitment scope, the richer the knowledge you will gather
 - Be prepared to spread out communication strategies and start early with recruitment
 - Give volunteers the chance to be part of the early planning stage
 - Gatekeepers may be supportive but won’t guarantee participants
 - Expect conversations about remuneration from volunteers
- Attending to Different Needs
 - Each group is different, so models from other groups will need to be adapted
 - Work by access preferences rather than impairment categories
 - Take time to get to know each other in the early stages of the groups
 - Different participants understand others’ access needs differently from their own, therefore it is again important to be flexible and patient
 - Expect requests for division of the groups according to impairment, as this is part the traditional understanding of “disabled identities”
 - Ensure all materials are accessible and creative
- Strategies for Working with Mixed Abilities

- Create a welcoming space for all participants
- Be aware of the power of relationships between participants
- Everyone is in this process together, and this should be acknowledged
- Always be alert to perceptions of favouritism and their creation
- Know the expectations and experiences of everyone involved
- Don't overload the participants with information, and be prepared to take extra time for exercises
- Point out certain basic communication and operational conditions – and be consistent with the rules
- Produce multisensory and multifaceted approaches to artworks and technologies
- How to Establish Communication Within Consortia
 - Share knowledge and previous experiences amongst participants
 - Define common goals and meanings
 - Expect everyone to understand participation in their own way
 - Evaluate each other's work constantly during the course of group work
 - Give staff time for training and re-training
 - Think about each step of the process from the start, and break down each stage of each exercise before presenting it to the group
 - Findings change during the process of participation; therefore, it should be expected that there will be few concrete findings

3.2.3 Ethical Considerations

Ethics should be negotiated with the participatory group itself, but can begin by considering the following elements:

- Consent
 - Consent and assent should be ongoing throughout the project
 - Consent should be considered through engagement and verbal or signed agreement
 - Consent should be flexible and gained through language or symbols, as long as participants feel comfortable giving it
 - Initial consent should be provisional and continue to be gained throughout the course of a project
 - Groups should be encouraged to share information and be alert to collective pressures on individuals
 - All materials should be made accessible to a range of access preferences through forms that participants feel comfortable with
- Security
 - Interventions and equipment should not carry potential dangers beyond those that participants normally face
 - Institutional staff and academics should make sure that participatory practices are not harmful to the well-being of individual participants
 - All participants should be aware of breaches of confidentiality and trust within participatory groups
 - Where appropriate, during participation academics should be required to have appropriate checks relevant to the jurisdiction they work in
- Data protection
 - All research notes, images, interview recordings and transcripts should be stored securely behind password protection, under lock and key
 - The project should be registered with an institutional Data Protection Officer
 - Participants' personal information should be kept on a secure server
 - Datasets should be separated from personal information that can identify participants
 - Images, sound files and videos footage remain the property of the individuals they represent
 - If participants feel a threat to their well-being during participation, they should have the right to remove their footage or block its use.

ANNEX

A INTRODUCTION

Collectively known as The Guidelines, this report evaluates the activities and exercises carried out since the formation of ARCHES's participant groups. The aim of the Guidelines is to develop ideas about how best to access, support and develop research and policies that facilitate inclusion in cultural places.

The Guidelines do not contain an exhaustive set of recommendations, although it reflects the experiences and practices of our participants over the course of the almost three years of study – the study was constrained by the individual cultures of the partner museums, the framework of evaluation and the unique access preferences of the participants involved in the project amongst others. Subsequently, it is written as a realistic over-view of what was achieved, given the availability of inclusive practices and technologies.

What now follows is an over-view of access in cultural institutions such as those involved in ARCHES, in order to provide the study's context.

A(i) The Context of Inclusion and Access Practice in Cultural Institutions

Inclusive practice in the arts, creative cultures and cultural heritage can be placed in a historical context of inclusion and, according to Axel (2018), this practice has passed through three eras.

The first era, from the end of the eighteenth century until the middle of the twentieth century, was that of pioneering teachers. Against the fashions of their times, these teachers worked with disabled children as a form of perceptual and emotional self-awareness.

In this era, the prevailing thinking was that each person's access-need was linked to their ability to enjoy or appreciate the arts and cultural heritage. In their careers, these radical teachers were thought to be attempting the impossible – or, at least the highly improbable – by developing a high-level understanding of issues such as scale and artworks through touch, description and separate classes.

The second era, in the second half of the twentieth century, was that of scientists who challenged the accessible practices of art institutions, schools, colleges and museums. These scientists suggested that what was thought to be inaccessible to people because of sensory or cognitive impairments could be taught through different sensory combinations or alternative learning strategies.

Many access issues were felt to be simple challenges that could be solved through what is now termed the deficit model (Harry & Klingner 2007). Moreover, these scientists showed that the sensory properties of objects were not restricted to those with the "full" use of their senses and cognitive ability.

Instead, it was found that objects and concepts taught in cultural institutions could have alternative information properties, and could be interpreted by various sensory and cognitive mechanisms.

According to Axel, contemporary cultural institutions are currently living in the third era of access and inclusion, and have a growing acceptance of what was once thought to be radical thinking as mainstream. Hence, many cultural institutions offer accessible art classes, inclusive technologies and tools such as accessible audio descriptions, wheelchairs and signers – either human or augmented.

For example, Axel's own organization, Art Beyond Sight, now provides drawing sets for people with visual impairments on request for use in museum art classes. Other organizations, such as ONCE (Spain), the RNID / Action on Hearing Loss (UK) and the ARCHES partners SignTime (Austria) and the V&A (UK) are organized by disabled people.

It was within this latter context that the ARCHES project was developed.

ARCHES began as an access project in 2016 to develop inclusive technologies as a means of promoting inclusion for disabled people in cultural institutions. Instead of using disabled people as passive subjects of this research, the ARCHES partners formed participatory groups, which included museum officers, technology companies, academics and disabled people and non-disabled volunteers – this issue will be covered further in the methodology section below, and has been covered extensively in previous deliverables.

All participants belonged to groups in four cities, two of which were in Spain (Oviedo and Madrid), one of which was in the UK (London) and one of which was in Austria (Vienna). The Madrid and London groups moved between their two museums and the Vienna and Oviedo groups were based in a single museum. Again, the timings of these groups have been discussed extensively in previous deliverables and so will not be repeated here, but the first group formed was in London, January 2017.

The list of access preferences of participants represented in the groups was not exhaustive, and recruitment was based on people with difficulties associated with sensory and intellectual impairments. However, in reality, and as observed above, many of the participants that attended the sessions had multiple access preferences in unique combinations.

Due to the dissolution of the original lead partner, some of the technologies were either delayed or did not appear. However, the technologies that had fewer or no delays were tested by the groups, and the results appear in the deliverables in Work Package 6.

Meanwhile, groups maintained their participant sessions and worked on exercises related to general museum access and inclusion, and the use of mainstream technologies in the museum. Furthermore, during sessions participants visited other cultural institutions and exhibitions in their host galleries.

The dissemination of the findings from the participant groups has been broad and included – or are to be presented in - keynote, invited and peer-reviewed presentations and demonstrations at national and international conferences, workshops and university research days on four continents (Europe, Asia, Central America and North America).

In addition, observations, philosophies and models of practice have been developed and published or are in press in internationally disseminated academic journals, edited collections, monographs, NGO websites, blogs and conference proceedings – this dissemination is discussed further in section C of this Annex.

At the time of writing, the London, Oviedo and Vienna groups finished meeting to engage in exercises, although Vienna is to meet again for a celebration of its work. The final session in Madrid group is imminent. Thus, what follows in this report are the outcomes of this work and a reflection on and an evaluation of the participatory groups.

A(ii) What Follows in The Guidelines

The Guidelines are split into the following four sections:

- Methodology and methods – this section includes a discussion on the overall methodologies, data collection and restrictions encountered.
- The models developed by participants during the course of ARCHES – this section includes a summary of presentations, publications and models constructed during the course of ARCHES
- An evaluation of participation during ARCHES – this section outlines the findings of the evaluation conducted through interviews.
- Conclusions

B SUMMARY OF THE METHODOLOGIES AND METHODS

B(i) Research Methodologies

The methodology used to gather data on museum practices, pilot studies with technologies and exercises in ARCHES was participatory practice. This data was then analysed using grounded methodology, which was designed to analyse the data on the use of technologies and tools in cultural institutions. A full description and evaluation of the grounded methodology is given in Deliverable 6.5, and so will not be repeated in this report. However, in brief, the grounded methodology used in this study:

- was a primarily qualitative method of data analysis used in previous museum and heritage studies (Hayhoe, 2012, 2019) and is adapted from grounded theory (Glaser & Strauss, 1967)
- encouraged the evolution of interpretive deduced theories that evolve through discourse

- had three phases of analysis, with data analyzed differently in these three phases and providing a focus for the research:
 - the first phase developed categories of data
 - the second phase sub-categorised data and linked these sub-categories
 - the third phase tested the previous findings with new data

Participatory practice is a contemporary research methodology designed to include stakeholders, users of technology and visitors to cultural institutions in the development of data. This methodology also allows participants to guide the form of data that is collected, critically evaluate existing technologies and practice and provide feedback on inclusion and technologies that are created under its auspices.

The participatory approach used during ARCHES was informed by a contemporary understanding of emancipatory philosophy, dating back to the late 1960s and the Independent Living Movement. This movement coined the phrase, Nothing about us without us, which in turn became a rallying cry for people passively institutionalized to take control of their own destiny (Barnes & Mercer, 2003). In doing so, this movement asserted that:

“[People] with disabilities are human beings with inalienable rights and that these rights can only be secured through collective political action. It arises out of the realization that, as historian Paul Longmore has written, "whatever the social setting and whatever the disability, people with disabilities share a common experience of social oppression.”” (Bancroft Library, 2004)

In practice, during ARCHES this emancipatory approach promoted the engagement of participants to examine their own inclusion and support through self-advocacy and agency (White et. al., 2010). Subsequently, forms of participatory practice were implemented in partner museums by actively involving disabled people in the decision making and design processes. In addition, participants were asked to suggest possible uses and the contexts of uses of the technologies developed by partners.

Importantly, the work at hand was conducted using a non-classificatory approach to disability (Rix, 2007). This approach finds that no two people have exactly the same preferences, that people should not be classified according to a single impairment – e.g. participants should not be identified as “sensory impaired” or “learning disabled” – and that everyone can be assumed to have an access preference of one form or another.

The assumption that all people have access preferences also meant that during ARCHES, technology, academic and museum partners were also found to have access preferences themselves. Therefore, their voices in the development of technologies and inclusion in the museum based on their own personal experience was seen as being equally valid as those who were recruited because they represented people who had difficulties associated with sensory and intellectual impairments.

As stated in the introduction and Deliverable 2.3, the participant groups met in the partner museums in London, Madrid, Vienna and Oviedo, from January 2017 to June 2019. These participant groups started with up to fifty attendees – usually the first meetings - although these numbers dropped off during the course of the project, with some attendees coming for some sessions and not others.

It was noted that this drop in attendance was often related to people’s pressure of work, getting new jobs or engaging in new or alternative activities. However, others did not state their reason for leaving, and a small number left because they felt their access preferences were not being met – although twenty or more participants attended sessions regularly.

B(ii) Data Collection Methods

As stated in various deliverables in work package 6, data was collected during ARCHES sessions through: formal consultation with the groups about technological developments and use, interviews with participants, sound recording of sessions and tours, visual methods, art making tasks, participant observation diaries and personal diaries, systematic literature reviews, topical reviews based on less formal literature searches and logs by participants – it was also noted over the course of the session, that there was an increase in the participants making their own notes either on their mobile devices or using traditional pen and notebooks.

As part of its communication strategy, the London group also employed a scribe for people who requested written information. This scribe sat next to people who requested “sub-titling” of the spoken conversation, and this data was also available as formal written data for use by the participant researchers.

These data collection methods are discussed at greater length in the deliverables in work package 2 and 6. However, as it is part of the work at hand in The Guidelines, it is important to summarize the method of interviewing for the following evaluation of the participatory practice.

Interviews were conducted by four of the partner researchers from the Open University and University of Bath during the latter stages of the participatory groups and pilot testing, from December 2018 through to May 2019 – the interviewees were experienced social field researchers, and had previously conducted extensive evaluations. Three of the researchers who had regularly attended separate groups interviewed participants from their own groups – Jonathan Rix interviewed in Oviedo, Kieron Sheehy interviewed in Vienna and Simon Hayhoe interviewed in Madrid and London. In addition, Jane Seale interviewed participants from the technology partners.

With the exception of the technology partners, who were interviewed via Skype, all the group interviews were conducted face-to-face, and interviews were recorded electronically using MP3/4 recorders, tablets, smartphones or laptops – the software used on tablets, laptops and telephones included Evernote and QuickTime. In each of the participatory groups, the following participants were interviewed:

- One supporter from the group – this was defined as a regular attender who supported other participants through activities such as signing, translating or providing material help with mobility or similar
- One facilitator – this was defined as a participant who helped develop the groups, helping with recruitment and developing exercises
- Five participants – this included a rich mix of participants to ensure a representation of different access preferences and impairments (some were diary keepers).
- One or two museum research coordinators
- A director of the museum if available
- An education or access manager

Jonathan Rix also interviewed the research associate from the Open University, as she had played a significant role in developing exercises and coordinating the participant groups.

Interviewees from the technology partners included the following participants:

- Two developers / engineers
- One manager

As the interviewers were native English speakers, and in an effort to coordinate interviews with the various partners, it was decided to sub-contract interpreters where interviews were conducted in Spain and Austria. In addition, it was also decided to base the evaluation questions on six validities, which had previously been developed by the Open University in previous participatory evaluation exercises (ICPHR, 2013). These six validities were:

- Intersubjective validity. For instance, participants were asked, Is the project credible and meaningful to you?
- Contextual validity. For instance, participants were asked, Is ARCHES relevant to the local situation?
- Participatory validity. For instance, participants were asked, Is this project allowing you to play a full and active part in the research process?
- Catalytic validity. For instance, participants were asked, Is ARCHES creating opportunities for social action?
- Ethical validity. For instance, participants were asked, Do you think this project is sound and just in what it is trying to achieve and the way it is trying to achieve it?
- Empathic validity. For instance, participants were asked, Is this project increasing empathy amongst participants?

Wherever possible, participants were also asked the following questions if time permitted during the interviews and the question was appropriate to the particular participant:

- Where you are and where you have been in relation to issues of access?
- What activities have you been undertaking with the participatory groups?
- What activities have people struggled with and thought successful?

- What impact has ARCHES had on you?
- What are your plans to act upon lessons learned from ARCHES?

As with all research, the data collection worked within certain constraints and, as with all projects, there were issues that affected the ability to collect data in a uniform manner. These constraints included the following issues:

1. The project was conducted in a limited number of museums, which had their own organisational cultures and existed within particular, diverse European cultures. In addition, the museums also had existing styles of providing access, rooms and exhibitions that could be made available to the ARCHES project
2. The museums worked within the normal financial constraints of contemporary public institutions, and had to account for their time carefully with a finite number of staff
3. The museums were mainly art museums, and although some visits were made to alternative museums, such as science museums, the focus on the findings was largely limited to artworks
4. Three of the four participant groups were in capital cities. Furthermore, five of the six host museums could be considered to be “national museums” or “national collections” – i.e. museums funded directly by the state. This meant that when developing a picture of “museum access,” it was not possible to generalise about other specialised cultural sites, such as specialist museums, monuments, religious buildings – although, Oviedo provided useful data on regionality.

C OBSERVATIONS AND PRACTICE FROM ARCHES: DISSEMINATION & MODELS

C(i) Dissemination of the Findings from ARCHES

This list of publications and presentations reflects the experiences and practices experienced by our participants over the course of the three years of ARCHES thus far. It is designed to provide a realistic understanding of what has been learnt from the project over the course of three years, and advise for practitioners and policy makers at museums, national and local governments, NGOs and the European Union.

The dissemination thus far is represented in two tables.

- Table 1 provides a list of presentations to stakeholders, user groups and policy makers over the course of ARCHES. It details where the talks took place and the audience that heard the presentations.
- Table 2 provides a list of the publications that have been published or are accepted and in press, and result from our work on ARCHES.

In some cases, research for publications or presentations have been conducted in collaboration with other institutions, such as University of Padova, Italy, and Central St Martin’s College of Art, UK. However, all were developed through the ARCHES project and are acknowledged as such.

Table 1: A List of Presentations Undertaken During ARCHES to Outside Audiences - in Chronological Order

| Year & Month | Presenter(s) | Title of Event | Place of Event | Type of Presentation | Audience |
|--------------|----------------------------------|--|-------------------|-----------------------|--------------------------------------|
| 2017-01. | Simon Hayhoe | The 14th Annual IEEE Consumer Communications & Networking Conference | Las Vegas, US | Demonstration | Academics, engineers, general public |
| 2017-07. | Jonathan Rix, Jane Seale, Kieron | Open University Faculty of Well-Being, Education, | Milton Keynes, UK | Research presentation | Academics |

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|----------|--|---|-----------------|--------------------------------|---|
| | Sheehy, Helena Garcia Carrizosa | Language and Sport Research Day | | | |
| 2017-10. | Rotraut Krall | 7th European Congress on the use, management and conservation of historically significant buildings | Vienna, Austria | Conference presentation | Museum professionals, academics |
| 2017-10. | Barry Ginley, Suzana Skrbic | University of Rome (MSc Museum Studies Programme) | Rome, Italy | Invited lecture | Academics, museum students |
| 2017-10. | Helena Garcia Carrizosa, Jo Wood | ICOM Relevance 2017: Are we trying hard enough? | London, UK | Conference presentation | Museum professionals |
| 2017-10. | Helena Garcia Carrizosa, Jo Wood, Andreas Reichinger | 3D Imaging in Cultural Heritage Conference | London, UK | Conference presentation | Museum professionals, academics |
| 2017-10. | Cornelia Travnicek, Andreas Reichinger | Technical University Vienna Diversity Day (October 2017) | Vienna, Austria | Demonstration and presentation | Academics, engineers, general public |
| 2017-12. | Rotraut Krall | Open Museum: Making Art Tangible | Matica, Serbia | Conference presentation | Museum professionals |
| 2018-03. | Barry Ginley, Suzana Skrbic | International Conference on Translation and Heritage Accessibility | Granada, Spain | Conference presentation | Academics and museum professionals |
| 2018-03. | Felicitas Sisinni, Simon Hayhoe | Founding a Community of Practice for Sensing Culture Through Inclusive Capital | Bath, UK | Conference presentation | Museum professionals, academics, artists, actors |
| 2018-05. | Simon Hayhoe | Sensing Culture – National Conference | London, UK | Keynote presentation | Policy makers, NGOs, museum professionals, educators, . |
| 2018-06. | Helena Garcia Carrizosa | European Cultural Heritage Summit | Berlin, Germany | Presentation | Academics, engineers, EU policy makers. |

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| 2018-06. | Simon Hayhoe | Seminar — A participatory museology | Leeds, UK | Conference presentation | Academics, museum professionals, students |
| 2018-06 | Felicitas Sisinni, Jara Diaz | 5th International Congress on Education and Accessibility to Museums and Heritage | Barcelona, Spain | Conference presentation | Academics, museum professionals, students |
| 2018-07. | Jonathan Rix, Jane Seale, Kieron Sheehy, Helena Garcia Carrizosa | Open University Faculty of Well-Being, Education, Language and Sport Research Day | Milton Keynes, UK | Research presentation, Keynote presentation | Academics |
| 2018-09. | Barry Ginley, Suzana Skrbic | Inclusive Festival: Understanding Museum | Moscow, Russia | Invited presentation | Museum professionals, people with access |
| 2018-10 | Barry Ginley, Suzana Skrbic | University of Rome (MSc Museum Studies Programme) | Rome, Italy | Invited lecture | Academics, museum students |
| 2018-11 | Moritz Neumuller | Common challenges and perspectives for Digital Cultural Heritage in H2020 projects. Building on lessons learnt and strengthening the societal impact | Brussels, Belgium | Workshop | Policy makers, EU officials, academics |
| 2018-11. | Rotraut Krall | Arte accessibile - Musei e inclusione Secondo convegno internazionale | Florence, Italy | Conference presentation and workshop | Museum professional and academics |
| 2018-11. | Rotraut Krall | Rotary Club Meeting | Munich, Germany | Invited presentation | General public |
| 2018-11. | Felicitas Sisinni, Jara Díaz, | VII Encuentro Transfronterizo de Profesionales de Museos: Museos y Accesibilidad | Online | Conference presentation | Museum professionals |
| 2018-11. | Felicitas Sisinni, Jara Díaz | Mesa redonda La accesibilidad en la cultura: | Madrid, Spain | Conference presentation | Museum professionals, academics |

| | | Propuestas de intervención | | | |
|----------|---|--|----------------------|-------------------------|--|
| 2018-11. | Simon Hayhoe | Educational Research Association of Singapore (ERAS) and Asia-Pacific Educational Research Association (APERA) International Conference 2018 | Singapore, Singapore | Conference presentation | Academics, Educators |
| 2018-11. | Felicitas Sisinni, Jara Díaz | AMIRES | Madrid, Spain. | Round table discussion | Museum professionals |
| 2018-12. | Felicitas Sisinni, Helena Garcia Carrizosa, Jara Diaz | ARCHES Project Presentation | Madrid, Spain | Workshop | Museum professionals, . |
| 2018-12. | Cornelia Travnicek, Andreas Reichinger | ICT 2018: Imagine Digital – Connect Europe, the key European ICT research and innovation event organized by the European Commission | Vienna, Austria | Demonstration | Academics, museum professional, EU commissioners, general public |
| 2018-5 | Moritz Neumuller | International Colloquium on Accessible Museums. Culture and Disability | Mexico City, Mexico | Conference presentation | Museum professionals, academics, |
| 2019-01. | Simon Hayhoe | FabLab Campana | Monterrey, Mexico | Workshop | Students, general public, academics, engineers, NGOs |
| 2019-02. | Helena Garcia Carrizosa | iJADE Creating Spaces: Inclusivity, ethics and participation in art and design education | London, UK | Conference presentation | Museum professionals, academics, arts educators |
| 2019-03. | Barry Ginley, Suzana Skrbic | V&A: SEND Symposium | London, UK | Conference presentation | Museum and school professionals |

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| 2019-04. | Jara Díaz, Moritz Neumuller | The Museum for All People: Art, Accessibility and Social Inclusion | Madrid, Spain | Conference presentation | Museum professionals, academics |
| 2019-04. | Simon Hayhoe | Organisation of an Inclusive Environment in Cultural Institutions | St Petersburg, Russia | Invited lecture, workshop | Museum professionals, academics, general public |
| 2019-05. | Jara Diaz | Estudios y acción para el desarrollo de museos inclusivos | Malaga, Spain | Conference presentation | Museum professionals, academics |
| 2019-06. | Felicitas Sisinni, Jara Díaz, Helena Garcia Carrizosa | El proyecto ARCHES. Recursos accesibles para entornos patrimoniales culturales. | Palma de Mallorca. Spain | Seminar | Museum professionals |
| 2019-06. | Felicitas Sisinni, Helena Garcia Carrizosa, Jara Diaz | ARCHES workshop: Hacia un museo participativo: actividades inclusivas en instituciones culturales Taller para profesionales de museos iberoamericanos | Madrid, Spain | Workshop | Museum professionals, , general public |
| 2019-06. | Simon Hayhoe | National Aniridia Network Conference 2019 | Birmingham, UK | Invited presentation | academics, educators, general public |
| 2019-07. | Jonathan Rix, Jane Seale, Kieron Sheehy, Helena Garcia Carrizosa | Open University Faculty of Well-Being, Education, Language and Sport Research Day | Milton Keynes, UK | Research presentation | Academics |
| 2019-08. | Helena Garcia Carrizosa, Simon Hayhoe | “Global Challenges in Assistive Technology” – 15th international AAATE Conference | Bologna, Italy | Conference presentation | Academics, engineers |
| 2019-10 | Simon Hayhoe | eHPWAS'19 Workshop in | Barcelona, Spain | Conference Presentation | Academics, Engineers, Policy Makers |

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| | | IEEE Wimob 2019 | | | |
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Table 2: A Table of Published Outputs from the ARCHES Project – in Alphabetical Order

| Publication Reference | Type of Publication |
|--|-----------------------------------|
| 1. Garcia Carrizosa, H. & Hayhoe, S. (in press). Arches Project: Validation of Technological Outcomes of Gaming Software based on a Participative Research Methodology. <i>Technology and Disability</i> . | Extended abstract in journal |
| 2. Garcia Carrizosa, H., Diaz, J., Krall, R. & Sisinni Ganly, F. (2019). Cultural Differences in ARCHES: A European Participatory Research Project—Working with Mixed Access Preferences in Different Cultural Heritage Sites. <i>The International Journal of the Inclusive Museum</i> , 12(3) pp. 33–50. | Journal article |
| 3. Garcia Carrizosa, H., Diaz, J., Krall, R., Faye, A., Skrbic, S. & Sisinni Ganly, F. (in press). Towards a participatory museum - A how-to-guide on inclusive activities. Vienna: ARCHES. | Museum handbook |
| 4. Hayhoe, S. (2018). Blind Visitor Experiences at Art Museums, 2: Key note presentation. London: Sensing Culture / RNIB. | Abstract and key-note paper |
| 5. Hayhoe, S. (2018). An auto-ethnography of a hearing-impaired researcher in museum-based participatory research. Seminar collected papers — A participatory museology. Leeds, UK: Leeds University. | Abstract and seminar paper |
| 6. Hayhoe, S. (2018). Flipping Descriptions: A new phase of democratising audio description. London: VocalEyes. (Notes from Westminster Forum, 2019: https://vocaleyeyes.co.uk/flipping-descriptions-a-new-phase-of-democratising-audio-description/) | Online essay |
| 7. Hayhoe, S. (2018). Inclusive Capital & Human Value. In S. Hayhoe, <i>Cultural Heritage, Ageing, Disability and Identity: Practice, and the development of inclusive capital.</i> , Abbingdon, UK: Routledge. (Routledge Studies in Heritage). | Chapter in monograph |
| 8. Hayhoe, S. (2019). Classical Philosophies on Blindness and Cross-Modal Transfer, 1688-2003. In J Ravenscroft (Ed.), <i>The Routledge Handbook of Visual Impairment: Social and cultural research</i> . Abbingdon, UK: Routledge. | Chapter in collection |
| 9. Hayhoe, S. & Pena-Sanchez, N. (2017). Interactive demonstration on the use of existing apps on mobile technologies to teach basic photographic techniques to participants who are blind, visually impaired and sighted together: A demonstration of an | Article in Conference Proceedings |

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| <p>exercise using apps and cameras on iOS and Android platforms to image 'the body' and handwriting. In 14th IEEE Annual Consumer Communications and Networking Conference, (CCNC 2017). New York, US: IEEE. pp. 622-623. https://doi.org/10.1109/CCNC.2017.7983195</p> | |
| <p>10. Hayhoe, S., Cohen, R. & Garcia-Carrisoza, H. (in press). Locke and Hume's theory of color is interrogated through a case study of Esref Armagan, an artist born blind. <i>Journal of Blindness Innovation and Research</i>.</p> | Journal article |
| <p>11. Hayhoe, S., Garcia Carrizosa, H., Rix, J., Sheehy, K. & Seale, J. (2018). Accessible Resources for Cultural Heritage EcoSystems (ARCHES): Initial Observations from the Fieldwork. Proceedings of the Educational Research Association of Singapore (ERAS) & Asia-Pacific Educational Research Association (APER) International Conference. Singapore, Singapore: Nanyang University.</p> | Conference paper and abstract |
| <p>12. Hayhoe, S., Tonin, C. & Lunardi, G. (2017). A Model of Inclusive Capital for Analysis of Non-Economic Human Capital. Proceedings of Decent Work, Equity and Inclusion. Padova, Italy: University of Padova.</p> | Extended abstract and poster |
| <p>13. Hayhoe, S., Garcia Carrizosa, H., Rix, J., Sheehy, K. & Seale, J. (in press). A survey of networked and Wi-Fi enabled practices to support disabled learners in museums. In Proceedings of the 15th International Conference on Wireless and Mobile Computing, Networking and Communications (Wimob 2019). New York, US: IEEE.</p> | Article in Conference Proceedings |
| <p>14. Hayhoe, S. (in press). ARCHES method of evaluation. In <i>Using Qualitative Grounded Methodology in Educational Research: An introduction for emerging researchers</i>. Abingdon, UK: Routledge.</p> | Chapter in monograph |
| <p>15. Neumüller, M. & Reichinger, A. (2018). Tactile Photography, in: Neumüller, M. (ed.), <i>The Routledge Companion to Photography and Visual Culture</i>, Taylor & Francis, New York, 2018</p> | Chapter in collection |
| <p>16. Reichinger, A., Garcia Carrizosa, H. and Travnicek C. (2017). Designing an interactive Tactile Relief of the Meissen Table Fountain. ICCHP Conference Proceedings.</p> | Journal article |
| <p>17. Reichinger, A., Garcia Carrizosa, H., Wood, J. Schröder, S., Löw, C., Luidolt, L.R., Schimkowitsch, M., Fuhrmann, A., Maierhofer, S. & Purgathofer, W. (2018). Pictures in Your Mind: Using Interactive</p> | Journal article |

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| Gesture-Controlled Reliefs to Explore Art. ACM Transactions on Accessible Computing, 11(1), article no. 2. | |
| 18. Rix, J., Seale, J., Garcia Carrisoza, H., Sheehy, K. & Hayhoe, S. (submitted). The while of participation: A systematic review of participatory research involving people with sensory and/or intellectual impairments. Disability & Society. | Submitted Journal Article |
| 19. Rix, J., Seale, J., Garcia Carrisoza, H., Sheehy, K. & Hayhoe, S. (submitted). Emergent analysis and dissemination in participatory research. International Journal of Research & Method in Education. | Submitted Journal Article |
| 20. Rix, J. (In press) Normal ways for normal days – Building our practice upon the exploration of people’s preferences in Cooper and Holford (eds) Exploring childhood and youth. Publisher TBC. | Chapter in collection |
| 21. Seale, J., Garcia Carrisoza, H., Rix, J., Sheehy, K. & Hayhoe, S. (2018). A proposal for a unified framework for the design of technologies for people with learning difficulties' Technology and Disability, 30(2):25-40. https://doi.org/10.3233/TAD-180193 . | Journal article |
| 22. Sheehy, K., Garcia Carrisoza, H., Rix, J., Seale, J. & Hayhoe, S. (in press). Inclusive museums and augmented reality. Affordances, participation, ethics and fun. The International Journal of the Inclusive Museum. | Journal article |

From the work at hand, four models of research and practice were developed, three of which related to the participatory practice and the fourth to achieving access and inclusion. These are discussed below through extended abstracts.

C(ii) Model 1 – Participatory Practice: The While of Participation – Adapted from a systematic literature search by Jonathan Rix, et. al.

In the literature, underpinning tensions between power voice and support were also observed. These tensions were most evident in outcomes of studies, which were described as “representing lives, moments of learning and value to selves.” Subsequently, tension between practicalities of participation are experienced in their component parts. This overarching explanation can be seen as the while of participation.

The while of participation involves the underpinning tensions around power, support and voice, whose participatory nature are evident in the learning, value and representation which emerge and constructed through the practicalities of participation. These components parts emerge and are constructed though

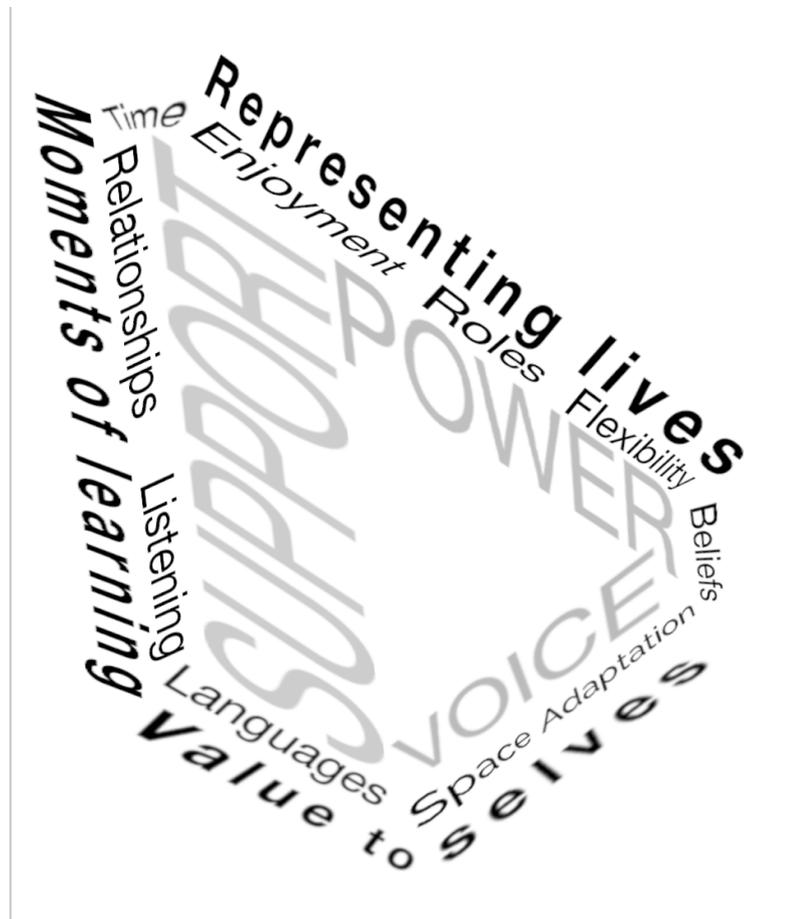
- shifting language, roles and attitudes
- a capacity to adapt practices and spaces that emerge from and enable relationships
- a recognition of the need for being flexible, taking time, and for people to enjoy

themselves.

The underpinning tensions, outcomes and component parts can be seen as multiple moments of interaction of participation, but of the kind evident in an Escher painting (see Figure 1). These moments lead both upward and downward, inward and outward, forward and backward and may be both positive and negative. These moments form around each other, but they are also the

layers through which we can understand the activities identified within the review and people's experiences of them.

Figure 1 – The tensions, outcomes and component parts within the multiple moments of participatory research



The while of participation also argues that the research space between all participants (those with access needs, researchers or stakeholders) is a “messy space.” This messy space allows people to work together, gives preference to formal or improvised approaches, and draws upon plans and rules or in-the-moment responses to their position within this space.

These understandings of participatory practice set up a range of contradictions in relation to data and its analysis. Knowledge and learning is inextricably linked to participation. It arises within the while of participation.

If this knowledge and learning is our data within the research context then we must recognise the data as emergent; and to be participatory, its analysis also needs to be emergent, understood as part of the while. Analysis outside of the while as a retrospective process (for example thematically analysing transcripts) creates two contradictions which argue against its use:

- The retrospective activity will by its nature create a new source of participation, a new source of knowledge and learning, a new source of data. The analysis will be data, revealing an experience of participation. It sets up a never-ending shortfall.
- The retrospective process privileges particular kinds of knowledge and particular capacities and thereby calls for mediation of the data. This mediation compromises both the nature of the participation and the ‘reality’ of what is being presented to participants.

In order to build on the possibilities that these contradictions create and minimise the marginalisation, ARCHES developed an emergent approach to data analysis, using ongoing participant verification. This analysis involved reflecting on experience, sharing understandings and insights from that experience, summarising those experiences, recording them and the resubmitting them to participants for clarification and verification. This emergent ongoing analysis typically occurred shortly after experiences occurred, but it could also take a longer view (for

example across one of the group's projects) providing snapshots on the way to producing a final representation of that experience (for example a video or a tapestry).

C(iii) Model 2 – Participatory Practice: An Ethical Model of Participation – Adapted from a model of ethics developed within the participant groups

This model was previously presented in Deliverable 8. However, to summarise this model, participant groups collectively formulated the following three core principles of ethically engaging with their groups: Consent, Privacy and Security/Ownership of the Data.

Firstly, it was felt consent and assent should be ongoing throughout the project and research teams needed to be alert at all times to this consent through engagement and verbal or signed agreement. Consent was gained through language or symbols that participants felt most comfortable using.

Consent was also provisional and continued to develop within each participant's expectations. Subsequently, the groups were encouraged to share information and were alert to collective pressures on individuals. Materials were also made accessible to a range of access preferences and informed consent was always asked for.

Secondly, with reference to security, it was felt that interventions and equipment should carry non-potential dangers beyond those that participants normally faced. Museum staff and academics also made sure that participatory practices were not harmful to the well-being of individual participants, and everyone was aware of breaches of confidentiality and trust within participatory groups.

Where appropriate, during the course of participation partners working with groups needed to undergo safe-guarding to ensure the well-being of participations.

Thirdly, security considerations were a key aspect of the research approach to the data after the groups met. For instance, all the research notes, images and interview recordings and transcripts were stored securely behind password protection, under lock and key and the project was registered with the Open University's Faculty Data Protection Officer. The participants' personal information was also kept on an Open University secure server and datasets were separated from personal information that could identify any participant.

Another important consideration was the images, sound files and videos footage were the property of the individuals they recorded. Subsequently, if anyone was recorded during the course of their participation and they felt this threatened their well-being in some way, they had the right to their footage or to block the use of the footage.

C(iv) Model 3 – Participatory Practice: Cultural Difference and Participation – Adapted from an article by Helena Garcia Carrisoza, et. al. (2019)

Approximately halfway through the course of the participatory groups it was observed that the aim and focus of individual participants shifted and value lay in working with mixed participatory groups. However, one of the most significant challenges was cultural differences are not only nationalistic they were also affected by museum cultures and how each institution worked.

For example, although they had fewer resources smaller museums tended to be more flexible, whereas bigger museums tended to face more restrictions and departmental structures when making changes.

During the course of the project, the museum professionals also faced challenges working with the different technology companies, which appeared to show that professionals had conflicting cultures. In particular, the technology companies' sense of participatory practice was different from the museums' in many instances.

Furthermore, the technology companies' concepts of how the sessions run and how the group worked as a whole was, in many cases, considered to be similar to clinical testing.

Subsequently, it was felt that the whole project would have benefited from a more unified understanding of its different aspects, possibly facilitated by partners having more time to meet informally and socialise. This, it was felt, would have led to more open communication. Table 3 summarises the main findings from the cultural differences observed during the course of participating in the project, designed as a helpful tool when establishing a similar project.

Table 3: Recommendations for Future Project Designs

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| Overall Factors |
| • Open and transparent communication from the beginning is important for collaboration |
| • No one is an “expert” |
| • Being flexible is key |
| • Ensure there is a good representation of disabled people through all the stages |
| • Identify what everyone brings to the project |
| • Be aware of the limitations of the project |
| • There will be different rhythms of participants and partners |
| Approaches to Attract Participants |
| • Museums need to engage from the beginning with the recruitment process |
| • The wider the recruitment scope, the richer the knowledge |
| • Be prepared to spread out communication strategies and start early with recruitment |
| • Give pioneers and volunteers the chance to be part of the early planning stage |
| • Gatekeepers may be supportive but won’t guarantee participants |
| • Expect conversations about remuneration |
| Attending Different Needs |
| • Each group is different |
| • Work by access needs and preferences rather than impairment categories |
| • Take time to get to know each other |
| • Participants understand access needs differently than what you may expect |
| • Expect requests for division of the groups according to impairment |
| • Ensure all material is accessible and creative |
| Strategies for Working with Mixed Abilities |
| • Create a welcoming space for all |
| • Be aware of the power of relationships between disabled and nondisabled people |
| • Everyone is in this together |
| • Always be alert of perceptions of favoritism and their creation |
| • Know the expectations and experiences of everyone involved |
| • Don’t overload the participants |
| • Point out certain basic communication and operational conditions |
| • Produce multisensory and multifaceted approaches to the artworks and technology |
| From Inside to Outside: How to Establish Communication within the Consortium |
| • Share knowledge and previous experience |
| • Define common goals and meanings |
| • Expect everyone to understand participation in their own way |
| • Evaluate each other’s work constantly |
| • Give staff time for constant training |
| • Think about each step of the process from the start |
| • Results transform during the process |

C(v) Model 4 - Access and Inclusion: Inclusive Capital and Human Value – Adapted from articles by Hayhoe, Tonin & Lunardi (2017); Hayhoe (2019).

In a philosophical review of human value and inclusion for ARCHES, it was observed that human capital has evolved chronologically from the eighteenth century through to the early millennium. Human capital is the skills and knowledge we possess that allows us to gain inclusion or access social or cultural institutions, mix with people and most importantly to feel valued in our surroundings.

For example, cultural human capital can be a knowledge of books that allows us to discuss them in class, study skills and habits that allow us to learn about paintings, the way we talk that makes people want to accept us. Similarly, social human capital can be informal knowledge that helps us gain acceptance in a peer group, such as “street” knowledge we learn as teenagers or our use of humour.

Consequently, human capital was found to be an effective way of understanding our personal knowledge, activities and skills during participation in museum. In addition, human capital can also be used to show how these elements shape our personality, memory and character traits.

For instance, it was observed from the literature that human capital shapes practices, individual identity and behavior, or our ways of thinking about motives and human desires. These practices, behaviours and identities included those we noticed during participatory practice.

For example, our communication rules were a good example of soft-skills participants developed between themselves to be able to communicate effectively. Similarly, the practice of walking through galleries allowed our participants to learn about and then critically evaluate the “rules” of being in a gallery. Even the practice of critical evaluation of exclusion in the galleries could be seen as a social skill they developed during the groups.

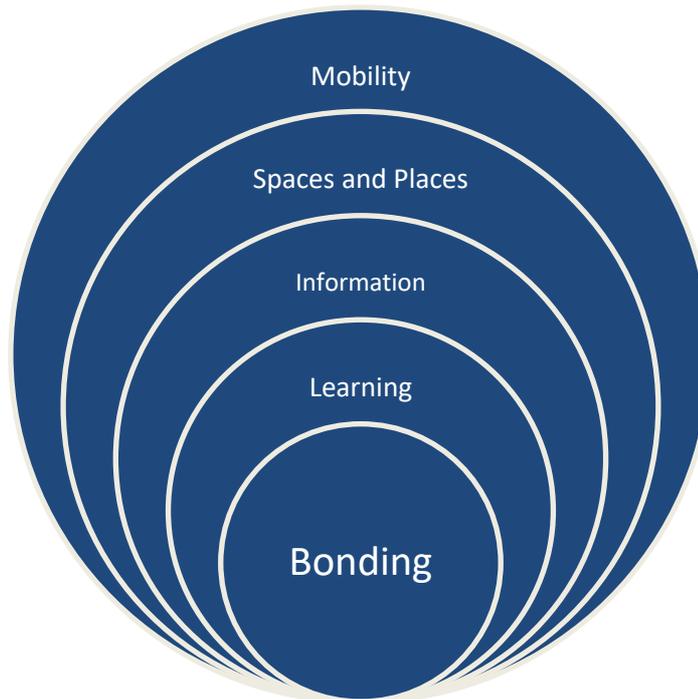
Eventually, it was observed from studying the philosophical literature, participatory practice and evaluating case studies that there appeared to be a form of human capital developed to gain inclusion in a group. This capital was called inclusive capital, and its outcome was referred to as a sense of inclusion.

Importantly, and again through evaluating literature and participatory practice, it was observed inclusive capital was gained in a cycle of five stages:

1. The first stage in this cycle is connecting and bonding with a network of people. Perhaps obviously, the participatory groups themselves were a good example of this bonding, with many developing friendships and kinship through the group.
2. The second stage is learning inclusive practices through these networks. Consequently, learning inclusive capital consisted of learning when to speak, when to “speak-up,” to whom a point could be made and the gaining of a sense of justice.
3. The third stage is collecting information that leads to knowledge. In the participatory groups this could be as simple as developing travel plans, participants finding out about their surroundings or participants finding a new app or symbol through Google.
4. The fourth stage is physically or virtually accessing spaces and places, such as visiting or attending cultural institutions, or reading about their collections and history through cyberspace. In our participatory groups, participants found their way around the museum, attended exhibits and conducted “mystery shopper” visits to other museums in order to evaluate their spaces and places.
5. The fifth stage in this cycle is mobility, and is a form of capital that weaves its way through the other four stages. For example, mobility enabled participants access to gallery spaces, and caused exclusion when access to tools such as wheelchairs or a clear path were not available. Mobility during participation also allowed the participant researchers to bond with groups in different countries physically or through hyper space.

These five stages are represented in Figure 2.

Figure 2: The development of inclusive capital and a sense of inclusion



D ANALYSIS OF THE INTERVIEWS WITH PARTICIPANTS

D(i) Summary of Findings

In all categories there seemed to be two sides to participation, with some tensions emerging from professionals in particular and more minor tensions emerging within the group. However, positive outcomes of the work outweighed the negatives, and the tensions raised interesting aspects that were particular to the local contexts and the size of museum partner.

What follows is an analysis of the interviews collected for the evaluation, split into their six respective validities.

D(ii) Intersubjective Validity

The intersubjective validity questions generated some of the most positive responses during the interviews, and was amongst the strongest elements of participation. The museum staff in particular felt their participation added to their skills-base and knowledge of participants.

During the course of the participatory groups, even the most experienced staff seemed to find something that increased their knowledge – particularly their experiences of working with people whose access preferences they had not previously come across. Moreover, it was felt that the longevity of participatory groups had allowed museum professionals to delve into issues they had come across before but in greater detail. As a result, the general proficiency base of the museum professionals widened.

For instance, one museum professional stated that she found the project had raised her awareness of a range of different challenges that some of her visitors faced. This issue had come as a surprise, as she had previously worked with visitors with a range of disabilities in her museum and felt this experience was transferable to ARCHES. For instance, before ARCHES she stated she felt as if she had a “fairly good grip” on access issues, but over the course of two years she had realized,

“So, it’s been enlightening, it’s also been a bit terrifying and it’s been enjoyable and it’s been frustrating but it’s definitely been meaningful.”

Similar sentiments were expressed by partners from technology companies. For example, one technology professional felt it was interesting to work with people from museums in particular,

as it helped them gain insights into the way they thought about access. Similar sentiments were also discussed about working with academics:

“But here again, this has a strong academic part and I like it. Because I liked university, I like science. I think this is a very good way to see and analyse the world”

For the participants, two forms of need were fulfilled more than others during the course of group participation: firstly, there was a feeling they were a productive part of a live project, a productive part of society and that they were recognized by the museum, universities and technology companies; secondly, the participants felt their voices actually led to some form of inclusive activity, some form of tangible change, and it was this change that provided self-esteem.

In this respect, there was a correlation between inter-subjective needs of the participants and the catalytic validities. Furthermore, numerous participants stated a need to learn, a need to feel part of a group or a movement and a social need to meet with friends and feel a part of a community. Through the group activities and active practice, they also saw a need to feel the museum was a place to look forward to visiting.

For instance, a disabled participant felt the sessions allowed them to gain access to the Kunsthistorisches Museum, familiarize themselves with exhibitions and follow guided tours, which they would not have normally followed. These experiences had been important for him to help to shape access he had not previously considered, and activated a need to develop inclusion in the museum,

“I want barriers to disappear, I want there to be more accessibility and I want museums to be inclusive and I’m someone who can contribute to this.”

For many of those participants who felt they were making a difference, it was also important to develop intellectual and critical skills during the course of the groups, which in turn led to a sense of self-esteem and achievement. Some participants took this aspect of the group further and, acting on their own initiative, attempted to undertake their own exercises after individual sessions had finished. For instance, one participant described the following self-directed exercise after a participation session:

“Afterwards, we all dispersed. I stayed on at the museum and I done a little mystery shopper of my own. It’s fantastic, you can go to the information desk for information, you can ask them [if] they have an iPad. They will put it straight on to BSL. Up pops the little man and he signs everywhere.”

There were, however, instances where participant sessions did not fulfil intersubjective needs. Reasons cited were largely those of a lack of technology appearing or the participants feeling they were not intellectually or professionally stimulated by the tasks at hand. In other instances, people attended because they were interested in technology but had little interest in the museums themselves or art.

For example, one participant discussed sessions where she felt presenters had just come, talked about an interest and left. It was as if these presenters had little “buy in” to the project, which left participants feeling demotivated and slightly disappointed about attending. As she stated:

“I think there was one about a design museum or an exhibition about something and the lady came in and did a presentation and it was quite complicated. I think a lot of it went over the participants’ heads, and they left, and it wasn’t linked to an active project that we were doing.”

In other instances, there were tensions between participants with different access preferences and different levels of experience in access environments. For instance, there was particular frustration by some participants that their expertise was not recognized and they were not remunerated. In addition, it was felt by some that the speed of sessions was often too slow and paced towards those who learnt slowest.

“A project which aims at addressing all sorts of disabilities at once reduces persons with disabilities to being disabled. A real participatory project would bring together, for example, people with cognitive disabilities and journalists or blind persons and architects. Disabilities are not an amorph something which is just “other than normal”. There is a great variety inside disability which has to be respected in order to meet the people’s individual strengths and disability-related needs. Combining blind people and people with cognitive disabilities in a series of workshops leads to boring hours without occupation for both sides, since the contents these two groups can work on are often different.

The one-and-for-all tool for people with disabilities does not exist and will never exist. A good example is the game in the app which can now - after months and months - be played with VoiceOver output, but which is no fun for non-seeing people.” [Personal Communication from Members of Vienna Group to VRVis]

D(iii) Contextual Validity

In the interviews, there seemed to be a significant correlation between the contextual and catalytic validities, and there was a general agreement that the local communities could gain from the participatory groups. Many of the regular members of the groups thought that ARCHES could lead to a change in their local communities, expressing aspirations in particular about modifications to information and public transport.

In contrast, the museum professionals mentioned more concrete contextual changes that could come about, based on their previous experiences of working in this field. These changes often related to practicalities, the size of the museums and the ability to link like-minded institutions rather than local cultural issues beyond the museum.

For instance, it was felt that ARCHES helped individual museums develop unique technologies they would not normally be able to afford as a collective. It was also felt that ARCHES could bridge a gap between large and small museums, allowing for diverse participatory experiences.

For example, it was felt that combining two very different museums, the relatively small Museo Lazaro Galdiano and the larger, national Museo Thyssen benefitted both parties. For instance, the Lazaro Galdiano managed to focus more on the human dimension of participation and the Museo Thyssen managed to work with different forms of art and craft:

“The combination of these two museums has given the project a fuller perspective.”

Similar sentiments were expressed by other museum professionals. For example, a participant from the Wallace Collection felt both the Wallace and the V&A could learn from each other and forge stronger, long-term links. This was particularly important for the Wallace Collection, who could not normally afford expensive custom-built technologies for access purposes, as it was a smaller, specialist collection:

“where we can’t really afford to put money into developing any kind of new tech or new audiences, let alone our underrepresented audiences.”

Participants from all four groups also felt that ARCHES could help local institutions and make particularly make local communities more aware of disability access and rights. However, for these participants the notion of helping and raising awareness in the local community seemed a little more abstract vision for the future, rather than something that could happen immediately. Consequently, during the interviews few could give specific examples where they would see specific changes, beyond broad aspirations.

“It’s what we’re doing, we’re going to make the museum more accessible to people with disabilities whether they have a learning disability or whether they’re deaf or partially deaf, or blind or partially blind, deaf/blind, so we’re looking into all that.”

D(iv) Participatory Validity

On a local level, there appeared to be significant participation within the group and many participants provided colorful illustrations of their group participation. The participants also felt they were heard by others in the group on the whole, and the coordinators and participants appeared to form a real bond.

However, it was also mentioned that simply bonding with those who ran the group was not enough to feel a sense of participation. Of greater importance was a need to feel that what was being discussed during group sessions was acted upon, or at least could lead to future action. In this respect, being listened-to and providing some evidence of inclusion in an output seemed to be correlated with a sense of feeling valued.

For instance, participants in both Spanish groups felt that when they gave feedback it was generally acted on, there was a viable change in the coming days and their ideas for activities came from the groups themselves. Participants also generally recognized that coordinators put in a great deal of hard work outside the sessions to make them interesting and they had not been blocked when their opinions were offered.

“He [the participant] thinks he’s being listened to within the project and he actually thinks that the participants are protagonists of the project, so he feels like they are really being listened to in order to improve the conditions of accessibility within the Museo.”

Groups also often felt like a family and participants made many friends during the course of the study, despite not expecting to do so when the sessions began. In addition, a number of participants felt the group coordinators were flexible, dedicated and had driven the project forward. To comply with their objectives, they stated that a number of outcomes had been set prior to activities, and these helped to focus the project.

“So, of course, we are not only listened to. Our ideas, suggestions and works are not only taken into consideration but it’s the only way that the project is working, because if we couldn’t do that the project wouldn’t have started”

Many of the museum professionals also felt as if their participation was appreciated and their voices heard during the course of the sessions. A number stated that it did not just feel as if they were doing their job or going through the motions because they were paid to attend. The professionals stated they felt valued for what they did, nice about what they did and built lasting relationships with colleagues and the participants recruited for their access preferences.

A number of professional participants also felt that although it was tough working with those from other disciplines, the effort and difficulty was worth it in the end. Even the postponement or lack of some technologies to test appeared to provide a sense of resilience.

“It’s been interesting to work with them [other professionals] too, even though there’s been problems and delays ... but they’re all incredibly dedicated and understand what it is we’re trying to do I think on the whole and have tried very, very hard to understand issues of participants.”

However, although many of the regular participants felt as if their voices were being valued, a few participants felt that some voices were over-valued over theirs within the group. In other instances, one or two participants felt intimidated by other participants as they seemed more confident.

In addition, it was found that some staff members did not feel valued, largely because they felt they were following a route map they had not helped to construct. In other instances, participants were unsure of their role in the group and, as the technologies had not appeared as quickly as they expected them to, tensions had occurred in the group. This led to some professionals having lesser fulfilment in the project, and feeling their participation was being tinged by a sense of omission and a loss of ownership.

For others, there was a feeling that the workload ARCHES produced left them reeling from the experience. For instance, one museum professional said they felt constrained by the amount of work, or having to leave decisions to others in the museum.

“It’s been hard in that me and [Co-Worker] split one day a week on ARCHES, other people work full time and that’s, for me, it’s created a problem in that ... I have two other massive programs that I run, this is a tiny part.”

There were instances of groups and individuals who stopped coming and it was not clear why. In other instances, it was stated that people had been asked to work with technologies that weren’t in their native language or had adapted settings that hadn’t been adjusted beforehand. Others felt a gap between their aims, the universities’ and the technology partners’, with others also feeling that it felt as if there was a hierarchy of participants being imposed on them:

“The project was made up of some companies’ project ideas which had been developed before the project started. The persons with disabilities had the role of testers, but we had no influence at all on the development. A project which excludes people with disabilities from its development will never be able to meet these persons’ needs and cannot be labelled participatory ...

Time is precious, even to persons with disabilities. And expertise is precious, life-based and rare expertise is even more so. The ARCHES project demanded the expertise of people with disabilities. Three hours every two or three weeks for more than a year - without any form of remuneration. I felt that the project workers in Vienna (kfm, vrvis) appreciated our expertise very much, but I missed any respect for my time and my expertise in the project design.” [Personal Communication from Members of Vienna Group to VRVis]

D(v) Catalytic Validity

As previously stated, there appeared to be significant correlation between contextual and catalytic validities, with the contextual being reported in a more concrete way during the interviews. However, there was a general sense of optimism amongst all forms of participant and a general feeling that even small changes, such as video projects, would lead to a greater understanding of access preferences. There was also mention in the interviews with the museum groups that ARCHES could possibly change the public's perceptions of access and inclusion.

Furthermore, catalytic validities were frequently also closely-correlated to empathetic validities during the interviews, or at least to developing a sense of empathy with other participants. It was also felt that small changes in practice after attending the groups could help develop a momentum at an institutional level, and lead to more significant changes in future.

For example, one of the museum professionals felt that tangible resources and their promotion often helped to disseminate the idea of access and equality better than projects alone. Furthermore, the professional felt that the effect of promoting technologies was often exponential. Importantly, when resources such as bigger signs explaining pictures and audio guides were used in real-life settings, then it was felt that others saw accessible issues up-close and museum visitors saw accessible resources as normal.

Indirect catalytic practice was also thought to be significant, leading to further understanding of access and inclusion issues amongst the participatory groups. For example, one professional described that developing a video allows it to be put on their museum's website. This website will help the group gain recognition amongst casual viewers of the website, both those who consider themselves to have access preferences and those who don't.

"The video presentation and all the resources available, will achieve a normalization of the disability ... So, the social impact has to be done with this type of littlest stones, littlest steps, but that will make sense at the end of the day."

Similar catalysts were described by the technology partners who felt their practice in future projects could be positively affected by their experiences in ARCHES. For instance, one technology partner explained that the whole participatory process was new to them, and they had no model of approach when they visited the London group – the first group to be formed.

Although the partner found this experience challenging they also found it positive, developed resilience and learnt issues about different access preferences they had not worked with before. They described the whole experience as highly enriching. Similarly, another technology partner felt the ARCHES project had changed their understanding of how technology could be truly inclusive:

"I think for me personally it opened a little more even the horizon of what is an inclusive technology versus an adaptive technology. And where it's inclusive, more inclusive led the best option, or where is it better to adapt to specific needs of specific people, and why can that also mean inclusion."

Although the greater majority of participants thought that ARCHES sessions would lead to changes, others were less optimistic and felt that step changes would be small. One museum professional for example was less-committal when answering, feeling that the changes would be less perceptible than the rest of his group.

"I think it will make a difference. Maybe the difference will be smaller than we expected. I don't know. I mean, but the important thing is that there is a difference."

D(vi) Ethical Validity

As with catalytic validity, it was felt that there had been significant ethical validity throughout the course of the project, with the greater majority of participants feeling they have been treated fairly. Significantly, the answers suggested that the project had been ethically run and developed by the museum professionals coordinating the groups. Furthermore, there also seemed to be a strong ontological correlation between the participatory, intersubjective, empathetic and ethical validities.

For instance, numerous participants stated they felt the project had been balanced with their voices being heard during sessions. Elsewhere, it was felt that the participants had been treated equally and the groups sessions felt like a safe place to voice concerns or whatever was needed to express themselves confidently.

For example, one participant felt that ARCHES respected the participants, their differences and tried to integrate everyone in a collaborative way. He also felt that the tools and technologies developed during the course of the sessions would be enriched by inputs from participants with very different perspectives. Another participant from the same group stated:

“Of course. Absolutely ... If not, I wouldn't be here [laughter] on one hand, of course, but I mean it's obvious. It's obvious ... It's obvious because of their purpose of the project and it's obvious because of the people working and involved in the project.”

Participants from another group felt that the project had been a chance to be honest about their feelings of inequality and allowed them to socialize equally. There was also a general feeling that everyone was listened to at some point, and even when people were skeptical or cynical about the implementation of the project, they were allowed to express this feeling openly.

However, despite these positive comments and although no one stated that the project had been unethical, there was a belief that the power some participants held could challenge a sense of fairness. In particular, there was a concern by some that a few participants were being listened to more than others, and those who spoke more were being listened to inequitably. It was also felt that some participants who were shy found it difficult to get their voice across, given the confidence of others. As one participant stated:

“Well, as in all groups there are people who voice their concerns more loudly than others. I think several people have already, not in a bad way, but [others] have been sitting back a bit more ... Yeah, that's part of the game so to say.”

D(vii) Empathic Validity

As previously stated, during the interviews perhaps one of the strongest elements of participation was the development of a sense of empathy during the course of group sessions. Even when staff members or other members of the exploration groups were critical of certain aspects of the project or felt frustrated about their technologies, they all seemed to have at least a sense of empathy for the access preferences of others.

For example, one participant described a situation where a fellow participant with what they described as “a strong intellectual disability” found it initially stressful to attend or be heard during sessions. This problem was particularly acute as this participant had joined in the middle of the project, which they felt made it harder for him to bond with other members of the group of feel accepted by others.

However, after different members of the group worked with this participant over a period of time and gave him increasingly more responsibility, they noticed the participant grew in confidence. Eventually, this participant found themselves putting their opinions across and was even given the opportunity to make public presentations.

“This guy, this person was so closed, so shy, so introspective the very first day. And, last week when we did the intermediary middle term presentation of the project, he made a presentation on top of the stage and he was brilliant. And, now you see him interacting with the rest of the group, putting his opinion on top of the table, making his arguments, discussing, so it's brilliant.”

However, there was not only empathy for different access preferences, but also for the responsibility and roles of museum professionals and technology developers. In particular, it was observed that discussing each other's roles and experiences during group sessions had helped each participant understand the nature of museum work. It also appeared to provide an insight to the difficulties of engaging with the museum as a disabled person.

Another theme raised on numerous occasions was the necessity of longevity as a catalyst for generating empathy amongst the participants. For example, following uneasy experiences in the early sessions between museum professionals and those who were recruited for their access preferences, it was felt that different participants now understood each other's needs more clearly. In this way, even tensions made it more likely to develop a sense of resilience amongst participants of all types given the passage of time.

“I think I know what blind people need. But of course, now without all the other disabilities, so yes, this increased empathy in our case. But yeah, for the whole project I think just working together should increase this in any case, and I think this part worked quite well in ARCHES. Working two years together simply has to increase it.”

Other participants felt that working on many of the tasks had helped participants gain a sense of empathy of others' access preferences and the general needs of others. Although this was not a focus of the tests, and was not considered in the original test designs, there was a belief that empathy occurred "organically," as a process of education.

For example, one participant stated that the use of technologies developed during ARCHES had enabled them to understand technologies could not simply be labelled as accessible by a single impairment category. Moreover, during the course of the project the participant said they had realized that technologies cannot be labelled as inclusive simply by being designed with the intention of providing access:

"Oh yeah, I've learned a lot. I've learned that access is many things. And yeah, I've learned that it is very much down to the individual and cannot be labelled as easily. I mean we've had this conversation when we started, we never, I never wanted to put people into, all blind people are the same. But it did, yeah those conversations have helped a lot."

However, the development of empathy was occasionally tempered by a feeling that having empathy for another participant's access preferences and experience of impairment could not help fully understand the whole of the person's needs – or what it was like to actually have another access preference or impairment. For example, one participant felt that although ARCHES tests and exercises had provided a theoretical understanding of other participants, he was not confident that his abilities to work with all the members of his group had improved in a practical way.

"OK yeah, in a theoretical way, yes, but he is not sure if he could help a blind person or a person that can't hear so well if he really has to, yeah."

E CONCLUSIONS

For over a century, museums have attempted to develop models of inclusion for disabled people. However, many of these projects have been siloed – i.e. they often assumed visitors have what are presumed to be single access preferences, such as a visual need or a hearing need.

Furthermore, museums previously developed access and inclusion without the support or consultation of people with impairments. Thus, such initiatives have often only been able to take access and inclusion to what can be considered to a first stage of access inclusion.

Based as it is on a philosophy of emancipation, participatory research and practice has thus provoked a step-change in access and inclusion. Importantly, by consulting and involving disabled people in their own inclusion, and by enabling participants to dictate their own sense of inclusion, inclusion has become increasingly genuine. This has not only led to more practical and effective cultural access, it has also acted as a catalyst for further social and cultural action, and the development of skills that enable self-advocacy.

The ARCHES project started with the intention of developing participant groups in the museums of three countries. This was the first time this had been attempted, and the groups have now functioned consistently for two years or more. During this time, the participants challenged each other: they challenged technological development, they questioned research methodologies and museum practices and importantly they challenged their own perceptions of each other.

Through its work, ARCHES has now used participatory research and practice to develop models of participation based on participatory spaces, ethical practices developed by participants themselves, a model of cross-cultural participation and a model of inclusive capital. These models are not only practical tools for museums and technology companies, they are also research instruments providing a method of evaluating future participation and access, and drawing a road map for policy making.

Furthermore, ARCHES has broken previous boundaries of participation, by joining museum professionals and technologists with people with a range of access preferences to develop more inclusive technologies. Perhaps equally important, ARCHES has shown that participation can cross national borders and contribute to a greater European understanding of inclusion and access.

It is certainly true that this participatory practice and the experiences of working together has led to tensions, and many of these tensions have been outlined in the evaluation above and in previous deliverables. However, although these tensions have disrupted the groups they also served to improve them and served as lessons for participants to develop a sense of resilience in their practice. Importantly, because of the longevity of the project these tensions have increased

empathy for all the participants based on their roles as supporters, designers or consumers of access.

However, although this project has made a new step forward in the development and understanding of inclusion, what is needed now more than ever is the legacy of this project to remain in museum partners. Equally important is a need for ARCHES to act as a catalyst for further projects, for funding structures and most importantly for local, national and pan-European policies. Without this further step forward, the developments we have worked towards will not achieve their full promise.

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