



# ARCHES

H2020 – 693229

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## Deliverable [6.3] [Pilot Stage III- Validation of Initial developments]

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**Abstract**

This document provides an outline of how the final phase of sessions in Spain, Austria and the UK have been undertaken with an update on activities involved. The document will also outline the ongoing testing 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 6.1 and 6.2.

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## Table of Contents

Abstract	2
Document information	3
Table of contents	4
List of figures	5
List of tables	5
Abbreviations	6
Introduction	7
1: Establishing participatory approaches to research and agreed ways of working abroad	8
2: Meeting activity from session	8
3: Demographics	17
4: Working with partners	18
5.1. VRVis	18
5.2. Coprix	20
5.3. ArteConTacto	22
5.4. Treelogic	22
5.5. SignTime	23

## List of figures

Figure 1 - Access needs and preferences by group

Figure 2 - Image of access menu of sprout

Figure 3 - Image of final design of how it will look like on sprout.

Figure 4 - Screenshot from first Coprix version

## List of tables

Table 1 - Table of London ARCHES session layout since the 23<sup>rd</sup> March 2018.

Table 2 - Table of Madrid ARCHES session layout since the 22<sup>nd</sup> February 2018.

Table 3 - Table of Oviedo ARCHES session layout since the 13<sup>th</sup> March 2018.

Table 4 - Table of Vienna ARCHES session layout since the 6<sup>th</sup> March 2018

## Abbreviations

**IAG:** Interactive Audio Guide.

**ICT:** Information and Communication Technologies.

**KHM:** Kunsthistorisches Museum Vienna

**Lazaro:** Fundacion Lazaro Galdiano Museum

**MBBAA:** Fine Arts museum of Asturias

**Thyssen:** Thyssen-Bornemisza Museum

**V&A:** Victoria and Albert Museum

**VI:** Visually Impaired

**WC:** Wallace Collection

## 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 will consist 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 will be located in the UK due to their proximity to the experts from OU and Bath University, who will ensure activities are undertaken as outlined in WP2.

After the assessment of all the data gathered during the aforementioned visits the participatory research groups will 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 ongoing development of the software platform and application. Moreover, it will highlight how the partner museums have organised activities to test it and the other multisensory activities which they have working upon.

## **1: Exploring and developing participatory approaches to research and agreed ways of working**

Over the last year monthly meetings between the museums and the research associate have been held. Training about participatory research has also been delivered to the technology partners by the Open University research team. Equally in June 2018 the museum received the same training. Independent training was organised by the museum partners depending on their needs and previous experiences. All museum partners got Easy-Read training courses by national organisations such as Mencap UK. In Spain, the museums attended additionally trainings in audio description and on how to prepare inclusive activities by Plena Inclusion.

Both the Research Associate and one of the researchers from the Open University and Bath University have been visiting the sites on a regular basis to provide support. These visits by the University Researchers is ongoing, with them attending until the groups finish end of May/June 2019. At the Oviedo site the research associate has visited every session to ensure continuity, in light of a number of changes to museum staff due to unforeseen circumstances beyond the control of the project.

All museums coordinators continue storing their data both on local drives but also on online storage platforms. A shared Google Sheets outlines the different activities each group does. This has led to sharing activities and adapting them to different sites. Group priorities and additional local projects are shared in the monthly meetings. The Research Associate has also been filming and sharing short videos from group members to each other as well as set-up pen-friendships between participants. These videos discussed priorities but also very specific disability related topics but as the creation of an international ARCHES sign in sign language.

## **2: Meeting activity from sessions**

Below are four tables that highlight the diverse activities each museum has conducted in the past few months. These tables highlight the diversity of the group priorities as well as the collaboration with the technology partners. It must be noted that the bankruptcy of our lead partner (Treelogic) forced some partners to interrupt the project work. However, it was not possible to interrupt the exploration groups without risking losing all the participants and creating issues around the well-being of some of the participants. From October until February the technology companies have been less able to test and develop as they might have wished.



## London

<u>Dates</u>	<u>Location</u>	<u>Research Activity</u>	<u>Museum Activity</u>	<u>Tech Partner Activity</u>
20.04.18	V&A	Group Projects		Coprix game testing
04.05.18	V&A	Group Projects	OurStory testing	
18.04.18	WC	Group Projects		Coprix game testing ArteConTacto Feedback on website avatar
15.06.18	WC	Group Project		
29.06.18	V&A	Group Projects		
13.07.18	V&A	VrVis looking at the reliefs And looking at videos for it		
27.07.18	V&A	Group Project-Mystery Shopper to Design Museum		
07.09.18	WC	Group Project	Temporary Exhibition visit	
21.09.18	V&A	Group Project	Temporary exhibition visit	
05.10.18	V&A	Group Project	Temporary display visit	

19.10.18	V&A	Group Project		
02.11.18	V&A	Group Project		VrVis noodle testing
16.11.18	V&A	Group Project	VrVis noodle testing ArteConTacto website video evaluation	
30.11.18	WC	Group Projects		
14.12.18	V&A	Group Projects	Feedback for temporary exhibition labels	
11.01.19	WC	Review of script for VrVis fountain relief Museum routes activity		
25.01.19	V&A	Group Projects		VrVis access menu review
08.02.19	V&A	Group Projects		
15.02.19	WC	Group project		

 Table 1: Table of London ARCHES session layout since the 23<sup>rd</sup> March 2018.

### Madrid

<u>Dates</u>	<u>Location</u>	<u>Research Activity</u>	<u>Museum Activity</u>	<u>Tech Partner Activity</u>
08.03.18	FLG	Multi-sensory activity		

22.03.18	THYSSEN	Group Projects	Museum routes development	
05.04.18	FLG	Treelogic visit and test of apps		
19.04.18	THYSSEN	Group Projects		
10.05.18	FLG	Museum artworks descriptions		Coprix- testing of the accessible menu VrVis- testing of the relief selection of a painting for the relief.
24.05.18	THYSSEN	Group Project		
07.06.18	FLG	Group Project	Testing tactile relief Creating routes for museum routes app	
21.06.18	THYSSEN	Group Project		
13.09.18	FLG		Review of texts for VrVis tactile relief Creating routes for Museum Routes app	
27.09.18	THYSSEN	Group Project	VrVis prototype test Exploring Museum route	
11.10.18	FLG	Group Projects	Multi-sensory activity in museums	

25.10.18	THYSSEN	Group Project		
15.11.18	FLG	Group Project		
29.11.18	THYSSEN	Group Project		
04.12.18	FLG	Special Event Group Project		
13.12.18	FLG	Group Projects	Museum Routes creation	
20.12.18	THYSSEN	Group Project		
10.01.19	FLG	Group Projects	Museum Routes creation	
24.01.19	THYSSEN	Group Project	VrVis accessibility menu Museum Route selection	
07.02.19	FLG	Group Projects	Museum routes review	
21.02.19	THYSSEN	Group Projects		

 Table 2: Table of Madrid ARCHES session layout since the 22<sup>nd</sup> February 2018.

**Oviedo**

<u>Dates</u>	<u>Location</u>	<u>Research Activity</u>	<u>Museum Activity</u>	<u>Tech Partner Activity</u>
27.03.18	MBBAA	Demographic questionnaire	Coprix testing game Introduction to VRVis	
10.04.18	MBBAA	Group activity	Treelogic Visit VRVis relief voting	
24.04.18	MBBAA	Museum activity	Treelogic website analysis	
15.05.18	MBBAA	Group Activity	Museum activity	
29.05.18	MBBAA	Communication activity	Text evaluation	Treelogic OurStory  ArteConTacto feedback on Avatar
12.06.18	MBBAA	Group projects Communication activity	Coprix evaluation	
26.06.18	MBBAA	Group projects		
25.09.18	MBBAA	VrVis Visit Group 1: Noodle relief testing Group 2: Creative writing for tactile relief		
09.10.18	MBBAA	Group activity	Museum routes activity	
16.10.18	MBBAA	Museum routes with practical activity		

30.10.18	MBBAA	Museum route with sound activity		
13.11.18	MBBAA	Group project	Museum routes	
27.11.18	MBBAA	Group activity: International Day of Persons with Disabilities Group project		
11.12.18	MBBAA	Group Project	Museum routes	
08.01.19	MBBAA	Museum routes: navigation preferences		
22.01.19	MBBAA	Group Projects		
05.02.19	MBBAA	Group Projects		
19.02	MBBAA	Group Priority	Exploring favourite objects	Coprix game testing

 Table 3: Table of Oviedo ARCHES session layout since the 13<sup>th</sup> March 2018.

### Vienna

<u>Dates</u>	<u>Location</u>	<u>Research Activity</u>	<u>Museum Activity</u>	<u>Tech Partner Activity</u>
27.03.18	KHM	Group Project	Coprix evaluation	
17.04.18	KHM	Group Projects		2 <sup>nd</sup> Coprix test

08.05.18	KHM	Group Projects	Avatar evaluation
22.05.18	KHM	Museum audio description evaluation	Object description in Easy Read (this serves museum app)
05.06.18	KHM	Object description evaluations	
19.06.18	KHM	VrVis visit testing of V&A Table Fountain relief as well as further object description evaluation	
16.07.18	KHM	ADDED Session: To test VrVis noodle reliefs	
11.09.18	KHM	Group project	Visit to galleries
18.09.18	KHM	Visit to special exhibition	Test VrVis noodle reliefs
02.10.18	KHM	Visit to temporary exhibition	
23.10.18	KHM	Tests of texts for museum routes, testing verbal routing for VI	
06.11.18	KHM	Consortium visit; Presentation of participants works as well as guided tours by participants	
20.11.18	KHM	VRVis sprout testing tests of texts for museum routes, testing verbal routing	

04.12.18	KHM	Group project	Visit to temporary exhibition
18.12.18	KHM	Special Christmas tour with family and friends in the museum	
15.01.19	KHM	Visit from Moritz to film video Visit from VrVis to test sprout as well as access menu design and noodle reliefs	
22.01.19	KHM/Welt Museum	Group Project	Visit to the Welt Museum for access assessment
12.02.19	KHM	Group Project	Test of text for the tactile relief
26.02.19	KHM	Visit to the galleries	ArteConTacto website video evaluation

 Table 4: Table of Vienna ARCHES session layout since the 6<sup>th</sup> March 2018.



### 3: Demographics

Since the last deliverable 6.2., within all four settings, there has been a relatively consistent level of attendance across the period. However, the exploration groups have continued to change from week to week in relation to attendance and who the participants are. As an example, in London one of the regular attendees stopped coming at the start of 2019 but two new members have subsequently joined. This variability is an inevitable consequence of a long term participatory project in which the participants are nearly all volunteers. In London average attendance has been between 10-15, in Oviedo between 10-15, in Madrid 20-25 and in Vienna 20-25. The following shows the demographic data collected by the participants in each of the cities, reflecting their access preferences.

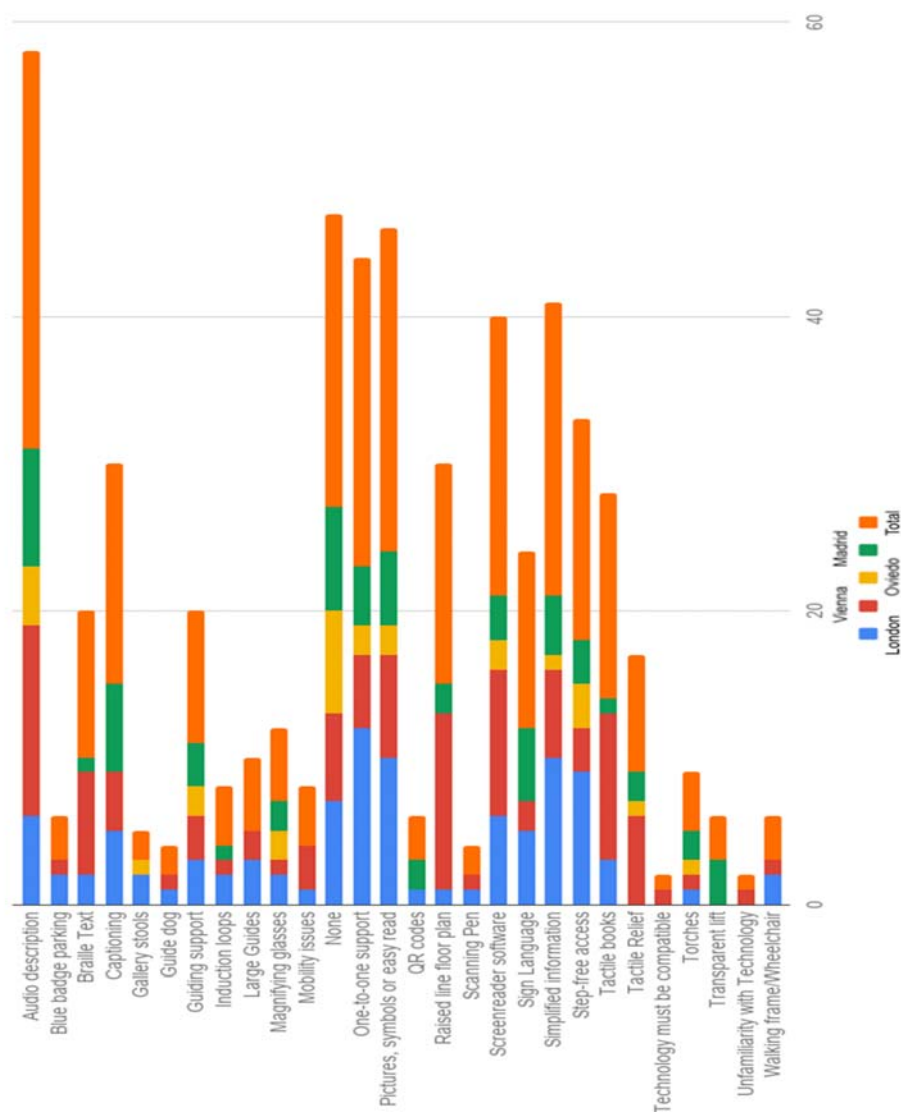


Figure 1: Access needs and preferences by group

## 4: Working with partners

The Exploration groups have been able to undertake some testing and exchange of ideas with technology partners, as shown below. The technologies as they stand are not completed. All still require their *help/intro to the technology* to be developed and tested.

### 4.1. VRVis

For the production of the tactile relief each exploration group settled on an image that they'd like to have made into a tactile relief. The groups have all had the opportunity to test the Laughing Cavalier and the V&A Table Fountain. The groups have evaluated the texts produced by the museum coordinators about the relief and of the individual regions. Some groups as will be explained below also approached their relief in a creative way. Finally, all groups have been visited by the VRVis team at least once to test the noodle reliefs.

#### London Exploration Group

This group has perhaps been the most advanced group in testing the full potential of the technology. They tested both of the reliefs with minor changes. The texts have been revised and are now being recorded. The partner also produced a set of videos with close-ups of the table fountain which the participants thoroughly enjoyed. The participants also started thinking about games and poems to add but this is not part of the project and can be implemented in a follow-up project.

#### Madrid Exploration Group

Since the last deliverable participants have chosen the two reliefs for the museums (FLG: Young Christ attributed to Da Vinci and Thyssen: Hotel Room by Edward Hopper). The group dedicated to tactile materials have been carefully evaluating the texts. With participants with a range of other access preferences, the research associate also reviewed paper-based access menu's and together with two museums coordinators agreed on an final option for the preferences.

The group has also been visited by the partner and they evaluated the noodle reliefs. It was also later repeated with the research associate. In both groups the museum coordinators and the research associate tried to test it with the partner's desired group, people with a visual impairment, as well as people with a range of access preferences.

#### Oviedo Exploration Group

Since the last deliverable the museum coordinator noticed that the options that the participants had chosen for the tactile relief didn't have copyright to use them. Therefore, new voting had to be done. The group chose between 'Aurelio Suarez's Noche Fria Espesa' or 'El Greco's San Pablo'. VRVis gave their comments for and against each of the options. Subsequently, the participants chose 'Noche fria Espesa'. Texts have not been evaluated for this object yet as they had to be rewritten by the research associate and the communication's manager. The reliefs and the Sprouts will be tested in the upcoming sessions.

The group has been visited by VRVis and participants tested the noodle reliefs. Feedback was provided to the partner. This testing was done again on a later date with another set of motifs. Generally, for people who prefer easy read it was difficult to answer questions that had to do with the detail and recognition of parts. This had to be adapted to see what was more comfortable to touch. Testing was both a positive and negative experience. Some participants took significantly longer than expected, revisiting questions over

and over again.

The research associate who had been at the Viennese session where the access menu was tested, undertook the same activity in Oviedo with seeing participants, as they could be the people looking at the layout and choosing options. Three paper versions were presented to them. After the groups input museums coordinator and the research associate agreed on a final version, which is the option shown below. It was subsequently agreed that, as much as possible, all access options should displayed in on one clear image, as shown below.

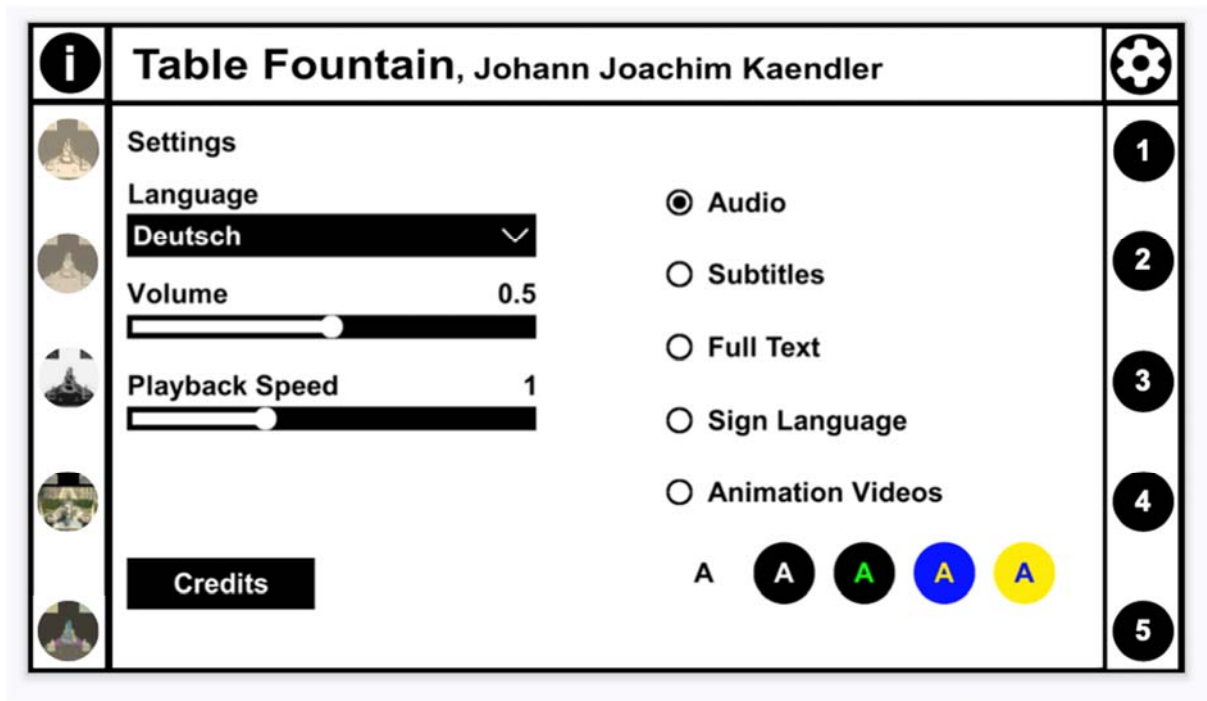


Figure 2: first screen for access menu.

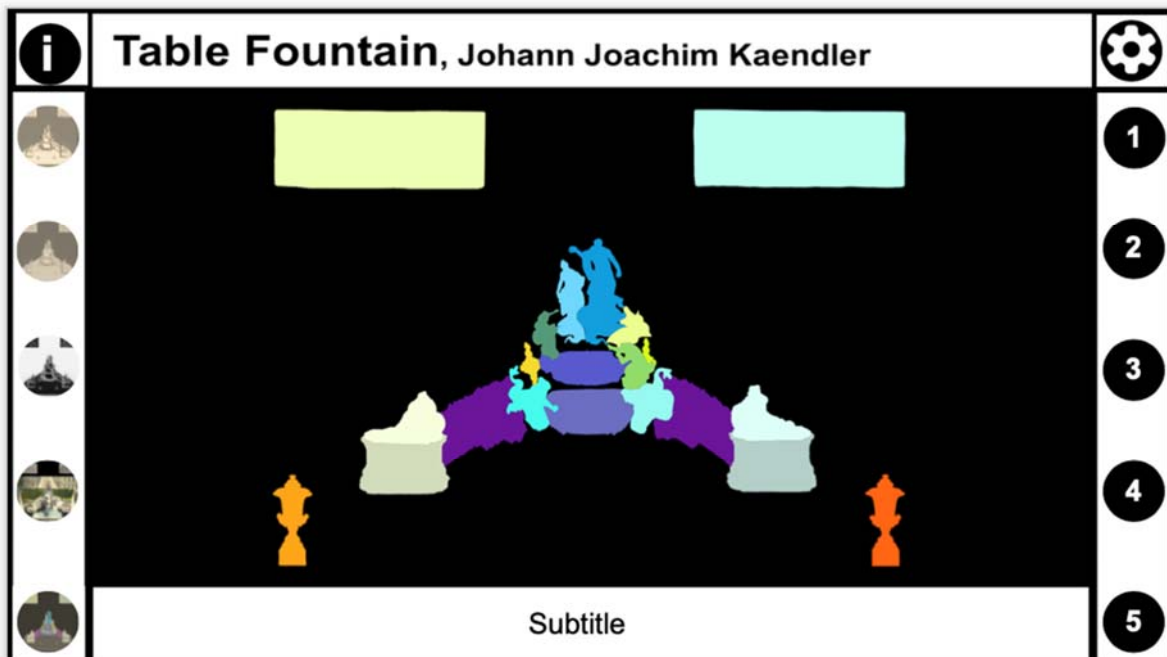


Figure 3: Image of final design of how it will look like on sprout.

### Vienna Exploration Group

Since the last deliverable, the group agreed on using the tactile relief of the painting made by Bruegel. The main argument being that it entails a lot of different details without overloading the viewer. The group have been actively looking at texts for the parts. The group has been visited by the partner several times due to its proximity. Consequently, they have had the chance to test the noodles multiple times, as well as access menu design and the fountain relief. The main feedback has been collected by the VoiceOver users despite some things like the access menu being of importance to other people with a range of access preferences.

### 4.2. Coprix

Since the last deliverable Coprix has focused on the collage game. After much discussion with the museum and research partners, Coprix decided to move away from using one game with pieces from all museums and instead create six different versions, with each museum having their individual collection as the basis for the game. At the November consortium meeting, it was also agreed that the game should be integrated into the museum route app, creating a direct link between the two, and removing the need for a separate access menu. This change is yet to happen, due to the interregnum in leadership of the project. The tutorial will also be re-written in the coming months to reflect all these changes.

### London Exploration Group

Since looking at the accessible menu, London had a look at first version of the collage game. Once the user has chosen their access features the idea is to create a collage. In this version participants got to

see parts of paintings that were from other collections and therefore unknown to them. There was a variety of feedback. For some participants, the game was entertaining whilst others wanted to push it further and connect it with the collection. Equally, at the start a yellow hand started explaining the game, participants press where the hand pointed at and that would stop the how-to-video.



Figure 4: Screenshot from first Coprix version

### Madrid Exploration Group

Similarly, as all the groups the game has been entertaining but hasn't researched its full potential. Challenges with the VoiceOver emerged too. Here the VoiceOver gestures were too complicated and not intuitive. Participants wanted more features and a clearer connection with the museum collections.

### Oviedo Exploration Group

Like the other groups after testing the access menu and finding it complicated, the group looked at the first collage version and provided similar feedback as the others. Oviedo has been thus so far the only group that tested the second version since May of last year (This version is without access menu and the How To guide, as it is being developed at the time of writing, but it only displays works of art from the Oviedo collection). The participants found it generally entertaining and easy to play. Participants got excited to recognise pieces within the options. Participants did not miss the access menu but missed an intro on what the game is meant to achieve.

Technical issues remain, particularly regarding VoiceOver. At the moment the access menu is being developed and thus the participant only has the option to switch it on directly but is unaware of the multiple finger gestures needed to move an art piece. The gestures are not intuitive and need to be re-designed as well as having the option to switch it off and on again. Another issue that was now noted was

the that the voice over version doesn't allow the user to change the colours of the pieces. This was communicated to the developer and highlighted that both non-VoiceOver version and VoiceOver version need to have the same play options available.

### **Vienna Exploration Group**

The game for VoiceOver user, was challenging due to the complex hand gestures. The others found it a simple game, which needed more excitement either through the inclusion of fun facts related to the object or more options to manipulate the artwork. As it stands, the group found the game too simple.

### **4.3. ArteConTacto**

ArteConTacto, Coprix and SignTime continued with the development of the website intro to the project video. Since the last Deliverable, participants have decided collectively on an avatar's appearance. The groups agreed to use a dark haired, dark eyed, male character with a grey shirt. The video has not yet been translated into British Sign Language, Spanish Sign Language and spoken German. Though Moritz Neumüller requested for the Spanish and Austrian groups to evaluate the video, museum coordinators considered it too confusing to the participants as they would not be able to understand the full text. The partner has also visited the groups to interview and film them for another video that will explain the project further. This one has no avatars involved. The partner showed this video to the Viennese group as it has been translated into that subtitled version so far. Sign language as well as subtitling in the other languages is still missing.

### **London**

The video was seen by the group in London who commented on the length the subtitles are displayed and their contrast with the background. Work is still in progress.

### **Vienna**

The most recent version of this video was seen by this group noting that the people in the video speak to quickly. Subtitle display time is still too short. One participant also request more precise information about where the different speakers work and live. This has been communicated to the partner, who is working on it.

### **4.4. Treelogic**

Due to financial difficulties at Treelogic, testing with Treelogic didn't take place anymore after an Oviedo session on the 25<sup>th</sup> May. Everything related to 'Museum Routes' in the tables 1-4 above relates to preparation for the app which they were due to develop but failed to deliver. In addition, production of OurStory was never completed. It was recognised that focussing more upon its completion would now be a waste of resource since OurStory was primarily intended to be a research tool for the exploration groups. This is particularly frustrating for the exploration groups who had been promised use of this application as a research tool early on in the project, and had to put up with very slow development and erratic response to feedback. Subsequent to Treelogic leaving the project, in order to ensure completion of OurStory and to enable SignTime to fully focus upon the development of the Museum Routes application which is at the heart of the project, the OurStory application has been handed across to another EU funded project to be further developed and used with groups exploring eating habits. ARCHES role in developing this application will be appropriately acknowledged.

### **London Exploration Group**

This group tested with Treelogic, the OurStory app. The participants faced particular challenges when it came to the saving of stories and sharing the stories externally. Once the story was saved, the user left the app to return to the app and not finding her/his story saved. This caused frustrations amongst participants and was shared to the partners.

### **Madrid Exploration Group**

Madrid was visited by the partner on one occasion and had the opportunity to look at the designs for the museum app as well as OurStory. The visit proved to be useful as to giving back feedback.

### **Oviedo Exploration Group**

Treelogic visited the group on two occasions. The group looked both at OurStory and at the website and the design for the app. The designs for the website and app were mainly focused on the different accessibility options that would be available in the future. The participants felt that they were unable to answer questions related to functionality and usefulness of access features when they only have a piece of paper in front of them. Regarding the OurStory app participants had difficulties dragging and dropping videos and photos. Saving of the different media with the app seemed to be another issue that irritated the group.

### **Vienna Exploration Group**

The Viennese group didn't do any testing of Treelogic since the last deliverable 6.2.

## **4.5. 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 museum coordinators together with SignTime changed the purpose of the videos and decided that the avatar videos should only be created for the tutorial videos of the different technologies. The partner is currently waiting to get the texts from each technology partner after revision from the research associate and the museum coordinators.