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Deliverable D6.2 “Pilot Stage II – Validation of initial developments”

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Abstract

This document provides an outline of how the initial sessions in Spain and Austria have been undertaken and update on activities in London. The document will also outline the testing of the first version of the software platform, the application for the handheld devices as well as the multisensory activities. In addition, it will report on the results that were collected based on the framework that was set in the deliverable D6.1 “Pilot Stage I – Preliminary studies”.

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Abbreviations

BVI: Blind and Visually Impaired

Coprix: (partner short name) Coprix Media

DX.X: Deliverable X.X

FLG: (partner short name) Fundación Lázaro Galdiano

HI: Hearing Impaired

HoH: Hard of Hearing

IAG: Interactive Audio Guide

ICT: Information and Communication Technologies

KHM: (partner short name) Kunst Historisches Museum Wien

LD: Learning Disabled

MBBAA: (partner short name) Museo de Bellas Artes de Oviedo

MN: (partner short name) ArteConTacto

OU: (partner short name) The Open University

Signtime: (partner short name) Sign Time GmbH

Treelogic: (partner short name) Treelogic Telemática y Lógica Racional para la Empresa Europea S.L.

Thyssen: (partner short name) Fundación-Colección Thyssen-Bornemisza

UBAH: (partner short name) University of Bath

VI: Visually Impaired

VRVis: (partner short name) VRVis Zentrum für Virtual Reality und visualisierung forschungs - GmbH

V&A: (partner short name) Victoria & Albert Museum

WC: (partner short name) The Wallace Collection

WP: Work Package

1 Introduction

The objectives of this work package can be outlined as:

- Ensuring a high degree of usability and perceived value added for the target audience through validation of hypothesis and expert input.
- Running pilot exercises to generate and implement feedback from the target groups.
- Assessing state of reached advancement.
- Identification of further research needs.

In order to generate real added value in the form of a higher degree of accessibility for people with differences and difficulties associated with perception, memory, cognition and communication, we intend to validate our development over various stages throughout the project. The main focus is directly working together with the target communities through pilot exercises. They can provide valuable feedback and ensure that the project keeps track of the goal and develops highly usable and value generating platforms and applications.

The system validation has been envisioned as a phase divided into three different pilot exercises. The first pilot exercise consisted of weekly organised visits to museums for people with differences and difficulties associated with perception, memory, cognition and communication. The museums involved in this initial phase were located in the UK due to their proximity to the experts from The Open University (OU) and the University of Bath (UBAH), who ensured activities were undertaken as outlined in WP2.

For the second pilot exercise the same strategy was adopted. However, the number of museums involved in the validation increased from two to six since the Spanish museums – Museo de Bellas Artes de Asturias (MBBAA), Thyssen-Bornemisza Museum (Thyssen) and Museo Lázaro Galdiano (FLG) – and the Austrian museum – Kunsthistorische Museum Wien (KHM) – joined the participatory research after building their own exploration groups. In this case, the volunteers decided to meet twice a month from the beginning instead of every week.

After the assessment of all the data gathered during the aforementioned visits, the participatory research groups elaborate a set of directives and recommendations to be used as inputs for refining the initial developments. It is anticipated that these directives will apply mainly to the software interfaces on how the information should be displayed in order to be as user-friendly as possible and reach as wider an audience as possible.

This deliverable report on the first version of the software platform and applications and how the previous task (T6.1 “Pilot Stage I – preliminary studies”) contributed to it. Moreover, it will highlight how the partner museums have organised activities to test it. The software version was informed by the pilot exercises explained in the deliverable D6.1 “Pilot Stage I – Preliminary studies”.

2 Establishing participatory approaches to research and agreed ways of working

The KHM, FLG, Thyssen and MBBA have received over the last year three Skype seminars on how to prepare session material, store data and organise recruitment. Each institution was visited by a University Researcher, a member who looked at the facilities and made note of future possible challenges and suggested how to work around it. Further to this, the museums were invited to participate and engage with the London Exploration Group to learn and explore the ways of working of the group. Upon that the new museums requested a training in data collection and analysis. All museums travelled to Madrid where they received a day training from the University Researchers. Further reading material was also provided. In the meantime the museums have also divided their budget, outlined session plans, created recruitment videos and undertaken research within their communities.

After a successful Open Day event, Madrid started with their first session on the 2nd November 2017, followed by MBBA, who had their first session on the 9th January 2018. The KHM was the last museum who started on the 13th February 2018. Since then all sites have been visited by a Research Associate as much as possible, who have supported each session either by preparing the session or delivering parts of it. In addition each site has been assigned and visited by a University Researcher who has given feedback and offered one-to-one support to the specific group. These visits by the University Researchers is ongoing, with them attending at least 6 sessions up to the end of autumn 2018. At this point in time the visits are being undertaken by the same University Researcher so as to develop a coherent working relationship. In June the University Researchers will be delivering another training session on the collection of data which will be attended in person by the majority of museum co-ordinators apart from those at the KHM, who because of scheduling reasons will be following the training material afterwards with a Skype session. Independently from that each city has been organising site specific trainings such as in Madrid where they organised a training on the production of easy-read material in collaboration with a national organisation. They will also have a training in April on the production of activities for people with learning difficulties, which the Research Associate will also attend.

From early on the museums agreed to store their data in the same way as the London group has in the past and that has been outlined in deliverable D6.1. Each month the Research Associate leads a Skype session in which the museums are encouraged to share and discuss activities and group priorities. Currently, the KHM, Thyssen and FLG are writing a research paper with the Research Associate on the cultural differences that have come up so far. These results will be presented at the Inclusive Museum Conference in September 2018.

3 Meeting activity

In the following sub-sections the diverse activities each museum has conducted in the past few months are summarised. They are intended to perfectly highlight the diverse group priorities but also the collaboration with partners they have had since they started.

3.1 London

As London’s sessions have been shared in the past (most recently in the Periodic Report 1), Table 1 shows the sessions from the last mentioned date (27th October 2017) onwards.

Table 1: London ARCHES session layout since the 3rd November 2017.

Dates	Location	Research activity	Museum activity	Technical partner activity
06.01	V&A	Consent Material	Visit to the Galleries	5 Favourite objects
13.01	WC	What is research? Intro to research methods	Visit the Ground Floor Galleries	5 Favourite objects Intro to RixWiki
20.01	V&A	Apps usage on a day to day basis	Visit the Galleries	5 Favourite objects RixWiki set-up
27.01	WC	Intro to social media	Visit the First Floor Galleries	5 Favourite objects
03.02	V&A	Creation of values and ways of working	Visit Revolutions temporary exhibition	Extraction of features desirable in apps
10.02	V&A	Discussion on apps to access ideas in museums	British Galleries- Victorians (Level 4) 7 Objects trail. Testing Apps (Text-To-Speech apps for example?)	Initial design discussion of Our Story logo
17.02	V&A	Creation of Communication rules Discussion of research process Design of projects	Sensory Backpacks=Ceramic Galleries	Initial design discussion of Our Story logo
24.02	WC	Introduction to demographic data collection Project working	Treasure hunt-open furniture trail and feedback	Coprix testing
03.03	WC	Feedback on demographics form Work on Projects	Audio description tour	Coprix testing

Dates	Location	Research activity	Museum activity	Technical partner activity
03.11.17	V&A	Mystery shopper film recording	Visit from the V&A curators regarding ‘Without Walls’ display	
10.11.17	V&A	Treelogic visit		
17.03.17	V&A	Tate Britain Mystery Shopper session		
24.11.17	WC	Introduction to Facebook live potential project and Data Analysis project recruitment	Brief feedback of Tate Britain experience	
14.12.17	V&A	Planning for the coming year		Coprix initial survey
05.01.18	V&A	Introduction to the calendar as well as to the diverse group projects		
19.01.18	V&A	Introduction of Data analysis project	Mystery Shopper: Winnie the Pooh	
02.02.18	WC	Group priorities: Sensory Backpack and Data Collection Analysis groups		
23.02.18	V&A	Tate Modern Modigliani Mystery Shopper session		ArteConTacto website storyboard analysis
09.03.18	V&A	Group priorities: Sensory Backpack and Data Collection Analysis groups		Coprix Accessible menu testing
23.03.18	WC	Group priorities: Sensory Backpack and Data Collection Analysis groups		VRVis Meissen Fountain Relief testing
01.09	V&A	Mystery Shopper V&A Museum of Childhood		
08.09	V&A	Presenting V&A Museum of Childhood feedback Deciding what to do with feedback		
15.09	WC	SignTime visit		
22.09	V&A	Filming V&A museum of childhood feedback	Visit to Design Festival displays	Our Story testing
29.09	WC	Mystery Shopper Welcome Collection		

3.2 Madrid

In Table 2, the sessions organised in Madrid are listed.

Table 2: Madrid ARCHES session layout since the 2nd November 2017.

Dates	Location	Research activity	Museum activity	Technical partner activity
02.11.17	FLG	Introduction to the	Introduction to museum by walking around and	

Dates	Location	Research activity	Museum activity	Technical partner activity
		project	collecting first impressions	
16.11.17	Thyssen	Consent material	Introduction to museum by walking around with audio guides and sign language guides and collecting first impressions	
23.11.17	FLG	Ways of working activity	Find objects with guides	
14.12.17	Thyssen	Group divided into interest group: 1 Communication rule and 2. Vote on the museum apps so far	Activity in the gallery Quizzing the artwork	
11.01.18	FLG	Sharing last session’s memories	Activity in the gallery Quizzing the artwork	
25.01.18	Thyssen	Introduction to different project options		Coprix survey completion
08.02.18	FLG	Group projects	Sensory painting exploration	Coprix Accessible menu testing
22.02.18	Thyssen	Group projects	Warm-up activity Let’s Van Gogh	ArteConTacto website storyboard analysis

3.3 Oviedo

The sessions in Oviedo were arranged as presented in Table 3.

Table 3: Oviedo ARCHES session layout since the 9th January 2018.

Dates	Location	Research activity	Museum activity	Technical partner activity
09.01.18	MBBAA	Consent form	Visiting around the galleries in groups. Analysis of navigation whilst exploring 2 artworks	
16.01.18	MBBAA	Summary of last week’s activity; Extracting behavioural rules within museums	Visiting around the galleries in groups. Analysis of navigation whilst exploring 2 artworks	
30.01.18	MBBAA	Summary of last week’s activity; Extracting behavioural rules within museums	Mystery Shopper exercise of temporary exhibition	
13.01.18	MBBAA	Communication Rules	Visiting around the galleries in groups. Analysis of navigation whilst exploring 2 artworks	

Dates	Location	Research activity	Museum activity	Technical partner activity
06.03.18	MBBAA	Activity in the gallery Quizzing the artworks		ArteConTacto website storyboard analysis
13.03.18	MBBAA	Visit from Conservator presenting restoration work on painting. Crossword puzzle to remember 20 objects		Coprix accessible menu testing

3.4 Vienna

The Vienna Exploration Groups was the last one that was built. Therefore, the activities began later than in other museums (see Table 4).

Table 4: Vienna ARCHES session layout since the 13th February 2018.

Dates	Location	Research activity	Museum activity	Technical partner activity
13.02.18	KHM	Introduction to project	Walk around in small group-Getting to know the museum	
20.02.18	KHM	Sharing disability experiences	Visiting galleries and seeing the 15 objects	ArteConTacto website storyboard analysis
27.02.18	KHM	Comparison and design of tactile map for VI	Gallery visit followed by mixing of colours and experimenting with painting techniques.	
06.03.18	KHM	VI design of tactile map	Cross-word puzzle in the galleries to get to know 15 objects	

4 Demographics

Since the last deliverable within this work package (D6.1 “Pilot Stage I – Preliminary studies”), the exploration groups in the diverse settings have been encouraged to undertake similar activities as in London. As each group started at different times and had different initial group priorities and ways of working, we are still awaiting the responses from these groups. Initial observations from the Research Associate show the diverse range of participants that the project has attracted.

4.1 Madrid

Prior to the first official session on the 2nd November, the two museums hosted an event in which potential participants as well as disability organisations were invited. This event had over 65 representatives. The first session on the 2nd November started with 45 participants and supporters. The group has now since then kept a stable 30 participant core group. The majority of participants either have a visual impairment or have learning difficulties. There are around 4 participants who are Hard of Hearing or D/deaf. There is a nice balance of female and male participants in their 30s and 40s. All participants have different experiences both in relation to museums as well as technology.

4.2 Oviedo

Like Madrid, Oviedo decided to host an event at which they presented the project and invited different associations and local media to the museum. The first session kicked off with a very busy crowd of around 40 participants. The session now consists of a group of around 25 people. Oviedo has a strong D/deaf community which makes the largest part of the group. There are far fewer people with learning difficulties. The participants, though very enthusiastic, have little to no experience with technology or museums. The group is predominantly male, with a large percentage around their 50s.

4.3 Vienna

In comparison to Spain, Vienna followed the example of London with a taster session. During this session over 47 participants attended. What was different to the other groups was the large group of young adults between the ages of 18-25 years old. This group of around 10 young adults have left after the initial session due to the different interests and art tastes. The group has since then a core group of around 20 participants mainly people with a visual impairment or people with learning difficulties.

The re-recruitment of D/deaf participants seems to be something to consider within Vienna and Madrid, though the overall balance of participants is something which all museum coordinators are aware of and bear in mind when seeking to refresh or maintain participation in the exploration groups.

5 Working with partners

5.1 VRVis

For the production of the tactile relief as in the case of the London exploration group, the groups in the other sites were encouraged to select their favourite top five objects out of a list of twenty objects prepared by the museum coordinators. Each group had different approaches for this that will be shared below.

5.1.1 London Exploration Group

Since the last deliverable D6.1, the group has had very little interaction with this partner. The museum coordinators have been working on the text for the audio guide aspect of the relief and have recorded it whilst the reliefs were produced by the company.

During the session of the 23rd March participants had for the first time the opportunity to explore the V&A’s Meissen Table Fountain without the audio element. As part of a paper upon which the Research Associate is collaborating with the partner participants, they have tested the way the company has interpreted the 3D object into a 2.5D piece.

The testing was conducted on two different occasions with two different groups. In each of the testings the user was presented with the relief and an enlarged photocopy of the fountain. Prior and during the evaluation participants had one-to-one support. These supporters explained the purpose of the relief, process of making the relief as well as rephrasing the questionnaire if necessary. In total 14 users with a diverse range of access needs tested the relief. Apart from three participants, all had seen and experienced the fountain in the museum environment.

The results of the evaluation let us come to the conclusion that the relief on its own is of too complex nature for a wide range of people to enjoy. Though participants liked the texture and material when it came to analyse the conversion of the object from 3D to 2.5D, it became noticeable that the size and depth of the figures confused the participants’ concept of distance. In addition, the two scenes at the top of each corner were too small and detailed to get a proper understanding of what is being illustrated.

Based on these results, either an improved version of the relief will be produced, or an additional detail will be created as a second relief or a 3D model. Further, we will improve the tactile audio-guide to include multi-media information on the touch screen and the tactile relief, and explore further interaction methods in order to create a single platform that caters to the needs of a wide variety of visitors. Possibilities for projections include: original colour and to highlight areas that the audio is currently referring to. These possibilities will continue to be tested to reach an optimum result.

5.1.2 Madrid Exploration Group

During the first sessions museum coordinators planned different activities to get to know the available technological resources as well as the art collection of each museum. Afterwards, in addition to the general activities, the participants worked in small working groups (games and technology, multisensory experiences and tactile relief, physical accessibility and orientation, contents and artwork information)

The group interested in tactile reliefs has been exploring how an art relief should be done to accomplish the expectations of museum visitors and fulfil the accessibility needs of our participants. They have considered several aspects to achieve accuracy to the original painting (proportions, textures, colours.) This group have examined an initial selection of 20 artworks of each museum in order to choose the best options to make a

relief. The museum coordinators have organised several activities to familiarise the participants with these works: audio-description, visits to the museum, quizzes, etc.

In future sessions VRVis will bring some examples of tactile reliefs to discuss with the participants and the group will make the final selection of paintings of each museum.

5.1.3 Oviedo Exploration Group

Through all our sessions we have been showing the participants artworks from the 20 masterpieces initially selected by the MBBA. In the first two sessions we divided participants by impairment category. After it was made clear that this was not what was happening in other sites and the reasons why people chose to focus upon access preferences instead, we changed this practice.

During the first session, the group was divided in three, by the museum coordinator’s interpretation of impairment category and they saw different paintings. Each group voted between two options (total of 6 artworks). Due to lack of time, voting was done the next session. Voting was done by consensus in the groups. The results were:

- Retablo de Santa Marina, by Maestro de Palanquinos
- San Pedro, by Murillo
- La cueva de Covadonga, by Genaro Pérez Villaamil

In the second session, we were visited by a television interested in our work. This crew arrived unannounced, even though we had requested time to prepare with the participants. The group was again divided into three, by the museum coordinator’s interpretation of impairment category, and they saw different paintings. Each group voted between two options (total of 6 artworks). Voting was done by consensus in the groups. The results were:

- “Mosquetero con espada y amorcillo” by Picasso
- “Recogiendo la manzana” by Nicanor Piñole
- “Rose avez une bougie” by Luis Fernández

At the third session, we went to a presentation by the museum director and the visited the museum’s new temporary exhibition from a recent donation as well as the new wing. We also discussed the results from the previous week. In the fourth session, the participants were separated in two groups, with different guides, but they saw the same 5 artworks. Voting was done by consensus in smaller groups created for the previous activity and the results were:

- “Cristo muerto en la cruz” by Zurbarán
- “Metamorfosis de ángeles en mariposa” by Salvador Dalí
- “Rose avez une bougie” by Luis Fernández

During the fifth session, the group was divided in two and saw different paintings. As part of the proposed activity, each group had to describe to the other group the painting they had just seen. They voted individually, through raised hands and the selected artwork was:

- “Filandón en el Monasterio de Hermo” by Luis Álvarez Catalá.

The sixth session was monothematic, focussing on “Retrato de Jovellanos en el arenal de San Lorenzo”, by Francisco de Goya. This is a masterpiece that might be included in the selection as a recommendation of the museum.

In the first two sessions not all participants saw all the artworks. It will be necessary to do a recap session and narrow down the selection, currently they have selected 10. We intend to also take into consideration the opinion of the management board of the MBBA.

5.1.4 Vienna Exploration Group

The process of the decision of the items to be transposed into a relief was quite difficult because all participants agreed that each item is very interesting when detailed explications are available. The participant group studied during the first three workshops 15 artworks: 8 paintings of the Painting Gallery and 7 items of the Kunstkammer. At the end of each workshop the Museum Coordinator named each item and asked how many people like it. The purpose of the objects along with the final product was carefully explained to the group. Supported by the Museum Coordinator the participant group made a list of the best five artworks as follows:

1. “Die Saliera” by Benvenuto Cellini
2. “Automat in Form eines Schiffes” by Hans Schlottheim
3. “Portrait des Johannes Kleberger” by Albrecht Dürer
4. “Madonna” by Krumauer
5. “Furienmeister, Die Furie” ex aequo Giuseppe Arcimboldo, Das Wasser or Der Sommer

This list was sent to Andreas Reichinger (VRVis) to obtain his opinion which item will fit best for transposing into a tactile relief.

His comment to Cellini: “Die saliera” (the salt cellar) would be feasible. But it is already chosen as object to be transposed in another EU Grant.

The “Automat in Form eines Schiffes” (automaton in form of a ship) is not suitable for a tactile relief. The whole structure of the ship, most of all the sails and the riggings, would not well come out in a 3D relief. The transposition would confuse people with VI understanding the spatial experience. The same goes for “Die Furie” (the fury). The significant details which bring the small ivory figure to life and which are the main attractions would not be visible in a relief.

The best art objects would be the paintings by Giuseppe Arcimboldo or Albrecht Dürer. Both paintings have the ideal size for a transposition in a tactile relief. Both are painted in front of a unicoloured background. The portrait by Albrecht Dürer shows one single male head which is an ideal precondition for a good result. The painting by Arcimboldo is more detailed, but would be just as suitable.

The group of the VI participants recommended to work out one of the last-named paintings. The decision between Dürer and Arcimboldo will be made by the then present participant group during the next workshop.

5.2 Coprix

In the last few months Coprix have changed their entire approach in response to feedback from the participants and have interacted on a regular basis with the museum and research staff as well as

participants. The company enabled the groups on two occasions to test and give their feedback on the development of the game. Both of those will be highlighted in this section.

5.2.1 London Exploration Group

During the last few months the participatory group has had two chances of interacting with the development of the games. One was an extensive survey asking participants for their experiences and preferences with popular games and the second chance was to test the accessible menu.

Firstly the participants were given the option within a busy session to respond to an extensive survey. Three participants filled in the survey with the Research Associate. Due to the lack of numbers responding to the survey, the group were asked again to fill in the survey. What was noticeable was that participants were struggling understanding how some of the questions were going to be relevant to the end product and how game example like Tetris were going to be used within the museum. Even though the participants gave their feedback it would have been useful to show participants the vision the technology partner had in mind. This was requested to share particularly after the second session.

The second testing session lasted 2 hours. 14 participants were filmed whilst testing the accessible menu (see Figure 1) on individual laptops. After the testing was done each participant had a one-to-one guided feedback session in which they filled in a questionnaire based on the questions the partner had provided. The testing was conducted by a variety of participants with diverse access preferences. Unfortunately, no VI participants attended this session who could provide further detail on the in-built VoiceOver. The Research Associate who supervised the testing observed that the participants were expecting more than a mere access menu. The expectations of the group after a year had been higher particularly after the long extensive survey they had conducted the previous time.

What particularly was noticeable was the positioning of the captions (top left corner) compared to the middle of the lower screen. D/deaf participants did not see them and participants who are unable to read or write were completely unable to do it. Despite not having any VI participants presents people got confused about the inconsistency in the VoiceOver script with the written text. Overall, participants were confused as what their task was and lost easily focus. The group hopes to test the newly improved menu on iPads in the coming weeks.

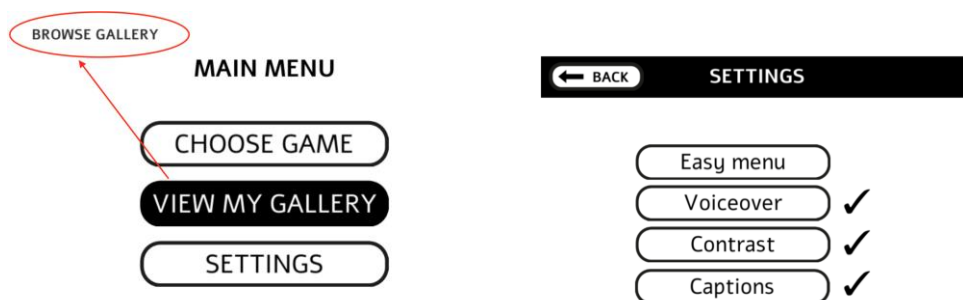


Figure 1: Two screenshots of Coprix’s accessible menu.

5.2.2 Madrid Exploration Group

The group interested in games and technology has been exploring what kind of games can be broadly understand by everyone and which kind of games can be useful to learn in a museum. The group has tested two museum games to evaluate if it was interesting and accessible to them. The museum coordinators have

also organised with them some analogous game dynamics to evaluate which game dynamics can be understood by all of them.

Due to the needs of this group, it has been more effective to test different games dynamics as well as digital games than to discuss how ARCHES games should be done. This approach has been necessary due to the characteristics of this group and has proven how each activity should be designed according to the specific needs of each participant.

In addition, over the past few months, Coprix sent us several questionnaires to gather previous knowledge and experience of museums and museums coordinators. All participants have also completed a questionnaire about their preferences and interests in games. All this information has been translated and sent to Coprix.

In the last session, some participants tested the accessible version of the game’s menu designed by Coprix. In the following sessions we will test it again with iPads and tablets. All the collected information will be sent to Coprix.

5.2.3 Oviedo Exploration Group

We tested the app menu options on our 6th session, Tuesday 13th March. A list of questions were given to us by Coprix that the museum coordinated translated them into Spanish, and then the answers back again into English.

Directions on how to test it and record it were given. We did not give prior explanations to the participants on how to use the menu, trying to make it as similar as the experience one might have when one installs an app on one’s own and have to learn how to use it.

Since the sample provided for testing was for pc and not tablet as expected, we had to make do with the available laptops in the museum and bring our own. We set up four stations in the library of the museum, apart from the main group that was in the workshop doing a different activity.

We gave the activity 1 hour time approximately and it ended lasting 1 hour 30 minutes.

The testing group was comprised of 11 participants, 7 Deaf people, 1 sign language interpreter, 2 people with a visually impairment and one person who does not identify as disabled. They recorded each other with the iPads available at the museum. Written feedback and videos were sent back to Coprix.

The main issue for the deaf collective was understanding written word. They needed the sign language interpreter to translate the questions to them. For further testing the questions need to be in sign language.

The subtitles/captions were not visible in all browsers, and when they were visible they were in an awkward placement difficult to locate, not at the bottom as expected.

There were some inconsistencies regarding the way the app refers to “Narración” as it appears written in the menu, and then the VoiceOver feature calls it “Deshabilitar voz en off” and “Voice Over activado” for deactivating and activating.

We are waiting for the app version to be tested at our next session on the 27th of March on iPads

5.2.4 Vienna Exploration Group

Since Luka Tilinger has been in charge of the development of games for the app, the collaboration with Coprix is making progress. Each week he prepares several questionnaires for the workshop leaders as well as for the

participants to get better information of the necessary needs of all participants concerning the app to be developed.

One important step is the navigation of the app. Coprix developed a sample to test it. First an automatic translation of the commands from English to German was offered. As this was not correct and did not fit at all for the understanding for some participants, the KHM asked to involve native German speakers for this translation. Coprix agreed and sent immediately a list with all the necessary expressions and sentences. The Museum Coordinator and KHM, worked out the translation.

Coprix prepared also a questionnaire for the participants who should test the navigation, but sent it only in English. Also the questionnaire was too technical. The questions were too long, very complicated words were used. The Museum Coordinator at KHM, translated the whole questionnaire. She gave it a clear structure and wrote the different questions in easy language.

One point is still unclear. Up to now the museum partners do not know which kind of games will be developed for the App by Coprix. The Museum Coordinator proposed to create crossword puzzles for the different art works as the participants appreciated this approach to exploring the items. The Museum Coordinator sent also two different versions of a possible lay out concerning colour contrasts between text and background colour. Coprix approved the suggestion, but there is still no decision made.

5.3 ArteConTacto

Between Moritz (ArteConTacto), Luka (Coprix) and Beate (SignTime) these partners created two different storyboards that the participants in the various locations were able to explore. This storyboard aimed to tell the objectives of the project and will be uploaded in the various languages on the official ARCHES website. London, Madrid and Vienna viewed the first version of the storyboard, whereas Oviedo looked at the second version. This was due to timings of the different sessions. In Figure 2 to Figure 5 four different images are presented, highlighting the diverse comments made by the groups in the various sites. The last image (Figure 5) corresponds to the second storyboard.

GROUP COMMENTS

-Spell out EU (European Union) and ARCHES (Accessible Resources in Cultural and Heritage EcoSystem) in full and explain it at the beginning. (Scene 2.1.a.A)

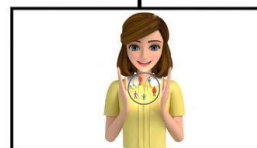
Explain EU and ARCHES at the beginning and what they stand for.

We should include ARCHES symbol in wall with opening doors to give the impression we are entering in the space of the project.

European Union-shorten to EU picture needed flags represent of



SCENE.1.a. Anna (BSL + VOZ OFF) - Hello, I have something to tell you!



SCENE.1.b. A - ARCHES is a EU-funded project that seeks to make museums more accessible to all through new technologies.

The avatar image needs more contrast. If the background The avatar image needs more contrast.

If the background is white, then her dress cannot be yellow. She is too white, and there is not enough

1

Nobody understands the representation of consortium partners. They see the technician as a receptionist, the academic as a student.. etc.

- Do you think these characters are representative of us as a group? : No - not in terms of age diversity. The picture shows a teacher but we don't have a teacher and that image is portraying the leaders not the group. Further the leaders are NOT teacher they are helping to lead thinking, joining in with the group not teaching.

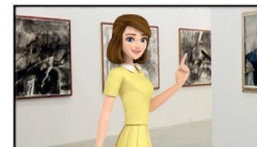
There is no representation of how we are working in the groups of participants.

what we do in museums and how we help to rethink accessibility in museum.

There should be somewhere an image showing people visiting museums, taking notes, using technology. In this way we can represent what we



SCENE.1.c. A - And how can ARCHES bring us closer to art? Come with me!



SCENE.2.

Why not an image of the real tactile relief?

Specific words are used that are difficult to understand such as: technology; 'interactive tactile relief'.and "Together they develop new technology"

Needs simplifying and slimming down e.g. brought together disabled people, IT companies, universities and museums. Together they develop and test IT items such as this touch friendly item.

Not sure want black people too London more diverse. Mixed race person better. Transgender;- mixed race; -hidden conditions not diverse enough.

Get rid of university don't need As a representation of the group there are no pictures of facilitators such as BSL signers or lip-speakers.

The one with glasses darkened seems to relate well to a person with sight impairment. However the avatar showing hearing impairment is not convincing. Possibly the use of the hearing impairment international(?) sign would be useful - or something obvious.



SCENE.2.1. a A -Thanks to the support of the European Union, ARCHES has brought together disabled people, technology companies, universities and museums. Together, they develop and test technological solutions, such as this interactive tactile relief!



SCENE.2.2.

Figure 2: Image of the first six scenes from the first version of the storyboard tested by the groups in London, Madrid and Vienna.

GROUP COMMENTS

There are no avatars showing people with physical movement needs e.g. wheelchair and balance aids etc.

Being around a table is not showing what the project is doing. The project is trying to make museums better for people with disabilities and the picture is not showing this.

They refer to activities where we work to find an easy-to-read information interesting for participants and significant for all publics to put inside the app, researching about orientation in museums, locating in the space.

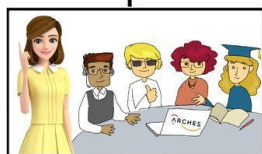
They prefer images that represent what we are doing: deaf, wheelchair, person with walking stick. Different races and genders is not the objective of this project.

The different disabilities cannot be represented by a blind person.

The ones sitting in the table do not represent the group of participants (the text is talking about them). They should be showing the different countries involved and the sense of travelling and connection between them with a graphic and a plane showing the different groups of people (participants).

Guy with sunglasses could be anything not just blind person. Perhaps represent someone in a wheelchair or guide dog.

Scene 2.1.b: Who is the person in far right. Lady is okay



SCENE 2.1.b. A - The groups are meeting in London, Madrid, Oviedo and Vienna. Their experiences and suggestions help researchers improve applications, games and avatars like me!



SCENE 2.2

ÉSC.2.2 Painting in the room shouldnt have a face. The Laughing Cavalier is adding more people represented in the video and generates distraction.



SCENE 3.1.a. A - Once the research is complete, you can use these tools as well.



SCENE 3.1.b. A - All you need is your mobile phone or tablet!

We should include the symbols that represent people with different disabilities. It's a way to represent us all.

Text is pictograms or symbols is always more accessible for people with cognitive disability.

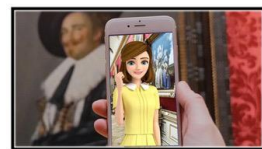
Guy on the right means audio descriptions?

What does the bottom left one mean?

We thought there could be people darker skin colour (African)
Are there sections that are too long?
Scene 2.1.a. could be shortened?
Difficult to understand what tryingto say.

Scene 3.2.a-Use British English instead of American wordings
Not everyone know what QRs are

Scene 3.1.a.-Unclear about the word 'tools'



SCENE 3.2.a. A - With our Apps you will be able to adjust colors, read QRs, convert text to audio and get information about avatars in sign language.



SCENE 3.3

Figure 3: Image of the second six scenes from the first version of the storyboard tested by the groups in London, Madrid and Vienna.

GROUP COMMENTS

Needs simplifying and slimming down e.g. brought together disabled people, IT companies, universities and museums. Together they develop and test IT items such as this touch friendly item.

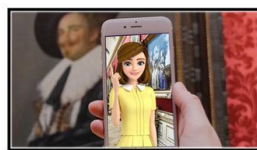
We should use the symbols to represent all of us (Disability) and also integrate images or symbols to represent technology – computer or tablet and museums – pictogram) These symbols are universal and they can be gradually integrated in the video while explaining what they represent.

esc1.c) Avatar: Lifting the finger up in Spain it's seen as if she was telling off someone. She should do a welcoming gesture such as the one with all the fingers together, open palm and movement of in and out saying "come with me"

There are lots of difficult technical words

Accessible = for all
Technological company: people that do machines.

Interactive tactile relief
=paintings that you can touch
APP =programs for tablets
Avatar= animatio



SCENE.3.2.b A - Play with your favourite artwork or let your mobile tell you something about it!



SCENE.3.4 y SCENE.3.5.



SCENE.4.1.a - Download ARCHES's accessible apps for you. On the website you will find information about ARCHES activities in museums, the solutions behind the technology and interesting links.



SCENE.4.2

Do you have any other comments? Perhaps the signer, could be at the bottom right corner at the video.

Any other comments? Devices accessibility feature

ANNA is Too conservative a figure, does not connect with the young people.
Anna has an Artificial Face.
Need more contrast with the background.



SCENE.4.1.b A - We are looking forward to hearing from you!



SCENE.4.3

Scene 4.1. It would be better to say "we are looking forward to meeting with you" rather than "we are hearing from you". The use of the verb meeting with you alleviates the problem of seeing or hearing and indicates to the viewer that you are inviting them to come in to the gallery or museum...

Figure 4: Image of the third six scenes from the first version of the storyboard tested by the groups in London, Madrid and Vienna.



Figure 5: Image of the first three scenes from the first version of the storyboard tested by the groups in London, Madrid and Vienna.

5.4 Treelogic

5.4.1 London Exploration Group

Treelogic visited the London Exploration Group on the 10th November where they presented their products but most importantly got to get to know the participants and their ways of working with technology. Unlike past sessions due to room size and location at the V&A the museum coordinators with research staff decided to restrict the session to participants only. This session therefore created a more intimate atmosphere.

After seeing how the group handled technology and after discussing the alterations the partners still have been working on all of their products for the group. London expects to have something to test in April.

5.4.2 Madrid Exploration Group

As it has been previously explained, during the first four session museum coordinators planned different activities to get to know the available technological resources at the museum that could eventually help to facilitate access to content and spaces. By doing this first exercise of criticism participants could start elaborating on initial proposals to improve in the museum.

After a few sessions, we created four general groups to work on the different areas. Since then, the groups dedicated to physical accessibility and orientation and contents and artwork information have contributed specifically to the development of Treelogic’s routes application.

These groups have contributed in many levels towards developing Treelogic application, especially the one concerning routes. The group interested in exploring the content of the application has been exploring what kind of information was available in the museum and how relevant and useful was this information for participants. The result was the creation of a worksheet that identified what kind of information could be relevant to present in the app and how the group could explore creating more information around the artworks.

The group concerned with physical accessibility and orientation studied spaces and visitor services at both museums involved, i.e. Thyssen and FLG. After doing a general overview and offering some relevant information about main obstacles and opportunities for change, more specific focus was put on thinking about how technology could solve some of identified problems. In this sense, the group explored different examples of facilitating physical orientation in the space through technology, such as interactive and title maps. Currently, they are working on the storyboard of a video that can help to locate main information about museum space, services and contents for all kinds of publics to insert in Treelogic application.

5.4.3 Oviedo Exploration Group

The group has not yet tested any applications from Treelogic or introduced their work to the participants. This will take place in the next period of work.

5.4.4 Vienna Exploration Group

KHM have supported Treelogic with translations of technical terms from English to German.

5.5 Signtime

The four Exploration groups have had limited contact with SignTime beyond feeding back on the use of the avatar within the video as described in the previous section. The ongoing discussions with SignTime about the length of signed descriptions now puts the museums in a position to provide suitable text for SignTime to work with. The delays in having items to show the participants reflects an overall difficulty for the museum coordinators and exploration groups in managing expectations about the pace of technological development and the nature of the technological outcomes which are emerging. In response to the automated translation not being available and the limited amount of material which will be delivered via Avatar (around 120 minutes across the sites and technologies) the museum coordinators are exploring how they can include and fund the use of video recordings of human signers. It has been agreed that each museum (except for the Wallace Collection) will use its 15 minutes of sign-language avatar for:

- An introductory video on accessibility - one language
- The description (and details) of the relief - one language
- The Wallace Collection prefers human signers for the relief, so their 15 minutes will be dedicated to describe the artworks that will be available through the web platform. This should be presented as a strategy to test user's acceptance.
- The remaining 30 minutes (approx.) will be used to produce a video to promote/showcase the project, maybe describing some results.

5.5.1 Vienna Exploration Group

During the second workshop in the KHM (20th February 2018) the participant group tested the draft of the Story Board and the design of the avatar. There was a very intensive, but target-oriented discussion. The text (in German) should:

- explain the word ARCHES; why was this word chosen as title?
- use shorter sentences
- use no complicated foreign words
- long or complicated written words should be divided by a medio point (Windows: ALT + 0183; or Apple ALT + SHIFT + 9)

What should the Avatar look like?

- not so old fashioned
- stronger colour contrasts between skin colour and dresses
- no strict gestures
- smaller eyes
- eyelashes more natural

There was no discussion about if and how the different kinds of impairments should be described. The participant group argued that the app will not be used only by disabled people, but by everybody. And therefore it is not necessary to emphasize different groups of people. There was no discussion about different skin.