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SPICE

Social cohesion, Participation, and Inclusion through Cultural Engagement

D2.3 REVISED METHODS FOR INTERPRETATION

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3	DMH	DESIGNMUSEON SAATIO - STIFTELSEN FOR DESIGNMUSEET SR	Finland
4	AAU	AALBORG UNIVERSITET	Denmark
5	OU	THE OPEN UNIVERSITY	United Kingdom
6	IMMA	IRISH MUSEUM OF MODERN ART COMPANY	Ireland
7	GVAM	GVAM GUIAS INTERACTIVAS SL	Spain
8	PG	PADAONE GAMES SL	Spain
9	UCM	UNIVERSIDAD COMPLUTENSE DE MADRID	Spain
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11	FTM	FONDAZIONE TORINO MUSEI	Italy
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14	CNR	CONSIGLIO NAZIONALE DELLE RICERCHE	Italy

Executive summary

In this deliverable, we describe the process for further developing the interpretation methods introduced in D2.1 and D2.2 (artefact analysis, interactive storytelling and narrative methods, visualization techniques and collecting methods). We integrate our previously introduced theoretical perspectives by investigating and evaluating the methods based on their practical application and implementation in the context of the five SPICE case studies. Moreover, as part of our exploratory approach, we introduce new methods and approaches for citizen curation (not described in D2.1, D2.2), which have been explored in the case studies' pilot applications during the past year, including slow looking, opinion colouring and autoethnography.

Moreover, we further examine how the interpretation-reflection processes relate to the five case studies, and how these processes converge towards demonstrating each case study's perspective on Social Cohesion. For this, we describe the two workshops conducted by WP2 (Workshop 3 and 4). By applying co-design principles and practices, both workshops specifically address the applicability of each individual case study's methods, and related activities, in relation to their respective target audiences and other end-users. With respect to Workshop 3, we describe the framework for the case studies to develop their case-specific user-journey scripts, the general Workshop 3 process, and the resulting user-journey scripts. Regarding Workshop 4, we describe the testing of these user-journeys by the case studies, supporting the case studies in considering the testing process and outcomes in terms of the Interpretation-Reflection Loop and the goal of Social Cohesion. Lastly, we introduce our developed case-specific IRLs, co-designed with the case studies, based on the developed user-journeys from Workshop 3. The case-specific IRLs illustrate the generation and collection of data from the user-journeys, aiming to serve as a scaffold for further analysis and processing.

Document History

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V0.2	05/04/2022	Draft released for internal review	AAU, AALTO, DMH, HECHT, MNCN, IMMA, FTM, UH, UNITO, OU
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V0.4	27/04/2022	Final version submitted to UNIBO for final touches	AAU
V1.0	29/04/2022	Final version submitted to REA	UNIBO

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1.0 Introduction

This report describes the second iteration of the methods for interpretation that follow the WP2 objective of researching and developing citizen curation methods for use by diverse citizen groups. This second iteration builds upon the concepts and theory introduced in D2.1 and D2.2 and particularly concentrates on their practical application in the five SPICE case studies' pilots. As we have also highlighted in our previous reports (D2.1 and D2.2), we consider interpretation and reflection processes as closely interlinked into what we have defined as the Interpretation-Reflection loop. On this account, we will be exploring the interpretation and reflection methods in conjunction also in this report.

Firstly, we will describe the practical application and use of the interpretation and reflection methods in the scope of each individual SPICE case study. The methods and related activities for each case study are presented individually due to the case studies' diverse audiences, their differing needs and requirements. Each subsection includes a brief description of the envisaged pilot application and the methods considered based on the previous work in D2.1 and D2.2. This is followed by a discussion/explanation of how the methods have been applied (or are expected to be applied) in relation to the different activities of each pilot, for the end-users and other contributors. We will also present considerations on how each case study has adjusted/ adapted their methods and related activities with respect to their target audiences. The section concludes with an evaluation of the most prevalent methods from D2.1 and D2.2 based on their demonstrated practical applications.

In the following section, we present potential new methods and related activities for citizen curation that are currently explored and developed in the case studies' pilots, including the methods' theoretical considerations and practical applications.
Thereafter, we will be describing in detail the workshops conducted during the period of M12-M24, namely Workshop 3 and Workshop 4. For each workshop, we will present the underlying objectives, the workshop design, as well as key-outputs, and a general evaluation in terms of the goals and objectives of SPICE.

Lastly, we will be revising the concept of the Interpretation-Reflection loop (IRL) by presenting five case-specific IRLs, derived from the outputs of the previously described workshops. This section also lays the foundation for the methods and approaches for analysis that will be discussed in the following report D2.4.

The original objectives for WP2 are as follows:

"… developing methods for citizen groups to build representations of themselves through interpretations and associated community vocabularies; developing methods to support reflection within and across groups drawing on similarities and differences among interpretations; developing an understanding of the effects of interpretive and reflective processes on social capital and social cohesion."

Based on this, the objectives that have guided this deliverable on "Revised Methods for Interpretation" have been:

- To revise, analyze and customize approaches to citizen curation methods and related activities in the context of the five SPICE case studies
- To investigate, describe, evaluate any new additional methods not already considered in D2.1 and D2.2), their theoretical considerations and practical applications in SPICE

- To facilitate the co-design of "user-journeys" by the cases for their respective citizen groups, through a step-by-step framework (Workshop 3)
- To describe and analyze the resulting case-specific user journey scripts from Workshop 3, in terms of their convergence towards Social Cohesion (also for informing the technical WPs in terms of case studies' requirements/needs)
- To generate and collect data from the testing of the case studies' user-journeys (Workshop 4) for further analysis and processing from each case study (to be used in Workshop 5)
- To support the case studies to reflect on their testing process with the end-user communities in respect to the applied methods and related activities embedded in their user-journeys
- To support the case studies to consider the testing process and outcomes in terms of the Interpretation-Reflection Loop and the goal of Social Cohesion

2.0 Case-specific applications of the interpretation and reflection methods

Building on the theoretical foundation of the methods introduced in D2.1 and D2.2, the following section considers the practical application and use of the methods in the scope of each individual case study. As such, we perform an iteration of the previously considered methods through examining how each case study approaches these in the frames of their respective pilots. Due to the differing needs and requirements of the case studies' target audiences, and different stages of development, this section approaches each case study individually, albeit with a similar structure.

Each subsection starts with a brief description of the pilot and the methods considered based on the previous work in D2.1 and D2.2. This is followed by a discussion on how the methods have been applied (or are expected to be applied) in relation to the different activities of each pilot, both for the end-users and for the mediators and other contributors. The section concludes with considerations on how each case study has adjusted and adapted the methods and related activities in relation to their target groups

The section concludes with an evaluation of the most prevalent citizen curation methods and related activities based on their prior demonstrated practical applications in the case studies' pilots.

2.1 DMH – Pop Up VR Museum

The implementation pilot for Design Museum Helsinki (DMH) is labelled the "Pop-Up VR Museum". The Pop-Up VR Museum is a virtual reality (VR) application through which its users can access, interact, and engage with Design Museum Helsinki's collections (Díaz-Kommonen & Vishwanath, 2021). Through a dynamic process, DMH's pilot aims at enhancing inclusivity and participation in citizen curation activities via the DMH collection, and to help close the gap between museums and technology. DMH's target audience of the pilot includes three different end-user communities: senior citizens, rural communities, and asylum seekers. In this process, the mediators play an important role in aiding the application's development and guiding its users; these mediators are often comprised of curators, researchers, and members of collaborating institutions, such as senior care centers.

Considered Methods

During the second year of SPICE, the methods for interpretation and reflection considered by DMH remained as previously described for Workshop 2 (see Fig. 1), except for the addition of one new method: autoethnography.

Fig. 1: Example of Workshop 2 method card for DMH

Thus, the complete set of methods planned to be used in DMH's pilot includes:

- Artefact analysis
- Visualization techniques
- Collecting methods
- Narrative methods
- Duo- and Autoethnography

Due to the COVID-19 hindrances restricting group activities, the abovementioned methods have not yet been applied exactly as they were originally envisioned. Despite this, DMH will continue to direct the development of the different features and activities, which will be incorporated into workshops as well as to the Pop-up VR Museum application using a mixed-method approach.

Activities and Related Methods

With the core concept for the pilot implementation in mind, interpretation and reflection methods have been used by DMH to suggest specific activities to support citizens' engagement with cultural objects (e.g., elicitation of personal memories associated to selected cultural objects).

Artefact analysis is directly integrated in the interaction between the user and the design artefacts, in the form of physical affordances such as selection and manipulation of the objects (e.g., picking up artefacts, rotating them, and receiving tactile sensory feedback), as well as more abstract interaction in the form of naming and tagging artefacts by the user. Additionally, another key feature that is related to narrative methods and autoethnography, is the contribution of personal stories and memories. These stories are expected to work in two ways as sharing can involve both: (1) providing a contribution as well as (2) selecting and listening to stories contributed by others. For this part of the process, the duo-ethnography method has served as key-inspiration.

Aside from the direct activities intended for the target groups, the pilot application is also expected to allow for valuable features for museum professionals and researchers. It is the intention of the pilot to also serve as a social laboratory. From this perspective, the methods of visualization techniques and collecting is

envisioned to assist in the curation of the user contributions, together with the addition of new or missing artefacts to the collection of the Pop-up VR Museum. The pilot is also intended to provide an opportunity for the museum personnel to (1) learn about the identities and histories of their users (hereunder their similarities as well as their differences), (2) gauge aspects of the exhibition, such as the quality of user experience, that would otherwise remain inaccessible and (3) explore the contents and the issues that emerge throughout the interactions from different perspectives

Hence, some prominent features of the Pop-up VR Museum for its end-users will include:

(i) interaction with DMH artefacts such as picking it up, rotating, tactile interactions, naming and tagging artefacts.
(ii) selecting and listening to stories of other contributors emanating from the artefacts.
(iii) describing the experience in an immersive virtual environment from a first person (singular and plural - “I”, “We”) perspective using dialogue and storytelling.
(iv) progressing within the experience through gameplay that involves solving quests/puzzles, reflecting on these stories with own contributions such as drawing, painting, narration, and comments.

Meanwhile, features for researchers, museum professionals and other mediators are currently intended to include:

(v) curation of user-contributions via selection and editing
(vi) adding new or missing artefacts to the collection of the Pop-Up VR Museum

For more information regarding the intended flow of the user-journey, as well as the specific activities currently being tested in the context of DMH’s Pop-Up VR Museum, see also Workshops 3 and 4 below. Additional details and information on DMH workshops can be found in D7.5 (5.0 Pilot Applications, Workshops and User Testing in Each Case Study).

2.2 MNCN – Treasure hunt

MNCN’s case study aims to support schoolteachers in teaching their students how to interpret scientific evidence of the past and present, and see how the choices we make today will live far beyond us, long into the future. Thus, discovering how human actions are driving Earth’s rapidly changing climate today much like long-ago geological events did in the past. The aim of this case study is for the children to understand the importance of the Conservation Movement's motto: "Think globally, act locally".

MNCN’s pilot application is built around a gamified visit to the National Museum of Natural Sciences in Madrid. The application is in the form of a treasure hunt, designed by teachers and educators, using a mobile device. The treasure hunt involves children searching for artefacts at the museum, which is supported by explanations and guiding questions for the children to answer during the treasure hunt. Although school students are the primary target group, schoolteachers play a crucial role in the process. After the visit to the museum, the teacher will ask the students to write a narrative piece reflecting on their experience at the museum. Thereafter, the teachers will be able to evaluate students’ reflections by analyzing the students’ answers to the guiding questions in the game, which may perhaps uncover misconceptions or false assumptions about the topic at hand (e.g., climate change, biodiversity).

Fig. 2: MNCN' pilot implementation

Considered Methods

The primary methods in MNCN's case involve narrative methods. However, as the main citizen curation aspect will be the authoring of treasure hunts by the school teachers and/or educators, this will also involve collecting methods. While MNCN did not previously consider any particular reflection methods (see Workshop 2 described in D2.1 and D2.2), at this stage MNCN is planning to use narrative identity methods for aiding subsequent analysis, and to support reflection based on the narrative contributions. Moreover, slow looking methods will be adapted from IMMA's case to adopt a similar interpretation-reflection loop approach (see 4.2.5 below).

Thus, the complete set of methods planned to be used in MNCN's pilot will include:

- Narrative methods
- Collecting methods
- Slow looking methods
- Narrative identity methods

Activities and Related Methods

The activities developed and implemented in the MNCN pilot, currently revolves around collecting, with the students being tasked with finding specific artefacts (species etc.) at the museum. This task is also parts of the narrative methods, as the treasure hunt is authored with the intention to tell the story of the artefacts. However, the primary activity in which narrative methods is considered to be applied is the post-museum activity, where the students author reflective stories based on their treasure hunt museum experience. For the next iteration, narrative methods are also planned for integration into the pilot implementation and will be intended for use by the primary end-users, i.e., school children above the age of 12. This is planned to involve the students writing a story, where they imagine they are one of the animals featured in the treasure hunt. This is aimed at encouraging the children to imagine how their animal life could be affected by human actions. On the other hand, narrative identity methods are planned to be used in the analysis of these user-contributions.

Another possibility currently under consideration for the MNCN pilot, is a stronger inclusion of the teachers and educators in authoring the treasure hunts for their specific users. With this, collecting will also be applied on the level of the teachers and educators, hereunder allowing the teachers the possibility to add their own questions and prompts as well. The main idea would be to support the forming of a community of creators, teachers and educators, that can share their gamified views of the museum for others to use and/or adapt.
Additional details and information on MNCN workshops can be found in D7.5 (5.0 Pilot Applications, Workshops and User Testing in Each Case Study).

2.3 HECHT – Galilee rebellion

In the HECHT pilot, the aim is to educate school students about the history of their country and about the diversity of opinions regarding historical and national issues. The pilot is structured in three different stages (pre-, during and post-museum visit), which are centered around a school visit to the HECHT Museum.
For this, HECHT designed and built a web application that supports students (1) in the classroom, (2) during the museum visit (on handheld devices) and (3) after the visit. In addition to this, HECHT also designed an application which supports the teachers, curators and researchers in evaluating and analyzing the data. The process of integrating various interpretation and reflection activities has involved teachers, educators and museum curators, with teachers providing information and feedback on the educational goals of the system.

Fig. 3: HECHT pilot implementation.
Example of the group discussion using students' contributions (top) and a virtual exhibition curated by students (bottom).

Considered Methods

While previously HECHT considered adopting just narrative methods and visualization techniques, currently at this stage of their pilot application HECHT has also adopted collecting methods and artefact analysis. Additionally, coloring of opinions has been applied as an additional method (see 3.3 below).

Thus, the complete list of methods in the HECHT pilot application includes:

- Narrative methods
- Artefact analysis
- Collecting methods
- Visualization techniques
- Opinion colouring

Activities and Related Methods

Concerning the primary end-users (school students) the aforementioned methods are embedded throughout multiple activities in the HECHT pilot. Narrative methods are applied during the pre-museum activity, as students are introduced to the historical topic at hand, e.g., by being shown a video, either about a historical event, a historical text, or presented with a live talk about historical curation. This initial exposition is used to frame the general historical context of the museum visit, e.g., it can be said to set the "scene" and introduce the characters. This is followed by various supporting questions for reflection, hereunder concerning the relevance of history. Moreover, narrative methods are additionally applied in a variety of questions and prompts regarding students' thoughts and opinions throughout.

During the museum visit, the students are also asked to take photos of artefacts that relate to or support their opinions. This activity involves the use of collecting methods, as the students evaluate the importance of the artefacts in relation to their opinion, and subsequently tag them. Furthermore, collecting methods are also applied in a task in which the students are asked to design their own collection from provided pictures of artefacts. Both activities also apply artifact analysis for the selection and curation of the relevant artifacts. More generally though, for the case of HECHT, artifact analysis is used to have the students examine historical *events* as opposed to historical *artifacts*.

For the activity where the students are to analyse the opinions of others via markup and elaborating questions (see also 3.3), visualization techniques are applied for both the presentation of the opinions of others, as well as for the subsequent markup and commenting. Visualization techniques are also applied for the teachers and/or educators, to aid the review and analysis of student-generated content, as well as to inform the user model (see D3.3). E.g., when they are presented with different aggregations and analyses of the user-contributions, such as representations of implicit communities (see also D3.5).

While initially the target group was students and teachers, it has emerged that another important target group to consider would be the museum staff, as the activities could be beneficial to apply outside the curriculum of schools. HECHT is therefore considering giving museum staff the opportunity to use the user-contributions in ways that could support the museum activities and/or future exhibitions. With this, the methods applied for the museum staff would mirror the methods currently applied for the teachers, such as visualization techniques and collecting.

2.4 GAM – GAM-game

In the GAM pilot implementation, the GAM-Game, a particular interest is taken to involve *emotions* (emotional responses, expressions) in the activities, as it can be considered a universal language and can potentially prompt the sharing of contributions and reflections across the non-deaf and deaf participants.

In the implementation, citizens are encouraged to create *stories* (in the style of social media stories) using artworks in the museum collection. This can, among other functionalities, involve adding personal responses to the artworks in the form of short text comments, tags and emojis. As such, the pilot implementation adopts the social media inspired creative paradigm of "social media stories", with which young users are familiar. This is expected to further engage their target audiences (teenagers).

The creation of the personal *stories* will be carried out through a responsive web app that the users can access from their mobile devices, from a tablet or a desktop computer. After creating their *stories*, the users will be able to share these with other users in an anonymous form, they will also be able to view the stories of others and react to them. The app will be designed to support multiple use scenarios, such as both in the museum and outside the museum, and before and/or after the visit.

The app will be characterized by a limited use of text, to facilitate its use by the deaf community. This aims to support the ultimate goal of masking the differences in the use of *text* between the deaf and the general public, to encourage an exchange of personal interpretations between them. For this reason, text comments will be limited in length and constrained to three main templates, namely comments about the content of the artwork, the feelings it inspires, and the personal memories it raises. Links to the translations of text contents in Italian Sign Language (ISL) will be available to the deaf in an audio-visual form.

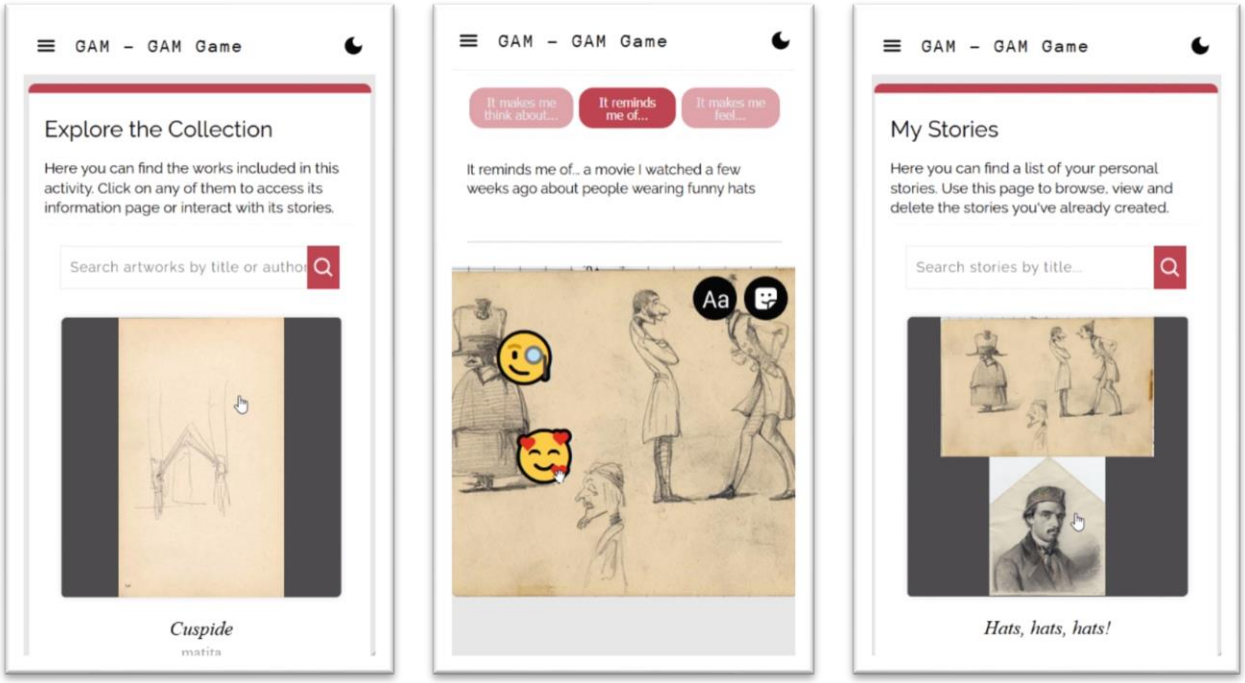

Fig. 4: GAM pilot implementation (The GAM game)

Considered Methods

While GAM's previously considered methods have largely remained the same since initially considered in Workshop 2 (see D2.1 and D2.2), the focus at this stage has been on further developing their interpretation methods and related activities, rather than reflection. Several methods (and related activities) have been adjusted and reconsidered with respect to the considerations relating to the target group as well as the limitations posed by the technology and the interfaces.

The complete list of methods applied in the GAM case study are as follows:

- Collecting Methods

- Narrative Methods
- Visualization techniques
- Narrative identity
- Cultural semiotics

Activities and Related Methods

In the GAM game, the creation of the specific activities, is carried out in a preliminary phase by the museum educators and curators, as they tailor the activities by selecting a subset of artworks, from the GAM collection, to be included for the activities. This part of the process thus utilizes collecting and narrative methods, for the construction of the activity, and potentially (through the subset selected) the underlying narrative theme.

In each activity, the users will make their own selection of artworks from this subset of artworks. Thus, the use of collecting methods will involve both curators and end users in a cascading way.

Furthermore, the use of narrative methods in GAM's case extends beyond the initial subset, as the users create their own stories based on the artworks they select. These user-stories, or narratives, from the artworks, will be in the style of social media stories (visual storytelling), e.g., by selecting and sequencing pictures of artworks. As such, these user-stories follow a much looser idea of narrative, that can be freely established by the user (thematic, chronological, affective, etc.). Additionally, more direct personal narratives can be embedded in the text comments added to each artwork in these *stories,* especially for what concerns comments about the memories raised by the artwork. Regarding the latter, the GAM game incorporates predefined templates that will prompt the user to reflect on specific aspects and relating more explicitly to her/his narrative identity, by personal memories and emotions.
Visualization techniques is considered to be embedded throughout the whole pilot, in order to support and accommodate, as best as possible, the needs and considerations of the intended target group. For example, the exploration of the catalogue of the artworks for both the preliminary selection, as well as the story repositories, will mainly be based on visual representation in the interface, rather than textual properties such as authors or titles.

Another aspect that is currently being considered in the design of the pilot implementation of GAM, is the number of presented items for the users (artworks and other users' contributed stories. In order to avoid the risk of limiting creativity and self-expression of the users when using the app, GAM is considering the integration of different recommendation techniques.

2.5 IMMA – Deep Viewpoints

The IMMA case study supports visitors to use the museum's *Collections* to develop their own perspectives and share those with others to help people appreciate alternative points of view. The case study has a particular emphasis on supporting groups from marginalized or underserved communities and those who lack access to the museum (physical or otherwise). With this focus, IMMA is working with the following communities: (a) Migrant groups, (b) Black & Irish organization, (c) LGBTQ+ groups, (d) Healthcare workers, (e) Asylum seekers, (f) Young people in detention, and (g) Young people living with life-long illnesses.

Currently, IMMA's pilot utilizes the IMMA Deep Viewpoints app as the primary digital platform. The use of IMMA's Deep Viewpoints web app with underrepresented groups provides participants with the opportunity not only to interpret artworks by taking part in longer-form scripts but also to author their own scripts, using the mediation process as a way of giving their own perspective.

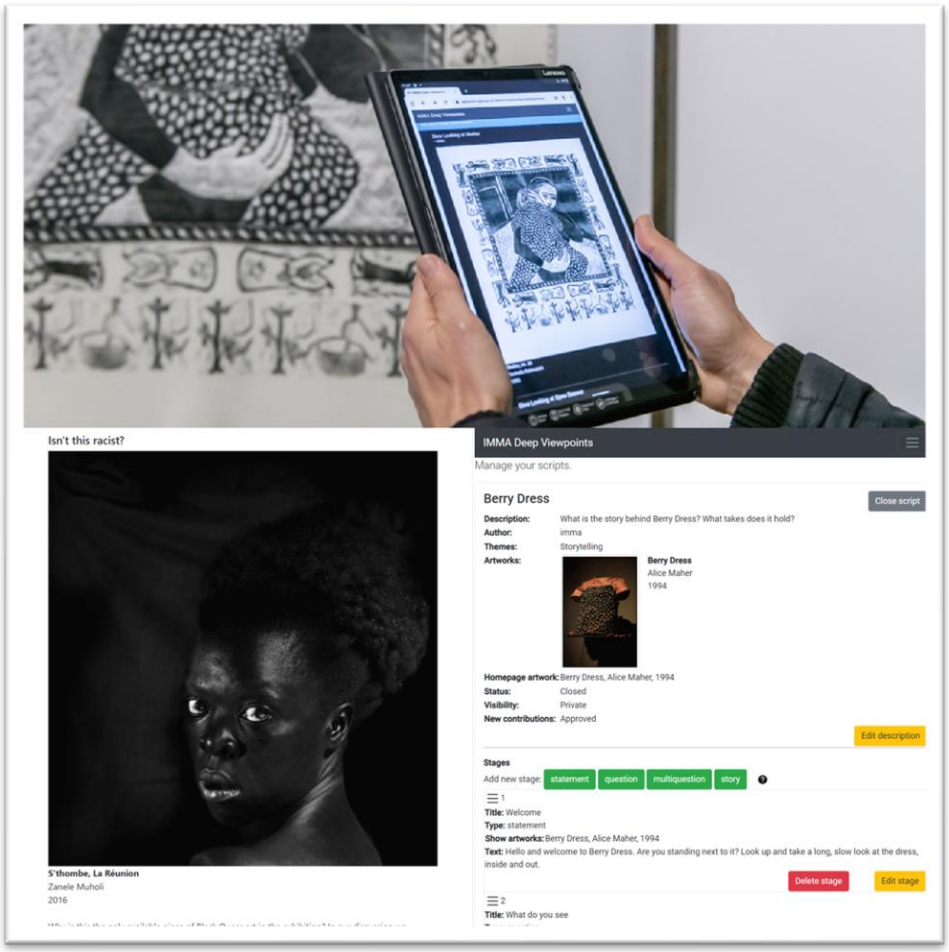

Fig. 5: IMMA pilot implementation
Citizen exploring slow looking activities at the museum (top),
and example of prompt (lower-left) and script editor (lower-right)

The user journey of the current iteration hereby consists of two separate processes: (1) Mediation, and (2) Interpretation.

During the *mediation* process, IMMA Deep Viewpoints allows the user to design their own 'script', which includes adding their selected artworks and theme, together with a sequence of stages containing contextual information, questions, prompts, stories etc., to guide visitor interpretation.

In the *interpretation* process, the citizens select a script from the repository of Slow-looking activities contained within the IMMA Deep Viewpoints app – both developed by the museum professionals as well as by other citizens. The citizens then share their own interpretations by responding to the stages of the script.

See also D4.2 for more in-depth description of the application workflow.

Considered Methods

IMMA's previously considered interpretation and reflection have largely remained the same (see also Workshop 2) and include:

- Visualization techniques

- Collecting methods
- Narrative methods
- Cultural semiotics
- Narrative identity

Activities and Related Methods

The activity of creating slow looking scripts, in the mediation process, involves collecting as a method, as the mediator selects artworks to be integrated in the script. Concurrently, the sequencing of stages in an activity employs narrative methods, while narrative identity methods are currently embedded in the 'Story Stem' stage, which is a feature that allows participants to start or finish a narrative based on an image. In other words, in the Story Stem Stage, the author of the script selects one or more artworks and provides a story stem or story opener that the user of the script is invited to complete. The idea is to write story stems that are open ended and could produce a variety of responses to be explored. For example: " An artist asked to paint Kay's portrait. At first Kay wasn't sure, but finally agreed. It was the first day of the sitting. Kay arrived at the artist's studio and opened the door..." This is partly inspired by work in the social sciences on the Story Completion Method (Clarke, Hayfield, Moller, & and Tischner, 2017).

In the mediation phase, the activity of selecting artworks, and attributing these with a theme, is applying artifact analysis. In this way, the prompts associated with an artwork might be replicated across scripts but elicit very different responses dependent on the angle of perception through the specified theme. In the subsequent interpretation phase, when the user interprets and comments on the artworks of the script, artifact analysis is likewise implicated to a certain degree in the Slow Looking methodology (see 3.1) – which serves as a core characteristic for the pilot implementation of IMMA. Additionally, in the interpretation process, the Slow Looking methodology, along with the range of responses it elicits from the participants, is drawing upon visualization techniques.

2.6 Evaluation of the Applied Methods

In this section, we analyze and discuss the most prevalent methods from D2.1 and D2.2 based on the demonstrated practical applications of these, as described in the paragraphs above. While the differences between the case studies' approaches, concerning the differing needs and requirements of their respective target audiences, can allow for evaluating the methods in terms of specific citizen groups, the commonalities and similarities can potentially support outlining the methods for citizen curation for more general audiences.

Artefact analysis

In D2.1, we discuss artefact analysis through exploring and highlighting the potential of cultural artefacts to inspire interpretive narratives, thus it is not considered as a method simply showing the artefact(s) but rather "in the context and environment in which these objects are brought to the people that meaning-making processes (including interpretation) are instantiated."(D2.1) The artefact analysis method has been most relevant to museums in which the focus is more explicitly on cultural heritage artefacts rather than artworks (DMH, HECHT). The method has been most explicitly explored in DMH's pilot in which the end-users interact with artefacts in VR through activities such as picking up items, rotating, tactile interactions, naming and tagging. DMH combines artefact analysis with narrative methods, which is applied in the recording, selecting and listening to stories of other contributors, emanating from the artefacts. Artefact analysis methodology is also explored and adapted by HECHT, however, as opposed to merely analyzing historical artefacts, the end-users also examine historical events surrounding the artefacts.

Narrative and narrative identity methods

Narrative methods, including narrative identity methods, have been explored across all five SPICE case studies, primarily concerning end-users, but in some cases also with mediators and other contributors. As we have previously described in D2.1, narrative methods can effectively allow "for eliciting and empowering citizens' sharing of interpretations of cultural objects or complete exhibitions…". Outside of merely providing a way for citizens to share their interpretations, narrative methods explored through the lens of narrative identity can additionally encourage the exploration and juxtaposing of viewpoints among different citizen groups.
In IMMA's case, narrative methods are applied when allowing participants to construct narratives through the sequencing of stages in an activity. This has allowed the visitors to introduce unique viewpoints, in some cases even diverging from the museum's point of view and provided new meanings and perspectives. On the other hand, narrative identity methods are embedded in the 'Story Stem' stage. In this stage, the script author selects one or more artworks and provides a story stem or story opener that the user of the script is invited to complete. The idea is written story stems that are open ended and could produce a variety of responses to be explored.

DMH also explores narrative methods with their end-users. In their case, narratives are elicited using auto- and duo-ethnography methods. In the HECHT case study, narrative methods are applied at the start of the user-journey in which their target group is first introduced to the topic at hand.
GAM applies narrative methods primarily from a visual angle, in the form of social media stories. This is for not only providing an engaging format for their target group but also for allowing the users to create representations of themselves through this type of visual storytelling.
MNCN applies narrative methods with end-users as well as the mediators. In the authoring of the MNCN treasure hunts, it is the teacher or educator who is asked to contribute an overarching theme/narrative for the treasure hunt. On the other hand, narrative and narrative identity methods are both used in the reflection phase in which the students come up with a story to reflect on their museum experiences.

As demonstrated above, the ways in which the various narrative and narrative identity methods are applied by the five SPICE case studies, supports the idea that narratives, including interactive digital narratives, can effectively be applied in citizen curation processes for encouraging participation, building of representations through interpretations, and for supporting reflection. Narrative methods allow citizens to create dynamic, evolving representations of themselves but also support exploring and engaging with the representations and viewpoints of others. The fact that narrative methods are the most consistently used across all five cases, indicates to their high potential for general use in the cultural heritage domain.

Visualization techniques

As we have described in D2.1, in SPICE we view visualization as a "technique for creating visual imagery such as images, diagrams, animations, or films and more in order to communicate a message". Moreover, as a form of communication, dynamic visualization can allow citizens to not only grasp the museum content better but allow "to interpret and examine different perspectives of the same data while simplifying complex content and delegating design wherein the end-users are able to modify inputs as well as choose spectrums of visualization allows them to choose and explore it themselves." (D2.1). This can perhaps also explain why in the context of the five case studies, visualization techniques are primarily considered in the reflection stages, often to help better visualize the collected data and visitors' responses. Nevertheless, in the context of some cases, visualization techniques also play an important role in the interpretation stage. For instance, in GAM's case, visualization techniques are embedded in all stages of the whole pilot and serve as key in terms of addressing the needs of their target group (deaf teenagers). In their application, this includes the embedded catalogue of the artworks (in the interpretation phase) and the story repositories (in the reflection phase) which will both be based on their visualization rather than textual

properties such as authors or titles. Both DMH and HECHT use visualization techniques to guide their mediators in navigating and/or editing/curating the users' contributions.

Collecting Methods

Collecting methods can additionally be considered as some of the most prevalent ones for the SPICE case studies. As we described the method in D2.1, "In SPICE collecting is regarded as a method for interpretation when affording the citizens, the possibility to form or "curate" a personal selection (collection) of meaningful objects/materials ".
Collecting methods are applied with target audiences in user-journeys which involve the end-users selecting artworks to support their point of view (HECHT, IMMA), or to support the mediators in adding desired artefacts in the selection (DMH, GAM, MNCN). Moreover, in HECHT's case collecting methods are additionally directly used in the curating activity in which students collect pictures of artefacts and tag them.

3.0 Additional Methods

In the previous section the aim was to collect insights and considerations on the previously introduced methods (see D2.1 and D2.2), in this section, we continue our investigation into potential new methods and related activities with respect to the five SPICE case studies. Thus, in the following section we present new methods and related activities that are currently explored and developed by the case studies in their pilots, their theoretical considerations and practical applications.

3.1 Slow looking

"Slow looking" does not exclusively apply to curatorial practice, but can be more generally defined as, "taking the time to carefully observe more than meets the eye at first glance" (Tishman, 2017), or similarly as, "a mode of learning, a means of gaining knowledge through observation." (ibid.). It is considered to have emerged from the 'Slow Movement' in the 1980's, which calls attention to people's increasingly busy and time-pressured lives in the modern world.
In 2008, the movement incentivized the 'Slow Art Movement', through which 'slow art' activities and events targeted to museums and art galleries aim to encourage visitors to acquire more profound ways of looking and experiencing art. Additionally, the idea was driven by the findings from a 2001 study, that visitors only spend around 27 seconds viewing a single work of art at the museum (Smith & Smith, 2001; Chamberlain & Pepperell, 2021). The 'Slow Art Movement' culminates each year in the international 'Slow Art Day' event in which numerous art and culture institutions around the world sign up to involve their visitors in different types of Slow Art activities. For example, this can be inviting the gallery visitor to look at a series of paintings for some specific amount of time, after which they will be asked to reflect on their subjective experience with other visitors (Chamberlain & Pepperell, 2021).
Moreover, beyond simply promoting methods for acquiring a more profound experience of art, slow looking should be considered as crucial for developing essential skills, such as those related to visual literacy or critical thinking. Tishman (2017) proposes to view slow looking as "a learned capacity", which "foregrounds the capacity to observe details, to defer interpretation, to make careful discernments, to shift between different perspectives, to be aware of subjectivity, and to purposefully use a variety of observation strategies in order to move past first impressions" (Tishman, 2017, p. 7).

Slow looking in SPICE

In 2019-20, IMMA developed a series of Slow Looking Art Videos as part of their program for older people. The videos, developed and presented by the museum's Visitor Engagement Team, each focus on one artwork. The videos generally start by asking the viewer to make sure they are comfortable and inviting them to let their eyes wander over the artwork. Initial questions are then introduced to prompt the viewer to think about what they see (e.g., "What is our attention drawn to first?"). In this research we explore whether the authoring of Slow Looking style experiences could be carried out by amateurs as well as museum professionals. As well as being more scalable, a crowdsourced authoring process could actively encourage contributions from traditionally underrepresented groups. This could refocus empathy: rather than museum professionals imagining what the visitor may want and what support they may need, amateur authors could potentially create activities from their own viewpoint, for people like themselves or for people from other communities to encounter their perspective. Undertaking the Slow Looking activities may then become an exercise in empathy, in which the activity gives an insight into the world of its author.

3.2 Autoethnography

Autoethnography forms part of the methods developed in anthropology to be used as part of fieldwork. Participant-observation is integral to the mindset that the anthropologist brings to this task: She or he aims to become a part of the group under study, when collecting data seeking to understand a social phenomenon. In fieldwork data is often gathered in the form of narratives.

Autoethnography seeks to bring a reflexive insider's perspective to fieldwork data acquisition. Here research and writing are used to describe and systematically analyze personal experience in order to understand cultural experience. For example, personal histories in the form of reconstructions of life can be used as the point of origin to launch processes involving data collection, organization and visualization. These processes could involve a retroactive selection and writing of past experiences. Also, the autoethnographer can make use of interviews with others, or consult texts, photographs, journals, or even artifacts (Ellis, Adams, & Bochner, 2011).

An important notion in autoethnography is the concept of *epiphany*. These can be understood as interactional moments perceived to have significance and impact in a person's life. Epiphanies can also refer to experiences that alter the fundamental structures in a person's life (Denzin, 2014).

3.3 Opinion Coloring

In the *opinion coloring* process, the aim is to serve as a technique for political and cultural depolarization (Goldberg, Wecker, Tabashi, Lanir, & Reinhartz-Berger, 2022). With respect to concerns regarding the confirmation bias (Wason, 1960; Nickerson, 1998) and face keeping (Lord, Ross, & Lepper, 1979)(G. Lord, Ross, & R. Lepper, 1998), the approach seeks to minimize the effect of these, while addressing the question of "whether encountering another person's opinion about the past or individualized interpretation of heritage facilitates depolarization" (Goldberg, Wecker, Tabashi, Lanir, & Reinhartz-Berger, 2022). As such, the method is conceptualized as people reflecting on the opinion of others, by colour-coding the lines and paragraphs, of these opinions, to which they agree or disagree. Hence, the procedure for opinion colouring, as envisioned here, involves specifying one's own opinion regarding a topic, and then subsequently being presented one-by-one with both similar and dissimilar opinions of others, after which the task is to colour the parts of agreement and disagreement. As such, the method is reliant on adequate possibility for determining similarity and dissimilarity between the opinions.

Currently, the method has been operationalized in the HECHT case study, in part as an experiment examining whether the order of presentation for opposing and similar opinions affects the participants' willingness to recognize an opposing perspective and allowing it to challenge one's own preconception,

with a potential for "horizontverschmelzung" to follow (Gadamer, 2013); in effect, lowering confirmation bias.

Opinion Colouring in SPICE

In the user-journey of HECHT (see 4.1.3 below), the method of opinion colouring is directly applied as an activity for the users to perform at multiple stages. In this sense, an interface for the activity was integrated into the pilot of HECHT. In the first part of the activity, the user is reminded of his/her own opinion, regarding the museum exhibition topic. The user was hereafter given two opinions of others in serial order. HECHT explored to experimental conditions at this stage. In the first one, the visitor was first exposed to an opinion which was similar to their own, followed by an opinion which was different from their own. The reasoning behind this experimental condition is that the first similar opinion opens the visitor up to future different opinions (inclusion then understanding). The second experimental condition that was tested, involved exposing the visitor to two differing opinions. The reasoning behind this experimental condition is that the more exposure to differing opinions the more likelihood of achieving understanding (Goldberg, Wecker, Tabashi, Lanir, & Reinhartz-Berger, 2022). To evaluate each condition, the Active Open-minded Thinking theory (Baron, 1985; 2000; Stanovich & West, 1997) was applied before and after the colour-coding activity in the user-journey.

For the opinion colouring task, the visitor is asked to color the text based on four levels of agreement: (1) I agree with the item, (2) I understand the item but disagree, (3) the item caused me to rethink my views and I am still formulating my response, and (4) I totally disagree with the item. After the actual colour-coding task, the visitors are then to select what their relationship to the view presented is. For the next part of the activity, the visitors are presented with the parts that they colored as "understand but disagree" and "rethink". Hence, they are asked to give reasons for each of their colorings.

The opinion colouring method can be said to serve two purposes. First, it provides an activity that generates additional user-contributions or meta-data in the form of the rating and specification of separate parts of the opinions of others by the individual user. Additionally, early results from the use of this method in the HECHT Museum show that using the first experimental condition significantly (statistically) lowered the user's resistance to opposing opinions as measured by the AOT survey. Applying this knowledge in reflection activities, might prove instrumental to attaining the goals of SPICE.

4.0 Workshops

The following section describes the two WP2 workshops, Workshop 3 and 4, held during the second year of SPICE. Both workshops build on the results and outcomes of the previous ones (Workshop 1 and 2 in D2.1 and D2.2) and intend to address the applicability of each individual case study's methods and related activities to their respective target audiences and end-users through user-journey co-design, testing and evaluation. While Workshop 3 was more internal and involved the SPICE partners developing their user-journeys that could converge towards the different dimensions of Social Cohesion, Workshop 4 involved the case studies conducting workshops to test these user-journeys with their target audiences. For each workshop, we will present the underlying objectives, the workshop design, key-outputs, and a general evaluation in terms of the goals and objectives of SPICE.

4.1 Workshop 3

The primary goal for Workshop 3 was for each case study to co-design their concrete interpretation and reflection activities into testable case-specific user-journey script(s) that could converge towards Social Cohesion. These user-journey scripts were envisaged to be tested by each case with their target groups as part of the subsequent Workshop 4.

The user-journey, as we refer to it, seeks to grasp the entire flow of the experience to answer questions such as: How are the user(s) introduced to the journey (even before they have access to the technology or the event)? How will the theme and the testing event be "advertised" to the specific target group, or what should the participants be aware of before the 'journey'? It also aims to bring into focus the steps of the experience in which the system will be collecting data, including the data format (e.g., digital/handwritten text; visitor photos; oral speech; drawings) and the nature of these (e.g., opinions, personal stories, reflections on a theme, etc.).
Workshop 3 was designed as consisting of 3 bilateral meetings with each individual case study, thus, in total 16 sessions were held in the context of Workshop 3, between July and September 2021 (see Fig. 6). Every meeting was guided by tailored homework tasks for each case. Workshop 3 culminated in a plenum meeting with all case studies, the technical work packages, and other partners.

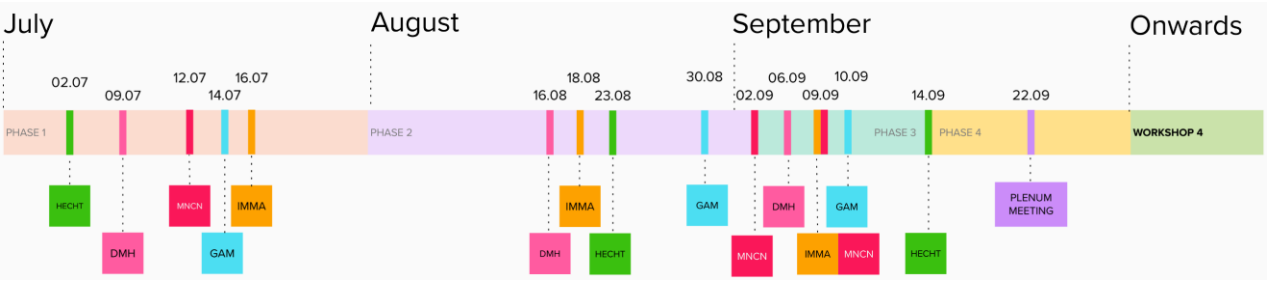

Fig. 6: Timeline for Workshop 3.

As also highlighted in the deliverable D7.5, the WP2 user-journey scripts differ from "*UX maps*" co-designed in WP7. While bearing some similarities, the main distinction lies in that the user-journey scripts focuses on the processes of the IRL, whilst the UX maps focuses on "assessing human behaviour, emotions, and strengthening the UX while accommodating a diverse set of user needs and recommendations based on personas" (D7.5).

4.1.1 Objectives of Workshop 3

Whilst building on the considerations, results, and outcomes of previously held workshops (Workshop 1 and Workshop 2 – see D2.1 and D2.2), Workshop 3 aimed to more specifically address the requirements, needs and idiosyncrasies of the individual five case studies. This led to Workshop 3 adopting a more individually tailored approach to each case. Additionally, WP2 sought to develop a dynamic workshop format which could encourage a more constructive dialogue between the case studies and the technical work packages. This was particularly targeting the technical implementation for discussing how the intended contributions could lead to the type of content amenable to the kind of analysis aimed by the Interpretation-Reflection loop (IRL).
Moreover, to support the convergence of the developed user-journey scripts towards Social Cohesion and its dimensions (Schiefer & van der Noll, 2017), it was important to discuss and involve an assessment of the compatibility and relevance of these dimensions to each individual case. This was also intended to contribute to a shared common understanding of the SPICE terminology, and thereby support establishing a more homogenous approach to the key-underpinnings of SPICE.

In summary, the Workshop 3 objectives (for each individual case) can be listed as follows:

- To acquire new and/or revise the previously considered interpretation-reflection methods and related activities

- Establish case-specific Social Cohesion dimensions (case-specific dimensions described in D2.4)
- Map concrete interpretation-reflection activities in the form of user-journey script(s)
- Develop an implementation plan for testing the user-journey script for Workshop 4
- Support facilitating a dialogue with the technical WP's (all cases)
- Support establishing a homogenous SPICE terminology (all cases and WP's)
- Explore ways for enriching the opportunities for the audience(s) to contribute content amenable to the kind of analysis aimed by the IRL

4.1.2 Workshop 3 Design

To meet the previously defined objectives, Workshop 3 was designed as a series of 3 bilateral meetings with each case study, followed by a plenum meeting with all case studies, the technical work packages and other partners. Each meeting was tied to one, or more of the above-mentioned objectives introducing a step-by-step iterative procedure for exploring and designing the elements for the case-specific user-journey scripts, converging towards the introduced Social Cohesion dimensions (see D2.2 and Fig. 6).

Before each meeting (excl. 3.1), each case study was distributed customized "homework" tasks. The idea was to provide a type of foundational platform for each meeting. These homework tasks were presented, discussed and elaborated on together with the case studies during the meetings, and this process reoccurred until the case studies' final presentations during the plenum meeting.

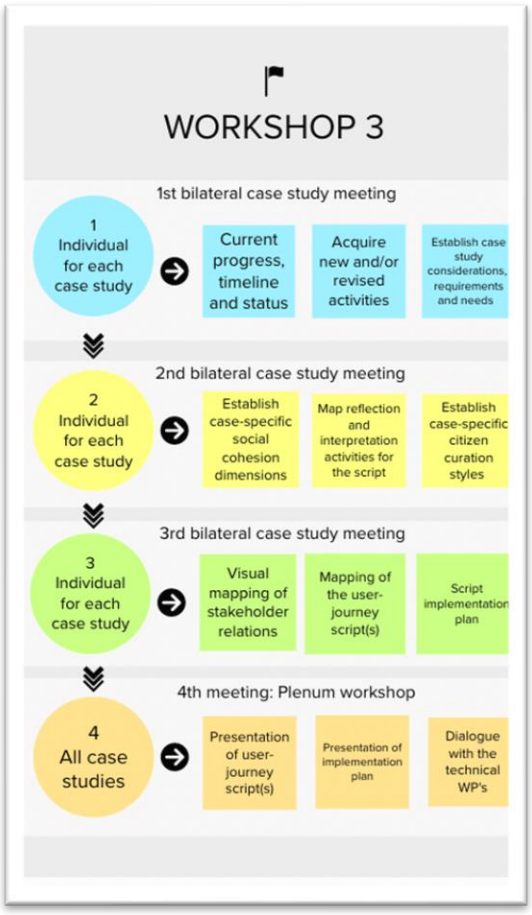

Fig. 7: Workshop 3 structure.

Meeting 3.1

The first bilateral meeting was exploratory in nature: information was collected about the intentions and progress of each case study, as well as their case-specific requirements and needs. The meeting was in the form of an open-ended discussion.

The discussion was in preparation for the following individual case study meeting (3.2), and the first homework task. From then on, the homework tasks for each case study were customized based on the acquired information and discussions.

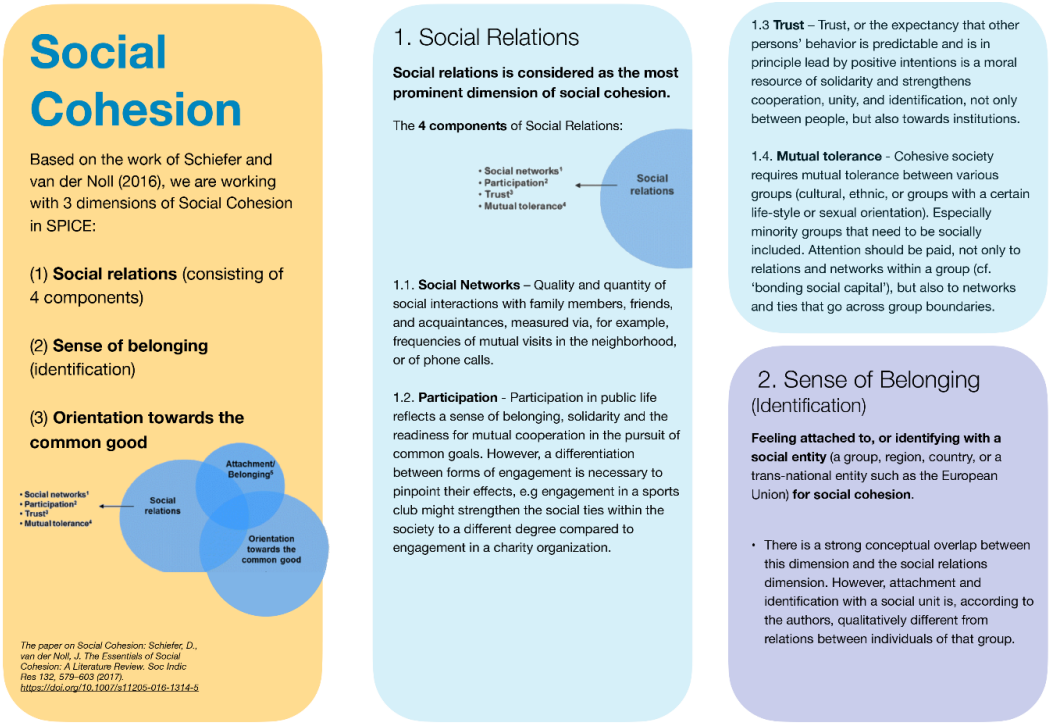

Fig. 8: Example of homework for meeting 3.1

The first homework task focused on the different dimensions of Social Cohesion. As part of the homework, WP2 developed a worksheet containing descriptions of the different dimensions of Social Cohesion (also see D2.2), adapted from the work of Schiefer and van der Noll (2017). The homework involved case studies elaborating and interpreting these dimensions from the perspective of their case using the WP2 prepared online template (see Fig. 8**Errore. L'origine riferimento non è stata trovata.**).

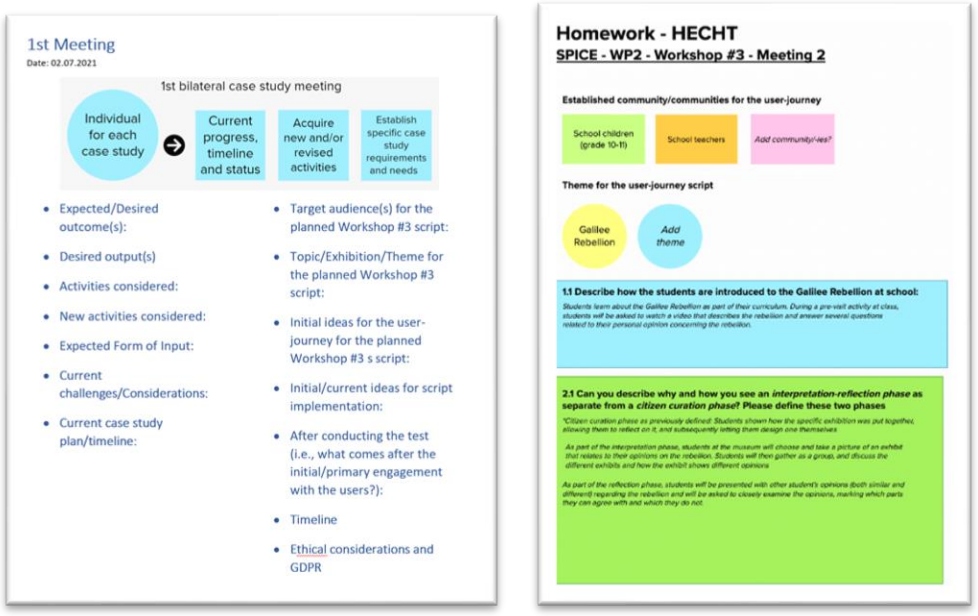

Fig. 9: Example of template and worksheet for 1st meeting

Meeting 3.2

The second bilateral meeting focused on discussing the first homework on Social Cohesion with respect to the case study's envisaged user-journey and target audience(s). Building on this, the workshop involved the initial mapping of interpretation and reflection activities for a potential case-specific user journey script that could converge towards the established Social Cohesion dimensions. This was again done using a WP2 pre-designed online template. The homework for the following meeting involved the case studies finalizing the mapping of the potential activities and subsequently considering their first user-journey script using WP2's developed script design criteria method (see Fig. 11).

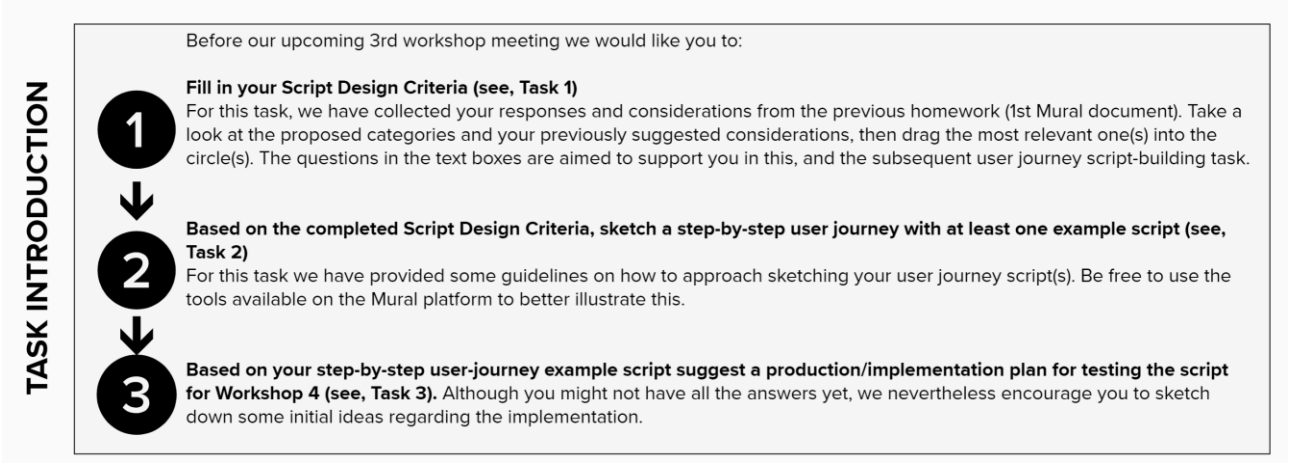

Fig. 10: 3rd homework task

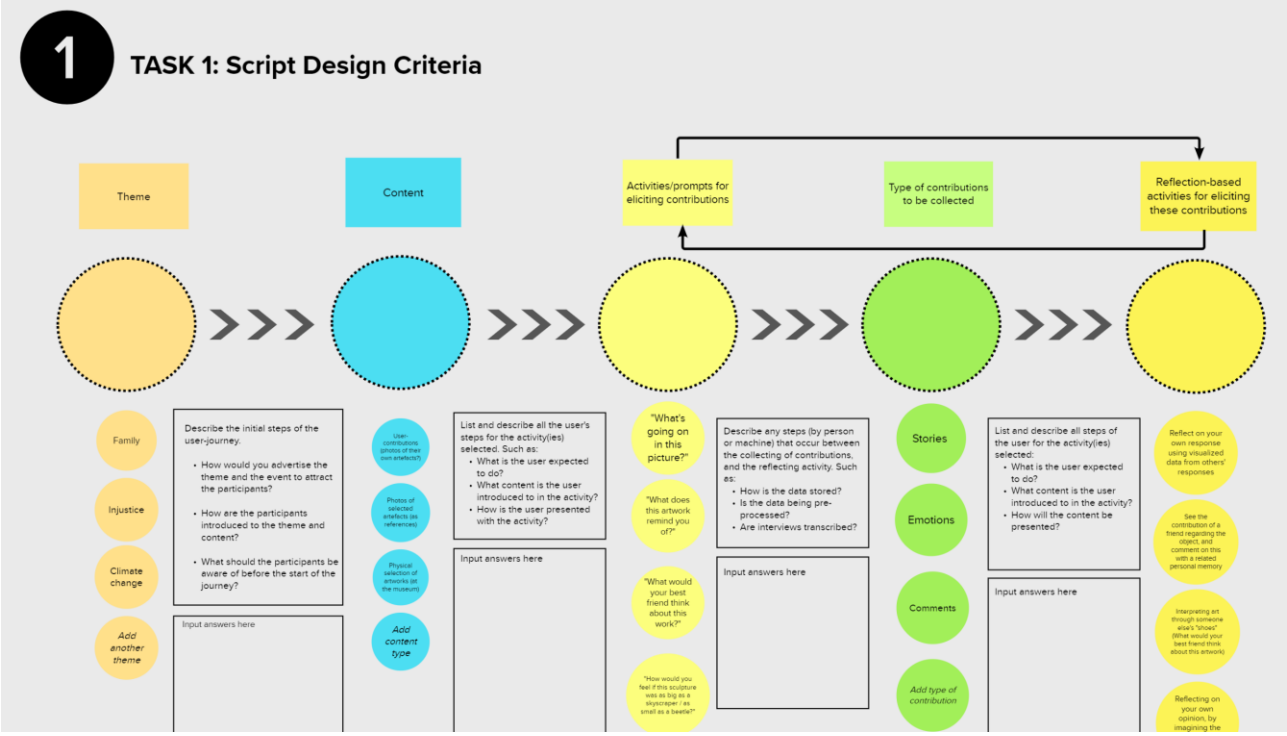

Fig. 11: Online worksheet template for meeting 3.2

Meeting 3.3

The third, and last bilateral meeting involved discussing the previous homework and using that as a basis for each case study to design their own case-specific user-journey scripts that could be tested with their target audiences during Workshop 4. In order to encourage a more pragmatic approach to implementing these scripts, the last task was to put together an initial implementation plan in which we asked the case studies to be more concrete about steps involving the deployment of their user journey for testing I.e., timeline (important dates), preparation of materials, personnel, how will the input data be stored, and etc. The last homework was for the case studies to finalize their user-journey scripts and implementation plan.

Meeting 3.4 - Plenum

During the final plenum meeting with all case studies and partners (22.09.2021), each case study presented their user journey script(s) and their considerations regarding testing these script(s) with their target group(s). For this, the case studies were asked to prepare a 20-minute presentation, based on a template provided by WP2, focusing on three specific aspects:

1. Case-specific considerations on the Social Cohesion dimensions
2. The user journey script(s) resulting from the individual Workshop 3 meetings
3. Collected ideas for the implementation plan for testing the user-journey script with the case-specific target group(s) (Workshop 4) – including timeline, place, participants, resources, etc.

Each presentation was followed by a 10-minute round of discussion and questions for the case studies to receive feedback and suggestions, as well as to initiate a fruitful dialogue between the case studies and the technical WP's.

4.1.3 Outputs / Results of Workshop 3

As demonstrated above, the key-outputs from the third workshop were the case studies' developed user-journey scripts and the considerations regarding the different social cohesion dimensions. As the workshop aimed at addressing the needs and requirements for each case study individually, the process and outcomes are discussed accordingly below.

DMH

When initially approaching the user-journey script design task, DMH was interested in exploring bridging the knowledge gap between senior citizens and asylum seekers through sharing of personal stories and/or recollections about Finnish design artefacts.
Some of the considered methods and related activities that were integrated in DMH's user journey script included: artefact analysis, visualization methods, narrative methods in the form of personal storytelling, collecting and dialogic exploration. Potential challenges, as were also reflected in DMH's social cohesion considerations (see D2.4), included: How to best ensure that the cultural discussion will proceed beyond the visit to the museum (beyond just the immediate people that one visited the museum with); How the data should be gathered or handled in a way that could allow for subsequent analysis, as well as addressing ethical considerations for testing.

User-journey script

As shown in Fig. 12, DMH's user journey script resulting from Workshop 3, illustrates a step-by-step linear process of how the user moves through the experience, including the steps from the introduction stage to the selected activities.
DMH's user-journey involves three stages: Pre-visit stage, Pop-up VR Museum stage and post-VR stage. During the pre-visit stage mediators inform the potential participants about the Pop-up VR Museum and make note of the ones interested in participating. Moreover, it is also in this phase that the mediators note and address the specific needs and requirements of the members of the target community, for instance, the participants' physical and psychological condition. Accessibility is also considered in the pre-visit stage.

The "main" experience takes place during the Pop-up VR Museum stage. The VR experience is initiated with the assistance of a mediator, who introduces the experience to the participant, and explains and adjusts the equipment. Thereafter, the participant will see a 'Welcome' screen and is asked to choose an avatar. Once the participant has selected an avatar, the participant is "morphed" into that character in VR. The next interaction is elicited by the participant following the instructions of the avatar's voice, introducing how the participant can interact with the objects in VR. Once the participant has been introduced to the possible interactions in the experience, the participant can explore the embedded stories connected to the various objects in the virtual world through interacting with various objects. Once the participant exits the virtual "world", the participant can stay in the virtual "space" to draw or sculpt in 3D and share their creation.

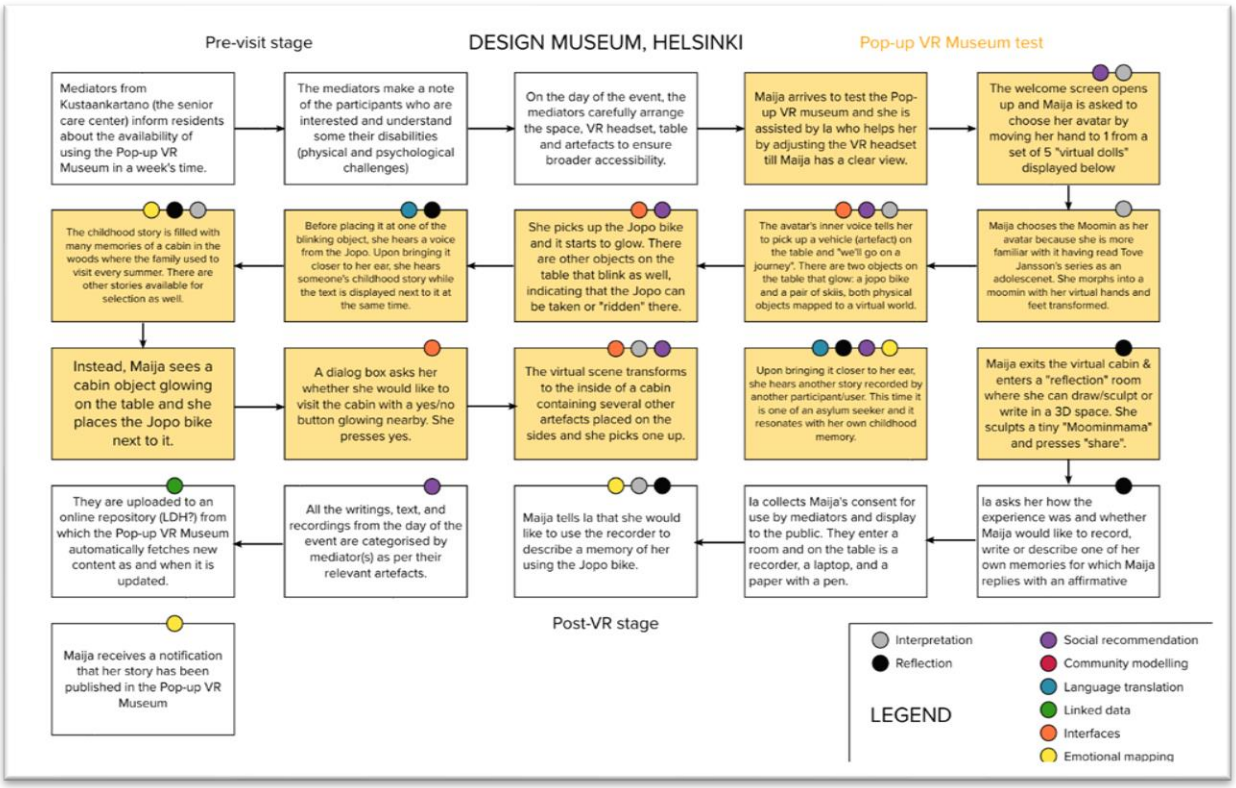

Fig. 12: DMH user journey script

The post-VR stage also represents the reflection stage. In this stage the mediator asks the participant what they thought about the experience, and if they would like to contribute something themselves (e.g. a story of a personal memory relating to a specific object). If the participant is interested in contributing, the mediator collects the participant's consent and follows the procedure for recording the contribution. Thereafter, the recorded story is categorized by the mediator (per relevant objects) and uploaded to an online repository from which the Pop-Up VR Museum automatically retrieves new content and when it is updated. The participants will also receive a notification about their contribution being published in the Pop-up VR Museum platform.

DMH also equipped their script with a legend which allows the technical work packages to determine the points where data for the system is collected. As this provided a good solution in terms of better operationalization and implementation, this idea was subsequently also applied to the other case studies' user-journey scripts. In addition to this, DMH also elaborated on ideas regarding the promotion and introduction of the experience for potential users, including strategies for contacting relevant institutions, visual materials and preparing the mediators. Important considerations were also discussed in respect to the awareness before the journey (see Fig. 13).

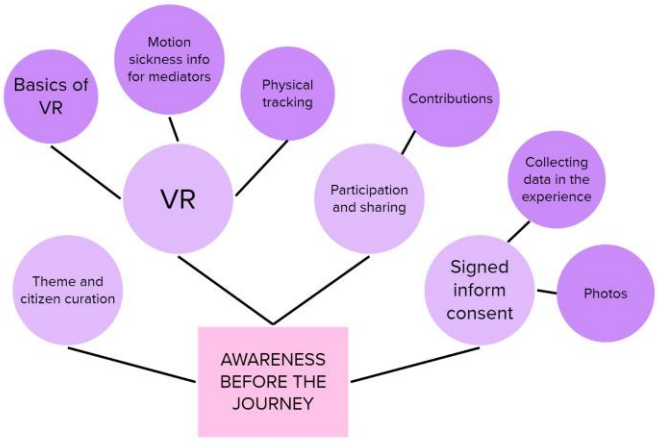

Fig. 13: DMH's before-the-journey considerations

Implementation and testing details (for Workshop 4)

Moreover, regarding the user-journey script implementation details for Workshop 4, DMH noted that the first testing round will include 5-7 participants for the workshop test session, focusing initially on one of their target audiences (senior citizens). After experiencing the Pop-up VR Museum and sharing their stories, qualitative semi-structured ethnographic interviews would be held with both the senior citizens and the mediators. The data points from the experience would include among others, screen recordings and artefacts the users interacted with. The collected data from the users would initially be stored in the Aalto Network Drive.

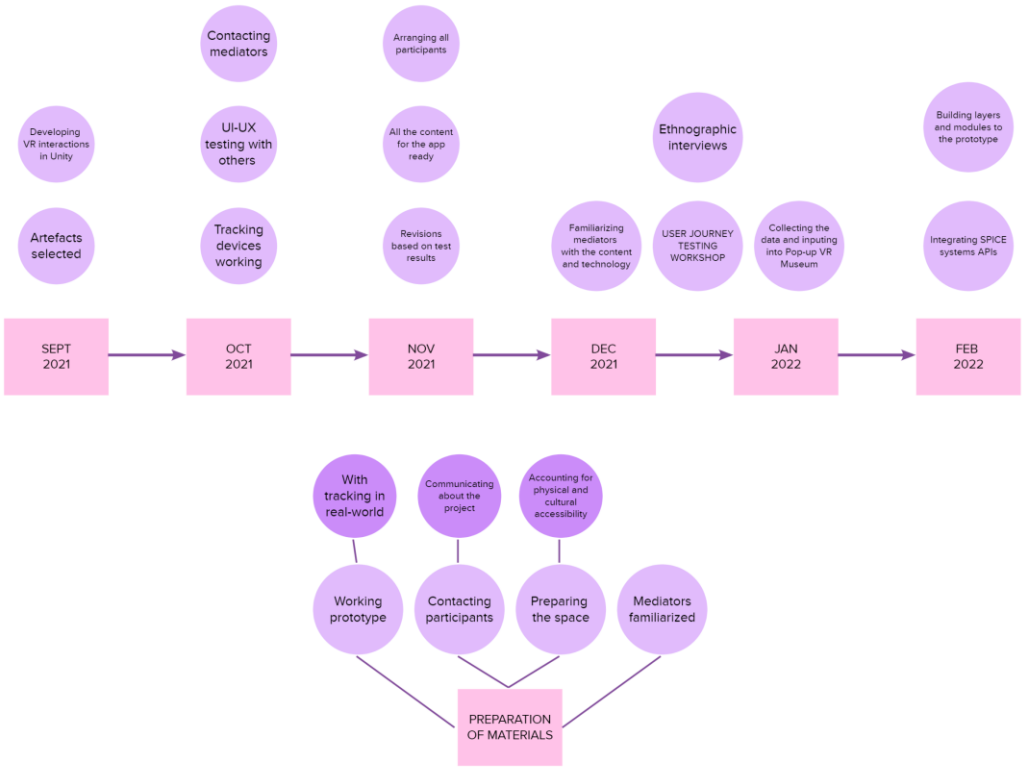

Fig. 14: DMH user-journey implementation plan

HECHT

In the case of HECHT, the key-objectives when approaching the user journey script were to elicit honest interpretations and reflections from different communities with different backgrounds, to stimulate conversation and development of critical thinking among their target audience (10th and 11th grade students).

> *"the research aims to explore the opportunities presented by archaeological museums to promote cohesive and productive discourse, to enhance a sense of openness to other's opinions, as well as foster advanced historical thinking and historical relevance." (HECHT).*

HECHT was one of the case studies that incorporated a new method in their user-journey, which involves visual tagging, highlighting or coloring an opinion/contribution of another, what does one agree/disagree on and to what extent (see also Opinion Coloring3.3 above).

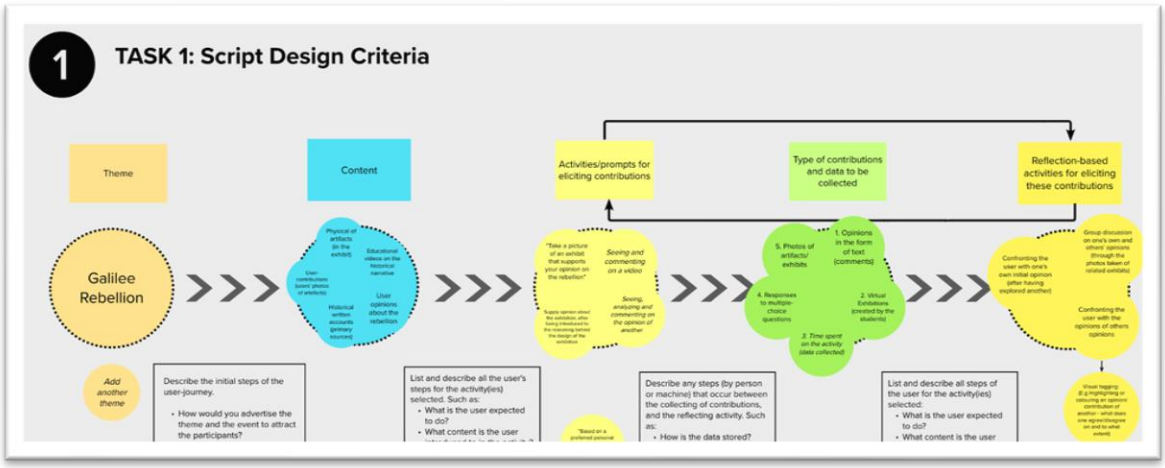

Fig. 15: Script Design Criteria HECHT.

User-journey script

The HECHT user-journey consists of three stages: (1) pre-visit stage taking place in the class, (2) at the museum, and (3) post-visit stage in the class.

1. During the pre-visit stage at school, the students are asked to fill in questionnaires on demographics, RHMS (Relevance of History Measurement Scale) and AOT (The Actively Open-minded Thinking Scale). Before the actual visit to the museum, the students are also introduced to the main topic, a historical dilemma (which is part of the curriculum). In the context of this, the students will be shown a video, presented to a historical artifact and then asked about their personal opinions on the topic.

2. At the museum, the students are provided with the necessary technology, and are then individually reminded of their previously expressed opinion (from the previous stage). Thereafter they will be confronted with someone else's opinion on the same topic. The students' task is to analyze and reflect on the other's opinion. After this, the students are asked to watch a video conveying another historical dilemma, (a different video from the one introduced in the first stage) and asked again to provide their opinion. This will be followed by another RHMS questionnaire.
The following museum activity involves the students exploring the museum exhibition and taking photos of the artifacts/exhibits that support their previously expressed opinions. To support the students in this task,

they are asked to explain how their selected artifacts support it and are asked to visually tag the exhibits on a mobile device. Subsequently, the teacher will be presenting the students' photos, which will be followed by a discussion of different opinions on the topics.
The discussion at the museum will be followed by a tour of the museum, which will aim to explain the reasoning and rationale behind the exhibition. It also aims to elicit opinions and thoughts on how the design of an exhibition can affect one's ideas on the presented topic. Additionally, it hopes to give an introduction to how these types of exhibitions are designed.

Lastly, during the post-visit stage, the students are asked to reflect on each other's opinions in respect to the visual tagging task for the second historical dilemma.

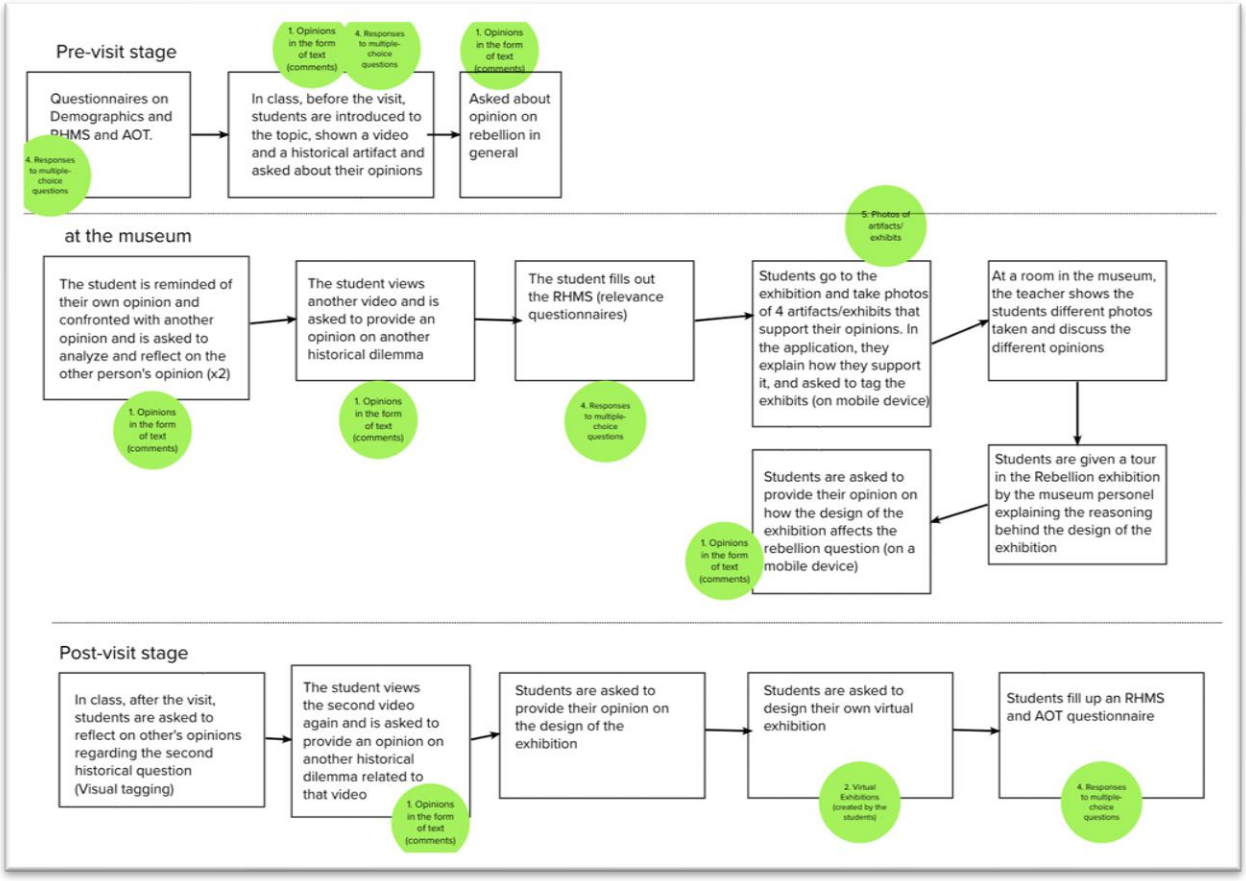

Fig. 16: HECHT user journey script.

Due to an earlier testing date than the rest of the case studies, HECHT had already somewhat finalized their user-journey script before Workshop 3. Therefore, the focus during the last workshop 3 meeting was more on the Script Design Criteria task, which helped to reiterate and improve the existing script. The Script Design Criteria task supported shifting the conversation towards essential present and future considerations for the HECHT user-journey script. Some of the more substantial considerations involved the target group, pre-visit questionnaires, and reflection-based activities.

While initially the target group was students and teachers, it emerged that another important target group to consider would be the museum staff. It was discussed that in the future, museum staff should be given the opportunity to use the journey/experience outcomes in a way that could support the museum activities and/or future exhibitions. This could for example involve the museum staff being able to repeat a similar

process with other types of visitor groups outside of just school children.
Another important discussion emerged in relevance to the pre-visit openness questionnaires. While in the context of the user-journey at hand, the questionnaires were considered more as a research/evaluation instrument rather than as part of the intervention, this could be in the future reconsidered, potentially introducing a way to filter activities based on the students' answers.
Additionally, different aspects regarding user activities and contributions were discussed, leading to conversations about data storage and other ethical considerations. As a number of reflection-based activities would involve discussions and reflections between the participants that would not be directly documented, recorded or collected but yet aim to have an effect on social cohesion, it was discussed how these could be best assessed and evaluated, if at all.
Lastly, throughout Workshop 3 it was considered how to best approach the educational goals of the HECHT case study whilst meeting the goals of SPICE - how to keep the students and teachers engaged throughout the different stages of the user journey.

Implementation and testing details (for Workshop 4)

The communities for testing the user-journey script included school students (grades 10 and 11), history teachers and the museum personnel. The approached schools aimed to represent different ethnic, socio-economic and religious backgrounds. As demonstrated in the user-journey script, the testing will be conducted in three different stages, (1) pre-visit stage at school, (2) in the museum, and (3) post-activity stage at school. The collected data will involve the responses to the AOT openness and RHMS relevance questionnaires (pre-visit stage), students' photos taken during the museum visit including their text descriptions and tags, and exhibition curation data in the form of visual design (museum-stage). Lastly, the data will include the interviews with the teachers (post-visit). This data will eventually be stored on the linked data hub.
It was expected that in total approx. 180 students would be taking part in the testing sessions (4x 30 students from 3 schools). However, more students were planned to be recruited for future testing.

IMMA

The underpinnings (discussed at the start of Workshop 3) which helped to frame IMMA's user journey script development process included: making interconnections across different visitor groups and eliciting empathy via contributions from different user groups that problematize perceptions of homogeneity within communities. The series of meetings during Workshop 3 helped to further concretize these in terms of IMMA's desired user-journey(s).
The case study gathered their previously considered methods and activities under a more general umbrella term, s*low looking.* As also introduced in the section on Slow Looking (see 3.1 above), different slow looking activities can include storytelling, selecting/collecting of artworks, sharing perspectives, and others. The more specific themes and activity combinations can be put together by the visitors/users themselves for others. Thus, the more specific individual scripts are designed by the users/visitors for other visitors/users. This process is referred to as the authoring activity. In this way, the interpretation-reflection loop is particularly explicit in IMMA's case, as visitors/users are encouraged to both undertake someone else's journey (the interpretation activity), as well as author an activity for others (the mediation activity).

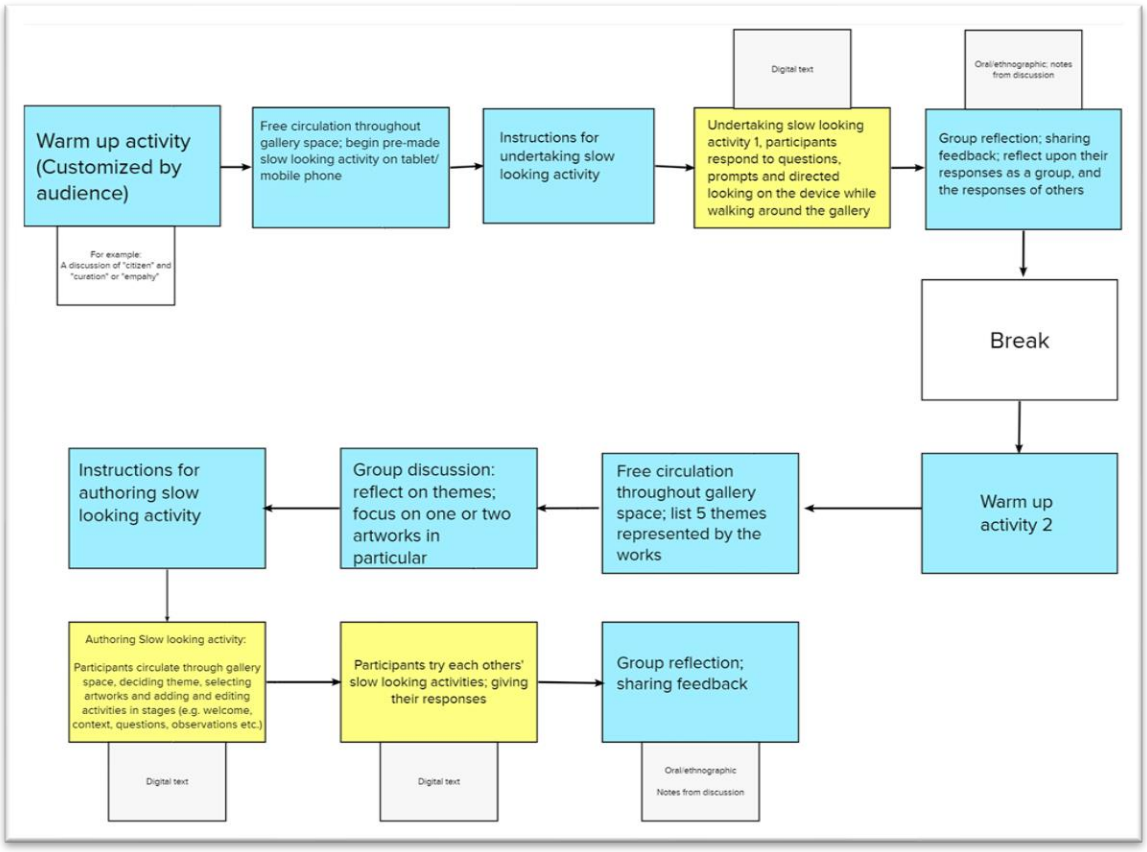

Fig. 17: IMMA user-journey script.

User-journey script

IMMA's user journey for testing during workshops consists of two primary stages: (1) undertaking a slow-looking activity and (2) authoring a slow looking activity. Although it is expected that the user will take part in both of these stages for the testing sessions, it is also acknowledged that in the future the visitor/user may wish to only take part in one of the stages, e.g., only undertake a slow-looking activity. It was envisaged that the complete user-journey would be staged throughout two separate workshop sessions over two weeks. The two planned workshop sessions were described by IMMA during the last plenum meeting as follows:
Firstly, session 1 would involve warm-up activities that would be tailored to each group. This can, for instance, involve openly introducing and discussing some of the SPICE key-terms and concepts, such as citizen curation and/or slow-looking, to build rapport within a group, as well as the group and the mediator. Thereafter, the visitor group would be invited to explore the gallery space and the exhibition. In order to stimulate the experience and acquire feedback/reflections from the participants, the participants will be given a series of exemplary questions that they can think about while exploring the space. Moving from the more 'analogue' activities to the digital platform, the participants are asked to undertake a slow looking activity on a pre-selected theme (e.g., family). The participants will then be asked to move around the gallery, explore the paintings, respond and reflect on the different questions, prompts, and others' responses on the digital device. This would be followed by an in-person group reflection/feedback session.

For Session 2, the participants start out with a warm-up activity. This could involve opening an in-person group discussion on the previous session (Session 1), revisiting some of the artworks and/or theme(s). Thereafter, the participants would be invited to explore a second gallery space with different artworks and

asked to list five themes that the artworks represent for them. This is followed by an in-person group feedback/reflection session in which the participants can explain their rationale for picking their themes. After the in-person stages, the participants will be again introduced to the digital platform and given instructions to author a slow-looking activity using the platform. Participants will be circulating in the gallery space in pairs, deciding theme(s), selecting the artworks, adding and editing activities from a selection of activities on the platform (e.g., posing questions and prompts, eliciting interpretations and etc). Using the digital platform, the participants will subsequently be asked to organize their activities into different stages in the script.
Once the participant groups have finished authoring their slow looking activity, the participants will be undertaking each other's activities. This will be followed by another in-person group reflection/feedback session, not only reflecting on the activities but the general process as well. Additionally, after the workshop sessions, the participants will be asked to fill in a follow-up online survey, with some participants IMMA will also be conducting personal interviews.

Implementation and testing details (for Workshop 4)

During the time of the plenum, IMMA was interested in approaching three specific community groups (migrants from New Communities Partnership; Healthcare workers; Young people living with lifelong illnesses). IMMA highlighted that the testing of their user journey should not be seen or advertised as research but rather seen as relying on reciprocal participation, tailored to the needs, requirements, and preferences of the specific target audience, and centered around hospitality. Thereby, IMMA rather refers to their conducted workshops as citizen curation workshops. As the communities are very different, this should be reflected in the procedure, the language, and other aspects of the planned sessions. The final number of participants should also be established in dialogue with the communities; however, the expected number of total participants was 36 (3x12), plus the mediator. Additionally, it was considered of high importance that the participants would be well informed and provided proper consent forms prior to the workshop. The museum also elaborated on the different materials required for conducting the workshop (pre-session forms, equipment for the participants and for documenting the sessions), as well as their data management plan, how the data would be handled and stored: using *onlinesurveys.ac.uk*, DPIA check for all surveys, survey data logged with OU's Information Asser Register).

MNCN

Stemming from the first Workshop 3 meetings, MNCN's case objectives involved getting their target group (school children) to reflect on the long-term implications of their everyday actions in respect to climate change, and to facilitate understanding of one's individual role in the bigger picture, using the museum artefacts. While additional target groups were considered to be included, e.g., families and teachers, it was decided to primarily focus on the school children within the first user-journey.
The desired outputs from the user-journeys included: (1) a variety of treasure hunts (developed by the teachers) that could subsequently be shared among teachers, (2) collected interpretations and reflections from the visits that could provide uses for the museum, as well as (3) individual and collective stories that could potentially serve as a scaffold for enriching classroom discussions on climate change and the environment. Outside of the treasure hunt activities, the other considered activities, enfolded in the user-journey, were envisaged to primarily make use of narrative methods, including reflective storytelling.

User-journey script

As can be seen in the MNCN user-journey below, the experience is divided into three different stages, the pre-visit stage, at the museum stage, and the post-visit stage.

During the pre-visit stage, the teacher plays an essential role for introducing a foundational understanding of the main related themes (biodiversity, climate change and species extinction). Thereafter, the students are asked to reflect on their own habits and perspectives using a pre-designed questionnaire. Before the visit to the museum, the teacher will prepare a treasure hunt using the digital platform, this includes selecting the most relevant artefacts at the museum, as well as the questions for the in-between questions.

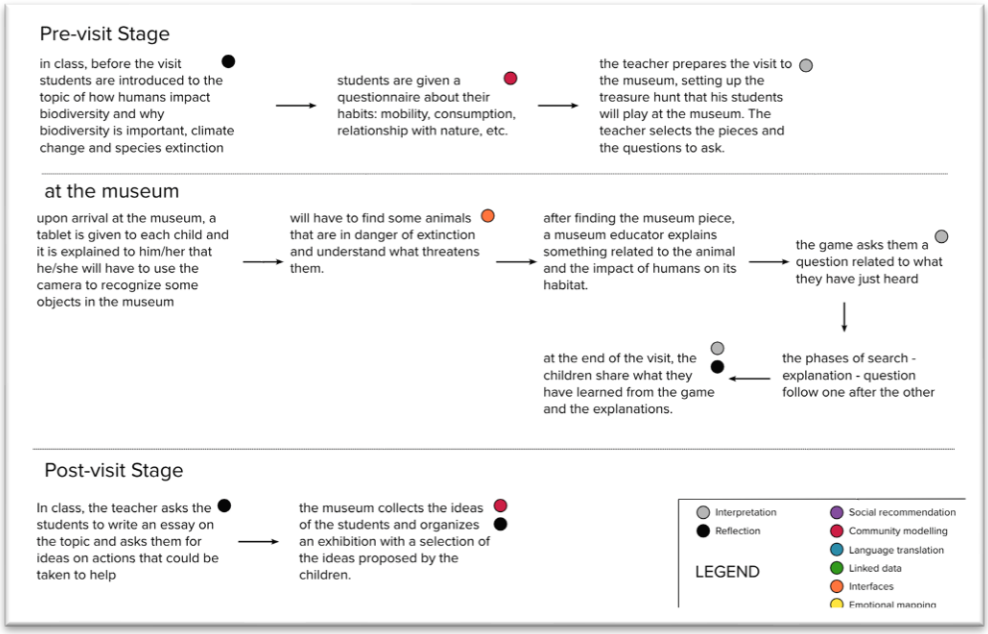

Fig. 18: MNCN user-journey script

During the at-the-museum stage, the school children would be given the opportunity to bridge and build upon their previously acquired knowledge at the museum. In the museum each child would be provided with a tablet and introduced to the digital treasure hunt activity. The key task is for the children to find the 'correct' artefacts, i.e., some animals that are in danger of extinction. With the help of the museum educator, it is the aim for the children to try to understand the effects and impacts of this on biodiversity, and subsequently on climate change. Thereafter, the participants would need to answer some questions on the tablet relating to things they have just heard. This process is repeated throughout the whole treasure hunt activity. Once the children have completed the series of activities, the children would be asked to share and reflect on what they had learned from the experience (in-person).
As was discussed during meeting 3.3, one of the main challenges lies in the formulation of the in-between activity questions.
Lastly, during the post-visit stage in the class, the children would be asked to write an essay about a specific topic relating to their experience at the museum. While the specific topic will be defined by the teacher, this could potentially involve the children reflecting on their own role in climate change. The collected stories and ideas would be collected by the teacher and then forwarded to the museum. Thereafter it is the museum who can make use of these as part of an exhibition or use these to propose another activity for new visitors. During the third workshop meeting it was discussed that the children's stories could also potentially be made available through an additional web-based application.

<u>Implementation and testing details (for Workshop 4)</u>

The described user-journey was planned to be tested with end-users during the Science Week 2021 in Madrid, from 1st till 14th of November. It was expected that 6 groups of 20 participants would be taking part in the activity.

GAM

The main focus in GAM's case was to help raise awareness of the Deaf community through the elicitation and sharing of different perspectives across the Deaf community, museum visitors and the general public. However, to concretize the target group for the user-journey task, the more specific target group was identified as deaf teenagers.
The user-journey would primarily make use of the GAM-game, which is in the form of a responsive web app developed as the pilot implementation for GAM (see also 4.2.4, D4.2, and D7.5). While the app can very well be used outside of the physical museum context, it was suggested that the more complex user-journey could only take place at the museum itself, and this was also considered as the best contextual setting for directly addressing the target community.
As discussed during the series of workshop 3 meetings, the methods and related activities would be encapsulated in the web app, this includes selecting, collecting and tagging of artworks, as well as visual and textual storytelling. In the early stages of the user-journey design, additional activities were also considered, such as, collage and drawing, however, these modalities were disregarded due to the technical complexities. The themes for the user journeys were also seen as very much tied to the specific artworks and largely contingent on the user selection.

User-journey script

Instead of a more general approach, GAM's user-journey script was using a persona Ambra, a deaf teenager (see the user-journey script below), thus describing one possible journey out of many possible ones. The user-journey takes its starting point outside the museum (the user discovers the application on social media). However, as was pointed out during meeting 3.3, an alternative journey might instead start with the museum.
Moreover, the script describes a case in which the app features artworks which would have to be present at the museum. As this might not always be the case, e.g., the museum might not have all their artworks on display at all times, this emerged as an important consideration.

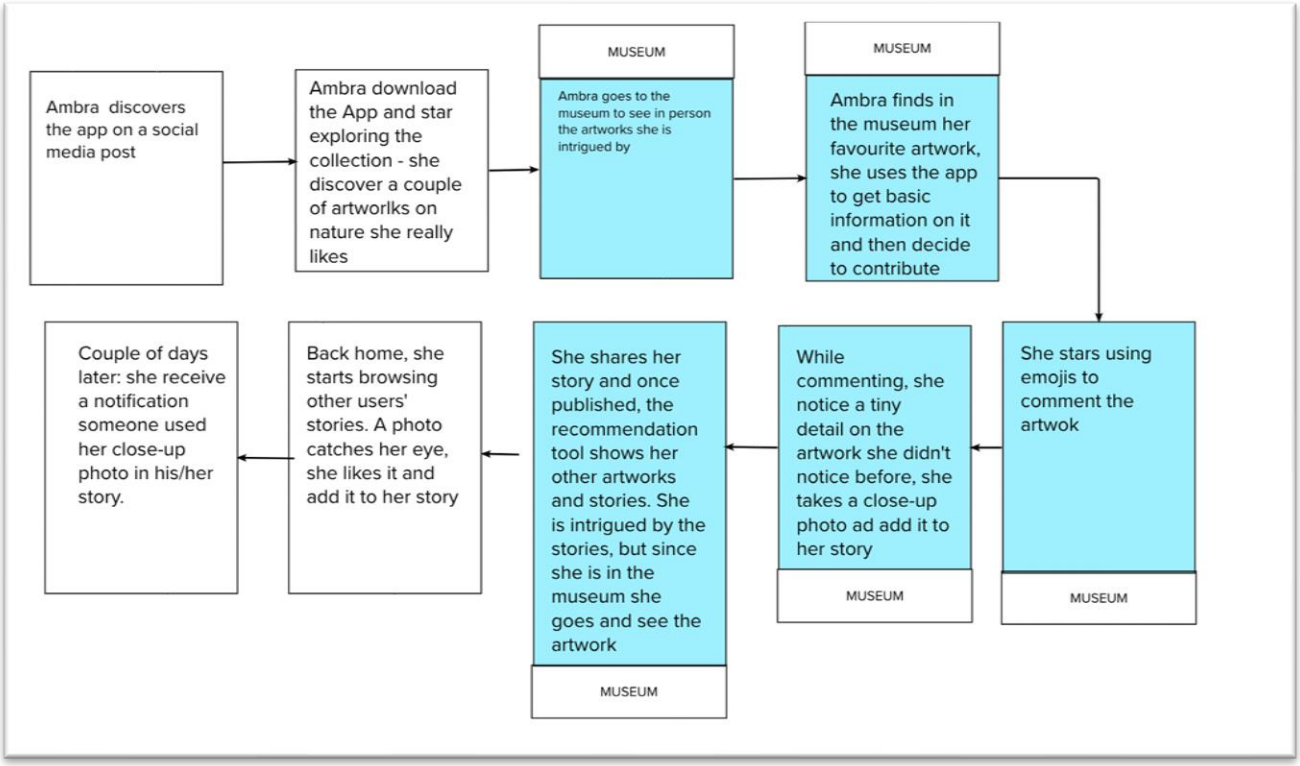

Fig. 19: GAM user-journey script

As already mentioned above, the user will be firstly introduced to the experience on social media, which will direct the user to the web app. In the web app, the user will be given a short intro explaining the goals of the experience and the project itself. The web app will also be providing support in guiding the use of the instrument, both in Italian and in LIS.

The key activities in the GAM user-journey script involve selecting artworks of interest, tagging an artwork using available emoji's, commenting on the artwork, photo contribution(s) and sharing in the form of Instagram-inspired stories. The reflection related activities in the journey include recommendations by the system, such as, suggestions of artworks, others' stories, and comments, as well as the ability to share others' contributions. For each user the system will store a cluster of their stories composed of artifacts selected and contributions (tags, emojis, comments, photos, etc.). Moreover, there is a form of moderation before actual publishing (for text and machine-assisted) as declared in the initial agreement.

Implementation and testing details (for Workshop 4)

Regarding approaching testing of the web app with the target group for Workshop 4, GAM planned to contact the involved groups directly through their institutional connections, specifically with the Turin Institute for the Deaf. Once the app would be online, they would advertise the availability of the APP on the active channels of UNITO, FTM and Institute for the Deaf.

The steps for the implementation plan were listed as follows:

0 - internal validation of the published prototype app
1 - inviting to a test session a group of users from target communities
2 - giving a short presentation of the app
3 - assigning tasks to users
4 - monitoring use of app through filming and ethnographic observation
5 - sharing of results and discussion with target groups
6 - analysis and re-design

4.1.4 Evaluation of Workshop 3

Regarding the objectives and goals for Workshop 3, the results from the workshop indicated that most of the listed objectives were successfully met and several valuable outcomes were achieved. Additionally, with the aim of evaluating the general workshop design, content, and format, WP2 conducted an internal post-evaluation in which we asked the case study partners to reflect and provide feedback on Workshop 3. This was done using an evaluation form made in Google forms.
One of the key objectives of the workshop was to revise the previously covered methods and related activities in relation to each individual case study and their target audience(s), but also to explore potential new methods. This was achieved through a series of individual case study meetings which resulted in the case studies co-designing their case-specific user-journey script(s).
During the first meetings, the case studies' methods and related activities were discussed through the lens of each case study's most pertinent social cohesion dimensions. For this, each case considered and elaborated on the social cohesion dimensions most pertinent to their case. In GAM's case, for instance, the social cohesion dimensions were considered from a system level (the GAM web app) as well as on a larger encompassing museum level, while DMH mapped out their considerations in relation their envisaged user-journey (see D2.4). While most case studies did not explore any new methods in their user-journeys, in the case of IMMA, previously considered methods and related activities were merged and explored using a new approach, *slow looking* (see 3.1). An additional new method was also adopted by HECHT, referred to as *opinion coloring* (see 3.3). Both of these methods were subsequently investigated by WP2 as new additional methods in SPICE.

The design process for the case studies to develop their case-specific user-journey scripts was also fruitful. Instead of proposing a rigid template, the case studies were encouraged to approach their user-journeys based on their individual case study needs and requirements. Thus, while some case studies focused more on the users' steps in the system (HECHT), others described in more detail the mediation process around the system (IMMA). Furthermore, developing the user-journey scripts helped the case studies in concretizing the IRL processes in their pilots. A good example of this was in the case of MNCN where the user-journey script helped to highlight gaps in the interpretation phase, serving as the foundation for the user-journey to be able to produce content amenable to the kind of analysis aimed by the IRL. Moreover, the designing of the user-journey scripts also supported the case studies envisaging in which points of the journey different types of data would be collected. This subsequently supported facilitating dialogue with the technical WP's.
The plenum meeting, during which the case studies presented their social cohesion considerations and user-journey scripts, allowed the case studies and technical work packages to further engage in dialogue regarding the possibilities, limitations, and requirements regarding the technical implementation of their user-journeys. Furthermore, based on the example of DMH's user-journey script (see Fig. 12), WP2 subsequently initiated the process of implementing homogenous legends to each of the designed user-journeys to more clearly mark the points of journeys during which data is collected, as well as other details

relevant to the technical WPs. Workshop 3 served as a basis for the following workshop, Workshop 4, in which the case studies had to test their developed user-journey scripts with their end-user communities. In preparation for this, all case studies additionally described their implementation/testing plan and timeline regarding the testing.

Internal Evaluation of Workshop 3: Feedback and Suggestions from Partners

The results from the anonymous internal evaluation survey showed that 50% of the 8 responses rated the workshop as 'very good', 37.5% as "good" and 12.5% as 'excellent'.

The number of meetings was considered "good"; however, it was suggested that there could be more time for the meetings. Furthermore, some participants would have liked more time to work on the homework tasks between the sessions and would have liked the tasks to be more elaborated on. Nevertheless, the homework tasks were regarded as useful, one of the participants explaining that it "made us prepare for meetings and meetings were more efficient". The mural tool for the homework tasks was particularly well received, as it allowed for "a visually appealing way of creating mind-maps and flowcharts".

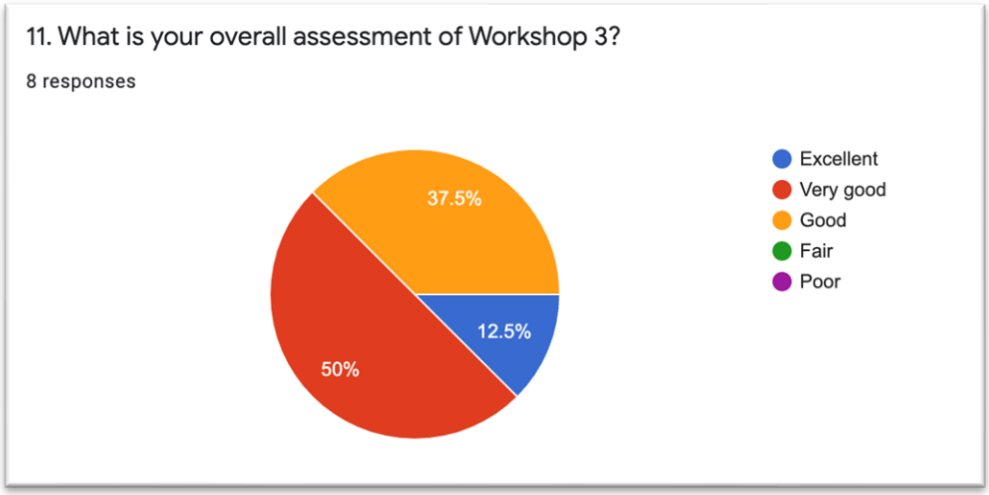

Fig. 20: Overall assessment of Workshop 3

Some more positive comments and feedback from the SPICE partners were regarding the Social Cohesion aspects, "Explicating the ideas in terms of social cohesion, helps with the understanding of how to better support it. In our case, the fact that we wrote and discussed how social cohesion would be achieved helps us improve the methods.", another participant adding that it, "made us spell out exactly the parts connected to social cohesion". However, some partners would have also liked to have more information on user-experience and accessibility, "a very good explanation of the framework of social cohesion, but a little more emphasis could be provided on accessibility, user-experience as well."
Lastly, the usefulness of the workshop in terms of relating to the individual case studies' objectives was rated as "very useful" by 50% of the participants, "good" by 37.5% and "okay" by 12.5% (one participant), one of the comments pointing out that it, "helped us polish and distil concrete activities to be implemented in the near future."

4.2 Workshop 4 – Testing of the User-journey Scripts

The goals and objectives of Workshop 4 were centered around the case studies testing their previously developed user-journeys (Workshop 3) with their end-user communities. This was to generate and collect data for further analysis and processing, as well as to reflect on the testing process in the context of WP2. Due to the diverse nature, and varying stages of development, the testing of the user-journeys was conducted over a course of several months. Moreover, while some cases were already at a stage for testing their complete user-journey(s), others focused more on specific elements.

The key objectives for Workshop 4 could be summarized as follows:

- To test the user-journey scripts developed in Workshop 3 for each of the five SPICE case studies with one or more of their target audiences
- To generate and gather data for further analysis and processing from each case study (which is to be used in Workshop 5)
- To support the case studies in reflecting on their testing process with their end-user communities with respect to the applied methods and related activities embedded in the user-journey
- To enable case studies to consider the testing process and outcomes in terms of the Interpretation-Reflection Loop and the goal of Social Cohesion

The following section provides an overview of the protocols and procedures followed by each individual case study when testing their user-journey, (or elements of their user-journey), and describes subsequent reflections and evaluation regarding the above-mentioned objectives.

4.2.1 DMH

In the wake of Workshop 3, DMH conducted several preparatory pre-journey workshops to iteratively focus on specific elements of their user-journey script (see Fig. 12), aiming at advancing the development of the pilot by applying a mix of the considered methods for interpretation and reflection (see 2.1).

A set of 10 workshops, onsite and online, were designed and conducted by Iines Kuusisto, student of experience and service design at LAB Lahti Polytechnic, practicing at Design Museum November 2021-April 2022, together with a team of museum mediators. These workshops focused on the target group of senior citizens. They were conducted with the group Museon tuulettajat (Museum Ventilators), a focus group of seniors from the Museum's Friends Association of the Design Museum and the Museum of Finnish Architecture (Damy ry) and with invited senior groups from the cities of Orimattila, Lahti and Helsinki.

The workshops were aimed at (1) collecting personal narratives as content for the first version of the Pop-up VR Museum, as well as (2) testing mechanisms for recording and documenting narratives, and (3) studying motivations and needs of senior citizen. The collecting of narratives was also intended to support establishing the requirements and considerations for incorporating them in the digital user-journey, as well as to help consider the desired type of analysis of these contributions.

In addition, the following was and/or will be carried out:

1. **Exploring** how design objects from the DMH collection can be used to engage senior citizens to reflect their personal experience and life history and how to collect stories from the senior citizens that can be shared with others. Using the experience of professionals to reflect on what kind of objects would be Interesting and what kind of methods would be good to create dialogue.
2. **Learning** about the skills and motivations of senior citizens and differences between aged people. Learning about senior care institutions and the system of healthcare for the aged.

4. **Discerning** the relationship with technology of the senior citizens and professionals working with them. Using multimedia conferencing in general and specifically immersive media to explore this.
5. **Listening** to their experiences with games including digital ones and assessing the potential for gamification in the design for the Pop-up-VR Design Museum.

In these workshops, DMH used images of design objects from the DMH collection selected to the Pop-up-VR Museum as basis for playful interpretation and artefact analysis in groups and individually, recording the narrations in different media. Among the goals of these first workshops (and the pilot), DMH wishes to collect and share the knowledge gathered with the different communities in the study as well as with other museum visitors. Among the hypotheses that DMH seeks to explore is whether these collections of interpretations might be useful in bootstrapping chains of interpretive interactions between different community members (or audiences).

The workshops specifically focused on interpretation and reflection. The participants interpreted objects in small groups and individually and produced individual narratives that were documented using different tools and methods – audio recordings, in writing, registered from conversation by mediators and using art methods. Some of the workshops were conducted online using Miro board and the Zoom platform.

The participants also discussed and reflected upon the narratives collected in previous workshops. The narrations and annotations that other participants had previously made about specific design objects, acted as triggers for these discussions. With this, the workshop investigated ways through which participants wanted to reflect and re-interpret the objects. This was expected, among others, to aid in understanding what kind of narratives would be considered more interesting, what type of narratives could further support reflection, and inspire others to share their own.

The workshops were designed as a process of individual interpretations followed by group reflection and discussions and further interpretations. Here the aim was to determine patterns in users' selection of artefacts and their narrative responses, I.e., whether some specific objects speak to many users and trigger a lot of comments. Simultaneously experiments were made with some of the technical features of the Pop-up-VR Museum, in the form of different approaches to recording comments and stories related to the chosen artefacts.

Additional important considerations also materialized from these preparatory workshops. Primarily concerning the narratives but also the overall experience in relation to this. As such, the workshops provided DMH with important insights into (1) the length of the narratives, (2) how to work with consent process, (3) how to approach editing the narratives if necessary, and (4) how to best translate an in-person sharing and exploring of narratives into the digital VR experience.

Furthermore, the Pop-up VR Museum will be on display for general audience at DMH during the Museum Week event conducted between May 17th – May 22nd. At this point, the Pop-up VR Museum is estimated to have 100 artefacts available for interaction, and with the data from the previous workshops, some of these artefacts will also have associated user-stories available.

Due to ethical considerations that are currently being addressed, the output of the workshops carried out by DMH have not been integrated into the Linked Data Hub during the time of writing. However, the intention of the pilot is to utilize the Linked Data Hub for both storing the artefacts of the Pop-up-VR Museum, as well as the user contributions (see also D4.2), and the collected translated narratives from the workshops, will be made available for subsequent analysis at a later stage.

4.2.2 MNCN

In relation to Workshop 4, MNCN's user-journey testing took place during Semana de la Ciencia (Science Week) on the 3rd, 4th, and 5th of November 2021. Six one-hour testing sessions were held in total, each involving 20-25 children per session. In total around 120 participants took part in the testing. During the sessions, children were divided into groups of two-and-two and each group was given a tablet to explore the treasure hunt application at the museum. The museum educator was present to introduce and guide the children throughout the experience.
The focus for this round of testing was on specific parts of MNCN's user-journey rather than the complete user-journey (the pre- and post-museum stages were not included in this testing phase). The main aspect was to test the feasibility and viability of this type of an activity (the treasure hunt activities at the museum) for children visiting the museum, but also to see how the subsequent reflective questions are received and how large of a role the museum educator should play.

Following the results of these initial workshop sessions, it is deemed important to ensure close collaboration with the teachers and educators in the creation and testing of the treasure hunts. For this, MNCN is inspired by IMMA's Deep Viewpoints platform and the possibility for the teachers to be directly involved in the process of creating different treasure hunts. Hence, the focus is on the teachers and affording them the ability to highlight their own emphasis on the specific parts of the topic (climate change). Additionally, MNCN is considering for the teachers to potentially be able to share their individual treasure hunts with other teachers.

Thus, in the coming months, MNCN aims to establish a closer collaboration with the teachers and educators to further develop their user-journey script in this direction. The teachers are planned to be recruited through an open call and during a presentation at the MNCN Science Congress for School children (April 27th-28th). The next larger scale testing involving all the stages is planned to take place in September to December 2022.

The data collected in the sessions conducted during the Science Week includes the answers to questions related to the topic of climate change and is available internally for MNCN. These responses have also been shared with other SPICE partners and e.g., applied in the development of the clustering techniques for the community modeler (see D3.5 and D3.6).

4.2.3 HECHT

Due to unexpected plans for renovation of the HECHT museum (following the public restrictions imposed by the COVID-19 situation), the pilot of HECHT was expedited to accommodate this change. The user-journey of HECHT was therefore quite well-developed as Workshop 3 was inaugurated (see 4.1.3 above). Following this, HECHT also performed the first full-scale test of their user-journey in close extension of Workshop 3, and largely as envisaged and described during Workshop 3 (see Fig. 16). More specifically, the first round of testing was performed in November and December 2021. In this round, two schools were involved with 49 and 26 students participating respectively. The testing performed was mainly focused on four aspects: (1) UX feedback on the pilot/user-journey, (2) investigating the effect of differing opinions on openminded thinking, (3) teaching [citizen] curation, and (4) populate a repository of student responses.

As the pilot of HECHT is directly tied to the curriculum for the students participating, the students were also graded on their contributions during the user-journey. Hence, for the most part HECHT experienced "rich" contributions from the students, while "[t]eachers commented most favorably about the reflection on others' opinion activity [(see 3.3 above)], saying that it requires deep thinking and reflection from the students" (D7.5, p. 61)

In relation to this, HECHT also developed a web-based tool for educators, teachers and curators to access the collected data and provide feedback to students. This tool is referred to as the 'student manager' and is planned to be further improved upon in the future.

Fig. 21: Testing of the user-journey for HECHT

More informally, positive feedback was received from teachers and students, regarding the citizen curation activity in which students were to take photos of the exhibit to support their opinion on a specific historical event. In addition, this specific activity also cultivated several interesting contributions, in combination with the subsequent activity of tagging the photos. I.e., students enjoyed the possibility to connect their different photos with their opinions. Similarly, the post-museum citizen curation activity, in which the students created their own virtual exhibition was particularly well-received and introduced a way for the students to further reflect on their previously contributed ideas and opinions.

Further testing at the museum is planned for the 14th and 20th of March, and on the 27th and 28th of April, involving in total two additional schools, four classes and around 120 students.

The user contributions and the data collected from this round of testing included the following:

(i) responses to a demographic survey
(ii) responses to the Actively Openminded Thinking (AOT) questionnaire
(iii) opinions from responses to the Relevance of History Measurement Scale (RHMS) questionnaire
(iv) opinions by textual comments/descriptions regarding a chosen theme (here the Galileo Rebellion)
(v) reactions to opinions of others
(vi) students' photos of relevant artefacts
(vii) students' tags related to the photographed artefacts

Some of the data was collected multiple times during the user-journey (e.g., RHMS and AOT). This data is directly used by researchers related to HECHT and can be regarded as an example of how the pilot utilizes SPICE as a social laboratory. All the data from the testing was saved in the HECHT data hub. Yet, native integration into the Linked Data Hub is currently under development during the time of writing. Aside from the above-mentioned data, structured interviews with teachers and interviews with curators were also conducted to evaluate the pilot and the user-journey.

The results of the testing allowed the researchers involved with HECHT to analyze the impact of the presentation order of opinions of others. Concretely, the user-journey presented the participant with an opinion similar to the opinion of the participant's before presenting an opinion that differed. The results indicated that such an order of presentation, by design enhances the participant's openness towards the opinions of others (Goldberg, Wecker, Tabashi, Lanir, & Reinhartz-Berger, 2022).

4.2.4 GAM

GAM focused in their testing on separate parts of their pilot over the course of different workshops. In the early phases of testing, the workshops were conducted online due to COVID-19 restrictions and were focusing on parts of the pilot related to the elicitation of emotions related to artworks. The testing related to Workshop 4 was also postponed due to the COVID-19 restrictions but was conducted on the 9th of March and on the 22nd of March 2022. In this round of testing, a greater focus was placed on UX in relation to the interface design, rather than the complete user-journey. Hence, these workshops investigated whether the experience, tailored to the needs and requirements of the Deaf Community, is also enjoyable for the general public. Hence, the workshops involved two separate groups: the Deaf Community and a control group consisting of people without impairments.

Focusing on UX and interfaces, the data collected in these workshops were primarily focusing on key-changes and adjustments necessary in relation to the GAM game responsive web app interface. However, aside from not yet advertising the user-journey to the general public, and rather working with these specifically recruited groups, GAM still followed the ideas from the user-journey that they developed during Workshop 3 (see Fig. 19). Here (as well as from the inauguration of SPICE), the principal form of desired user-contributions is the information regarding the emotions elicited and associated to different artworks by the users. In accordance with this, GAM successfully collected sentiments and emotions related to artworks during all their conducted workshops. Thus, GAM has not yet registered a single participant that did not contribute with an emotional response, either by using an emoji from a list provided, or by leaving a comment tied to an emotion.

This data has been subsequently used together with both the semantic annotator developed by WP3 (see D3.2 and D3.4), as well as the DEGARI (Dynamic Emotion Generator And ReclassIfier) system developed in WP6 (see D6.3). Primarily, the data has been applied with DEGARI to compute compound emotions based on these basic emotions contributed by the users. However, comments and stories have also been applied to the automatic reasoning, performed by the SPICE Semantic Annotator of WP3 (see D3.4) using NLP (natural language processing). Moreover, these emotional responses actively aid the further development of the reflection-phase of the GAM user-journey.

In the currently conducted workshops, the data has been collected and stored internally by GAM and its partners, albeit the GAM catalogue is available on the Linked Data Hub. However, for future iterations, the intention is to connect directly to the Linked Data Hub to store and retrieve both user contributions and data related to the artefacts.

4.2.5 IMMA

For testing their user-journey as part of Workshop 4, IMMA conducted four separate workshops with four communities associated to different target groups of the pilot: New Communities Partnerships (NCP), Black and Irish, Black Queer Bookclub, and finally MELLIE. All workshops consisted of multiple stages, each aiming to support and guide the participants through the interpretation and mediation of Slow-looking activities. In this process, the IMMA Deep Viewpoints prototype platform was utilized for simultaneous evaluation (see also D4.2). The workshops were all conducted as envisaged and documented in the user-journey script for Workshop 3 (see Fig. 17), and no significant changes to the script were necessary.

The first workshop was conducted on the 24th of November 2021 with four participants from NCP, which is an umbrella organization for migrants. In the workshop the participants first *interpreted* (performed) a Slow-looking activity which was *mediated* (created) by IMMA. Following this, a group discussion of the activity and the user responses were facilitated. Subsequently, the participants created their own Slow-looking activity by selecting artworks, choosing a theme, and developing questions and prompts. All based on the open formula provided by the experience with their initial interpretation of the Slow-looking activity mediated by IMMA. To support the participants in the mediation, some of these aspects (e.g., themes) were also discussed prior to the mediation activity, during the previously held group discussion

Following this, on the 27th of November 2021, another workshop was conducted with five participants from the *Black and Irish* group, an advocacy and activist group for the black community in Ireland. This workshop was similar in structure to the first one, but differed in the initial Slow-looking activity, as the participants in this workshop performed their interpretation of the Slow-looking activity mediated by the previous group from NCP.

Following these two initial workshops in 2021, the new year brought about two additional workshops.

First, a workshop was conducted with *Black Queer Bookclub* on the 11th of February 2022, involving 10 participants. This workshop was intended to further expand the "pool" of Slow-looking activities developed by citizens to be integrated in the IMMA Deep Viewpoints app.

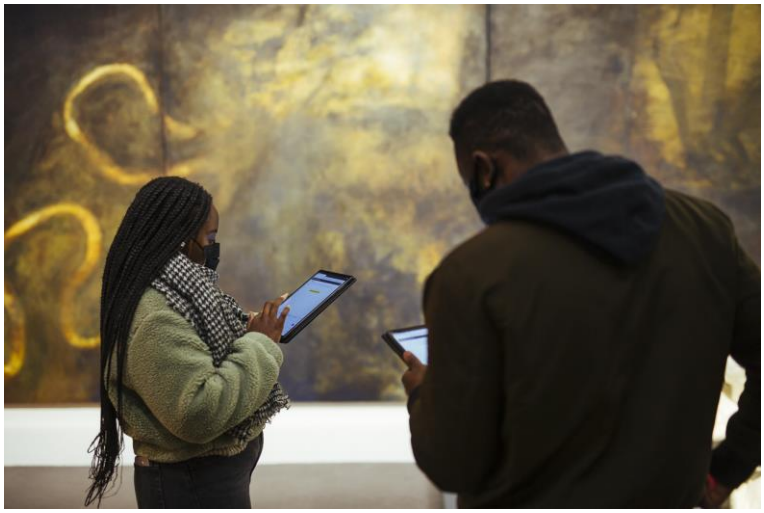

Fig. 22: Testing of the user-journey for IMMA

Finally, IMMA conducted a workshop on the 23rd of February 2022, with MELLIE (Migrant English Language, Literacy and Intercultural Education Programme). MELLIE is a project by Dublin City University (DCU) designed to facilitate language and cultural exchange between staff and students at DCU and asylum seekers (DCU, 2017). As such, in this workshop, the target group involved was asylum seekers. The workshop with MELLIE was the largest to date involving 36 participants.

One of the essential aspects of the workshops involved observing what type of questions work best for eliciting rich responses and subsequent discussions among the groups. Although users are at later stages asked to come up with their own questions and prompts individually during the mediation activity, it is nevertheless important to better understand what type of questions work better than others, and which can better serve as inspiration and encourage rich reflections. The workshops also served to generate a "critical mass" of community authored activities as a repository for the future iterations of IMMA's pilot. The data collected in the workshops includes all the data submitted by the participants, both in the form of

the responses contributed during the interpretation activities, but also the content of the scripts designed during the mediation activity: questions, prompts, descriptions, artwork selection etc.

Following the knowledge produced from the workshops, IMMA is now considering how the responses might be used internally in IMMA, e.g., whether they might be integrated into the IMMA CMS.

Additionally, IMMA is conducting workshops with other groups that are similarly less able to (or less prone to) visit the museum, such as young people living with illnesses (HELIUM), and young people living in detention centres. Specifically, work is currently carried out with Oberstown Children's Detention Campus.

Future workshops are also considering the possibility of prolonging the processes and making them transpire over the course of multiple weeks, to explore how this might affect the interpretation and reflection.

4.2.6 Evaluation of Workshop 4

In this section, the workshop outcomes for the case studies will be discussed in terms of the previously listed Workshop 4 objectives. Additionally, we will aim to demonstrate how the results from the workshop will serve as the basis for the next workshops, Workshop 5 and 6. As listed above, the main aims of Workshop 4 were: (1) for the case studies to test their user-journey scripts with one or more of their target audiences, (2) for these user-journeys to generate data that could be used for further analysis and processing, (3) for WP2 to provide support to the case studies in reflecting on their testing process with their end-user communities, considering the applied methods and related activities embedded in the user-journey, and lastly, (4) to enable the case studies to consider the testing process and outcomes in terms of the Interpretation-Reflection Loop and the goal of Social Cohesion. In some cases, rather than testing a 'complete' user-journey (HECHT, IMMA), the case studies focused on specific parts of their intended scripts. As in the cases of DMH, GAM and MNCN, wherein different aspects of the user-journey scripts were tested (DMH, GAM), or are planned to be tested (MNCN) across different workshops. Nevertheless, in all cases the workshops were considered as fruitful in terms of gathering insights on the user-experience and the embedded methods, as well as regards to generating and collecting initial data.

In their various workshops with senior citizens, DMH focused on the collecting of personal narratives from participants. The personal narratives and memories were elicited through a participatory process in which the participants interacted with museum's pre-selected artifacts and were to a great degree supported by the mediators. The workshops not only helped to assess the activities and overall experience, but also evoked considerations in terms of the processing and editing of the collected narratives. The collected narratives are currently being prepared for further analysis and processing and are to be incorporated into the Pop-up VR Museum pilot application.

In the case of MNCN, the testing involved primarily one aspect of the user-journey, namely the *at-the-museum* experience. Although it was found that the treasure hunt application was found engaging by the primary target group, the testing did not yet provide all the necessary insights for the evaluation of the IRL. While initial data from multiple-choice questionnaires could already be used as input for the development of the community-modeler (see D3.3 and D3.5), it also highlighted some possible limitations. More specifically, the format of the multiple-choice questions inherently pre-determines the possible outcomes, and as such, limits the possible depth of the user-contributions. Although during the testing this worked well for the underlying teaching objectives, at the same time it can also introduce problems to the idea of citizen curation, in which the users should be encouraged to share their own unique interpretations (see D2.1). Moreover, even though MNCN's approach of aggregating data clearly addresses the complexities involved with handling data from their primary target group (under-age students), it simultaneously also inhibits itself from utilizing some of the core functionalities of the SPICE platform, such as personalized

recommendations, while hindering the users' possibilities of building representation of themselves. However, based on the possible limitations and challenges emerged from the testing, MNCN is currently drawing inspiration from IMMA's pilot application. I In this direction, MNCN is further investigating how to provide more opportunities for their participants to share open-ended and personalised contributions.

The GAM workshops provided essential insights in terms of the general experience of the user-journey but also informed about the necessary changes to the visual interface of their GAM-game application based on the considerations of their primary target group. The data gathered during the workshops fulfilled the expectations of GAM, both regarding the user-experience (UX) as well as with respect to the intended user-contributions. The responses from the qualitative interviews conveyed the users' deep attachment to their contributions, and thereby highlighted the artworks' capability to encourage expression of personal memories and feelings. Outside of reflecting on one's own contribution(s), the users also expressed curiosity and desire to explore the stories of others. Additionally, art and culture professionals valued the possibility of seeing the stories created by the users as possible visit paths in the museum collection, thus envisaging a use of the story browsing function as a form of guidance in the physical museum. With respect to the visual interface, GAM implemented comments using simplified linguistic templates and emotional responses by visual symbols, i.e., emojis.

IMMA's workshops, particularly through their interpretation and mediation activities embedded in the platform, well-illustrated the Interpretation-Reflection logic (see D2.1 and D2.2), whilst providing important insights for future considerations. The workshops illustrated how the IRL logic works well in introducing new perspectives and interpretations in contrast to the more traditional museum point of view while allowing to capture them digitally. This was observed in the responses for the activities during the interpretation phase, but also for the mediation phase as the formulation of the prompts themselves was found to be especially effective in introducing new perspectives on the artifacts. Hence, the mediation and interpretation phase seemed to reinforce each other, with the dynamics between them seemingly supporting the introduction of new perspectives, and thus potentially aiding in "turning the museum into a safe space for unsafe ideas" (Bruni, et al., 2020). Regarding user-experience (UX), the pilot implementation of IMMA was well received by all the groups taking part in the workshops. The pilot was found easy to use, with no prior skills or expertise found necessary to perform the activities. Next step, which for the most part is currently work-in-progress, is the integration and sharing of the collected data with the Linked Data Hub.

HECHT reported to have gathered rich student contributions for the most part. The fact that the participating students were being graded on the SPICE activities as part of their course of study was an advantage and viewed as a catalyst for the eliciting rich user contributions. Additionally, it was reported, that from informal feedback, the UX of the user-journey was considered positive, as students seemed to enjoy the activity. Changes in the students' openness to the opinions of others were analysed from the responses to AOT and RHMS questionnaires presented multiple times during the user-journey. It was found that "the disposition to be fair towards different conclusions even if they go against one's initially favored or pet conclusion" (Baron, Reflective Thought and Actively Open-minded Thinking, 2016, p. 109), increases, when introducing a similar opinion to the participants, before presenting a dissimilar opinion (Goldberg, Wecker, Tabashi, Lanir, & Reinhartz-Berger, 2022).

Although the case studies approached the testing of their user-journey scripts somewhat different from each other, in all cases, the outcomes and results from the workshop provided important insights, particularly in regard to the case studies' target audiences, considerations for data analysis and processing, and how the methods and activities could better support the intended IRL. While in some cases the 'complete' user-journey testing generated all data needed for subsequent analysis and processing, others were still in the process of experimenting with different aspects of their user-journey scripts, further

developing and adapting their activities. Nevertheless, as all case studies managed to collect some form of preliminary data, involving least one of their end-user communities, workshop 4 serves as an important cornerstone in terms of designing and preparing for the following WP2 workshop, Workshop 5 (see D2.4).

5.0 Revising the Interpretation-Reflection-Loop – Case specific IRL's

While initially the IRL was defined from a top-down perspective, as a general logic for the citizen curation process (see D2.1 and D2.2), the following section addresses the IRL from a bottom-up approach involving each individual case study. In this context, we used the user-journeys developed by each case study during Workshop 3, in order to co-design and develop what we refer to as case-specific Interpretation-Reflection loops (IRLs). These case-specific IRLs link and relate the interpretation and reflection processes to the five SPICE case studies. Thus, the case-specific IRLs map the activities (or steps) in the user-journey that generate data. The collected data constitute the input for the subsequent analysis envisioned in the IRL (see D2.4), which in turn, will support the representation and visualization of the cultural process, thus, completing the interpretation-reflection loop.

5.1.1 DMH

The user-journey of DMH follows the initially envisioned flow of the Interpretation-Reflection Loop (see D2.1). In accordance herewith, the process starts with interpretation, as the users select and analyze artefacts at different virtual locations via "physical" (albeit virtually) sensory examination. The sensory input involved with the artefacts is mainly visual and textual, yet the user is also afforded the possibility to access auditory sensory information by listening to stories from other users, related to the examined artefact. Thus, the principal data for DMH is these narrative user-contributions in the form of personal stories and memories related to the artefacts. To allow a flow where the user initiates the journey with the possibility of listening to stories of others, the final pilot of DMH is intended to contain a repository of user-contributed stories and memories, which is collected during the preparatory workshops (see 4.2.1).

After this initial interpretation phase, during which the artefacts are examined by the users, the current intention of the pilot is to instantiate a reflection phase. During the reflection phase it is the intention that the user would be offered the possibility to provide their own contributions, spired by their experience with the artefacts through different modalities, e.g., virtual drawing/sculpting, as well as auditory or textual records of their own memories and stories. With this, the users will be able to directly add to the repository of stories related to the different artefacts. Lastly, the users will be afforded the possibility to share their opinions and feedback on the contributions of others.

In the development of their implementation pilot, DMH has considered a user-journey involving several touch-points during which the user is actively involved in actions such as selecting (see D7.5). These actions can be translated into several interaction attributes (see D3.3, D3.5 and D3.6), related to the individual user-model and user-history (see D3.3 and D3.5). In the current iteration of the envisaged user-journey, these involve avatar, location, artefact and story preferences. These interaction attributes are all potentially applicable in the community-modelling (see D3.3 and D3.5).

Aside from this implicit user data derived from the user-history, i.e., behavioural data (see D3.3), the case-specific IRL of DMH focuses on three more explicit user-contributions, which can inform both the user-model and add to the metadata of the collection of DMH. As previously described, these involve: digital drawings/sculptures, personal stories/narratives, and opinions.

Fig. 23: Case-specific IRL of DMH

The application of the drawings/sculptures is still under development and under consideration, while the personal stories have been the focal point since the initial considerations for the pilot (see D7.1). The opinions and comments related to the contributions of others have been added as a component to directly encourage reflection. This component has been a focus of the second workshop conducted by DMH with their target groups (see 4.2.1) and is expected to provide additional information useful for the user-modelling and personal recommendations.

Using the vocabulary of the user- and community-models, these user-contributions can be considered as interaction attributes. Yet, they can also be considered as more directly applicable to the different semantic tools of SPICE. e.g., opinions and narratives can be submitted for analysis by the semantic annotator and the different reasoning tools (see D3.2, D3.4 and D6.3) to derive and connect information regarding the emotions and values related to these opinions and narratives.

To highlight differences within and similarities across groups (as intended by SPICE), we might consider a dataflow as visualized in Fig. 24, where a user from a similar explicit group (based on demographics) is paired with the current user, but a recommendation for examining an artefact or a user story is selected based on dissimilarities in emotions derived from the two user-contributions (narratives) associated with the artefact.

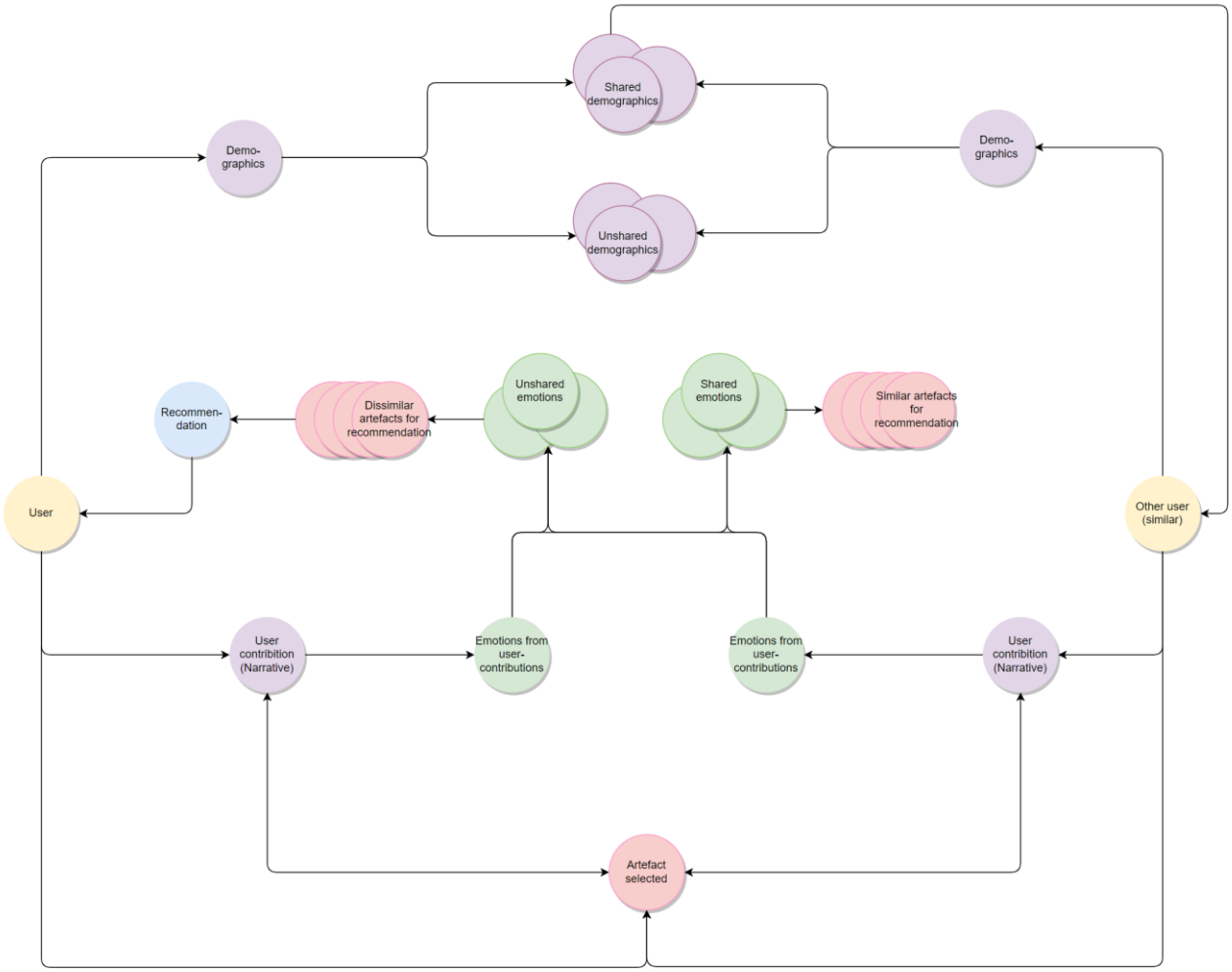

Fig. 24: Example of possible data flow for recommendation in DMH pilot

5.1.2 MNCN

As visualized in Fig. 25, the case-specific IRL for MNCN, follows the intended user-journey developed during Workshop 3. The user-journey involves collecting students' opinions on relevant topic(s) using questionnaires (pre-visit stage), whereafter the teacher (mediator) can design a treasure hunt using the MNCN's application for the visit to the museum. As part of the treasure hunt, the students' opinions are also collected, again in the form of multiple-choice questions that guide the interpretation activities. Concluding the museum visit, a group discussion is facilitated by the teacher, in which the students reflect upon their experience and their responses to the guiding questions. This activity does not generate new data, but rather builds on the students' current experience. The remaining aspects of the user-journey are performed post-museum visit, in the respective classrooms of the students. There, the students are tasked with writing an essay/story and provide feedback to the museum curators. From this data, the teachers and museum curators select stories of interest and implement them into an exhibition, together with the relevant feedback received from the students.

The primary data collected in the current pilot implementation of MNCN, are the responses to the multiple-choice questions, which are considered as direct user-contributions. Additional information will be stored for each treasure hunt, in the form of the teachers' selection of artifacts and prompts for the students.

The activity in which the students are tasked with writing essays/stories and to give feedback on the experience, is currently being performed in class after the museum visit and does currently not involve the technical eco-system of SPICE. Nevertheless, the data is intended to be gathered by the teachers and shared with the museum curators as described above. Hence, for future iterations of the pilot MNCN is considering integrating these stories from the students in the Linked Data Hub for subsequent curation and future analysis.

The data collected throughout the process is currently handled on an aggregated rather than a personalized level, as MNCN concentrates on groups rather than the individual. The current primary interest of the teachers regards the differences and similarities between these school classes involved in the pilot.

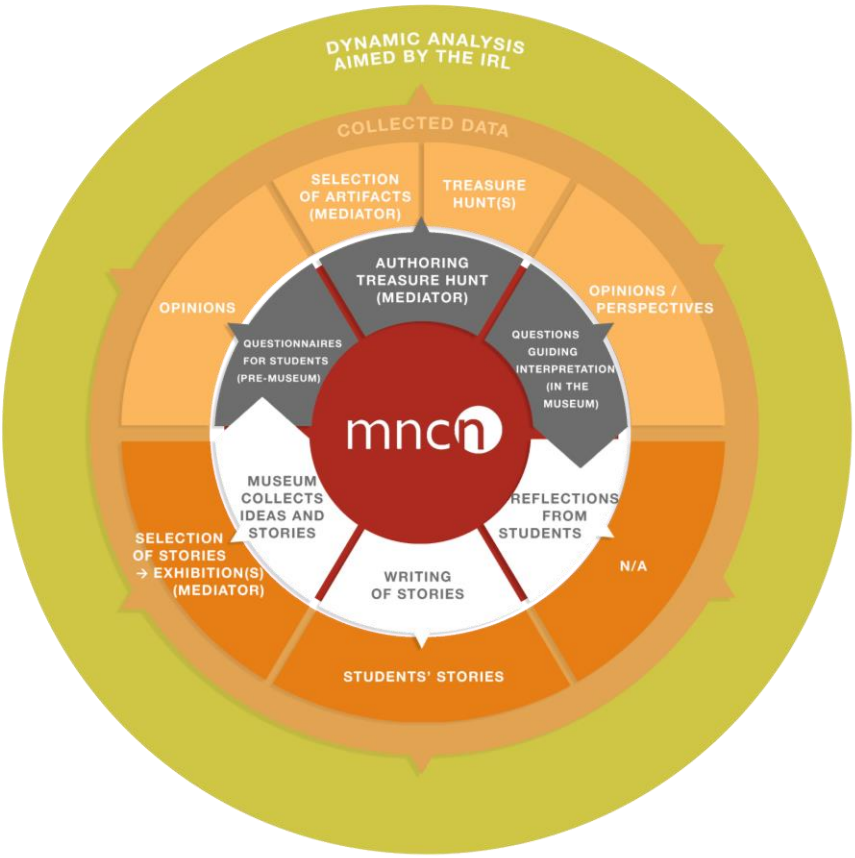

Fig. 25: Case-specific IRL of MNCN

5.1.3 HECHT

The dataflow represented in the case-specific IRL of HECHT involves a range of both direct and inferred user-contributions from both educators as well as students from several touch-points and actions (see D7.5). The contributions by educators and curators (mediators) involve their selection of exhibits, artefacts, and students' contributions, which will then be included in the user-journey.

The user-contributions involve responses to the standard questionnaires of RHMS (Relevance of History Measurement Scale) and AOT (Actively Openminded Thinking). The responses to these questionnaires aim to present the opinions of the students in relation to the topic at hand. These are asked on two occasions during the user-journey, to later evaluate changes to the responses resulting from the activities involved in the pilot. Furthermore, the students provide their reactions to the opinions of others and perform citizen curation using their contribution of their selected artefacts. This involves a selection of artefacts and

exhibits deemed relevant, and the tags attached to those. While most of the contributions from the students are explicitly elicited through the activities, it is a future intention of the pilot to further analyze and personalize the content by applying the semantic tools of SPICE to the data. Hence, the case-specific IRL of HECHT also highlights the points where data is being analysed, and as such, where new data is generated and contributed to the user-model by inference. This analysis was not effectuated in the current workshops and is currently under development.

As previously described, the data currently collected by HECHT is stored outside the Linked Data Hub but is currently being migrated hereto. Along with the intentions described above for applying the analysis directly in the user-journey, this inherent integration with the Linked Data Hub is planned to be applied for future iterations of the implementation pilot.

Fig. 26: Case-specific IRL of HECHT

5.1.4 GAM

For GAM, the case-specific IRL revolves around the notion of emotional responses, or reactions to artworks as an integral part of any aesthetic experience (Lieto, Pozzato, Zoia, Patti, & Damiano, 2021) As previously described, this has been a principal component of interest for GAM throughout the SPICE project (see also 2.4 above and 4.2.4 above). In GAM's case-specific IRL, this is represented in the direct user-contributions elicited from several of the activities of the GAM Game application, where the user is prompted to describe (withcomments or emojis) what the artwork reminds the user of, and/or how it makes the user feel. These contributions are collected as *stories* (similarly to social media stories i.e., Instagram). The stories contain a series of artworks selected by the user, which can then be shared with other users. After the user submits their story, two lists of artworks, with respectively similar and opposite emotions are then recommended to the user for further exploration. Finally, as individual artworks are explored, users can choose to see a

list of stories containing the artwork, and subsequently explore and react to these stories by viewing and liking them.

Fig. 27: Case-specific IRL of GAM

From the process above, the dataflow considered in the current implementation of GAM is mainly concerned with direct user-contributions, which are in the form of emotional tags and comments related to the user's selection of artworks.

However, by applying the different reasoning tools of SPICE on the user-contributions, it would also be possible to generate inferred data. E.g., specific themes might be derived by the thematic reasoner (see D6.3), from the selection of artefacts curated by the user in their story, or from the subset of the GAM collection, selected by the curator for the activity. Additionally, as the user selects an artwork for their story, a connection is generated between the artwork and the story, and by extension to the other artworks involved in the story. This connection is utilized when the user explores the stories of others, from the starting point of a specific artwork.

The GAM collection is available in the Linked Data Hub, and the direct user-contributions are currently being integrated as well.

5.1.5 IMMA

In the user-journey developed in Workshop 3 (see Fig. 17), IMMA divides their journey into two separate phases: *interpretation* and *mediation* (see also D4.2). Both phases generate user-contributions, but from two distinct (albeit related) perspectives.

In the *interpretation phase*, the user participates in slow looking activities developed by others (either by museum professionals, or other users) and the user-contributions are direct responses to prompts developed to guide the user through these activities. These contributions therefore represent the user's perspective on a range of subjects/artefacts defined by the mediator of the activity. In the current form of IMMA's user-journey, a group reflection session is subsequently facilitated by museum professionals, during which the individual contributions are discussed, and the users provide feedback.

In the *mediation phase*, the users are situated on the flipside of the activities and are positioned as creators of the slow-looking activities (as mediators). Herein, the users act as citizen curators, as they create the activities by: deciding on the general theme of the activity, selecting the artifacts to be included, choosing and formulating the prompts to be associated with the selected artifacts.

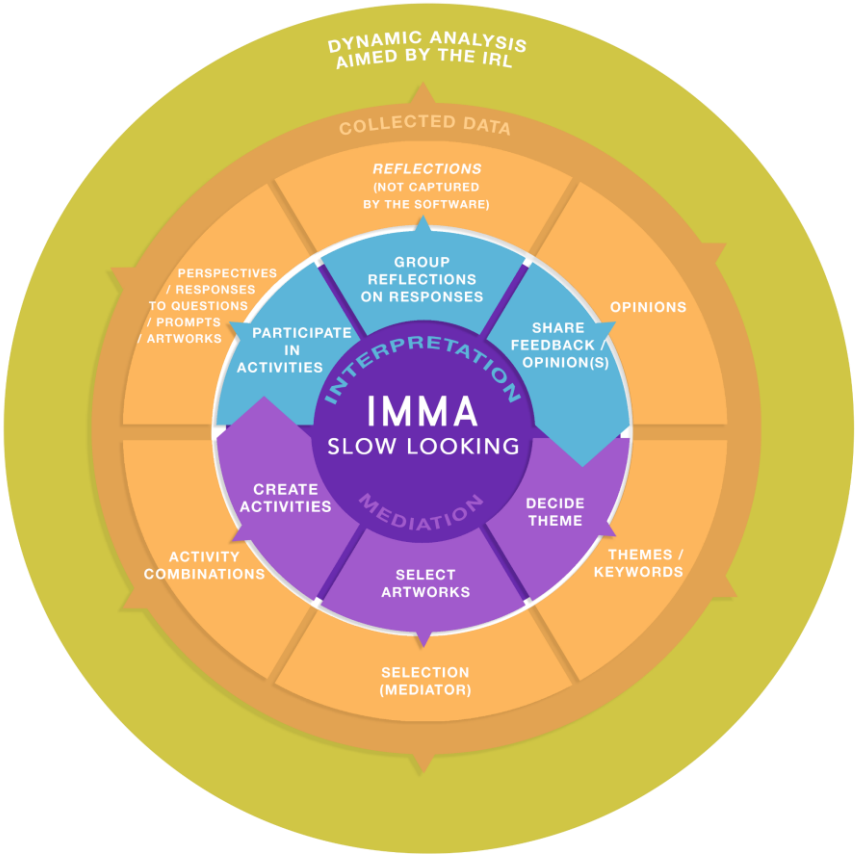

Fig. 28: Case-specific IRL of IMMA

In this respect, the current iteration of IMMA's pilot, in the form of the IMMA Deep Viewpoints application, presents a wide range of data from which it could be possible to make inferences. E.g., direct user-contributions could initially be considered as the responses of the *interpreter* to the prompts, but also the formulation of the prompts themselves could be considered as direct user-contributions of the *mediators*. For both, the interpreter and the mediator, it might therefore be possible to infer information regarding e.g., their emotions from these differing but related user-contributions. I.e., directly the interpreter and mediator relate by artifact, prompt, and response, but with semantic analysis of both user-contributions, inferred data is generated, and becomes another source of information to relate the interpreter and the mediator, while also providing additional metadata for the artefact.

From this, we might consider a network graph (as represented in Fig. 29), where the analysis of the formulation of the prompts adds to the pool of emotions associated to an artifact in concordance with the emotions derived from the responses to these prompts. I.e., relating the users and the artefact by inferred data from both prompts and responses. As such, we see how each of the two phases, contribute with relatable data, but from two distinct perspectives.

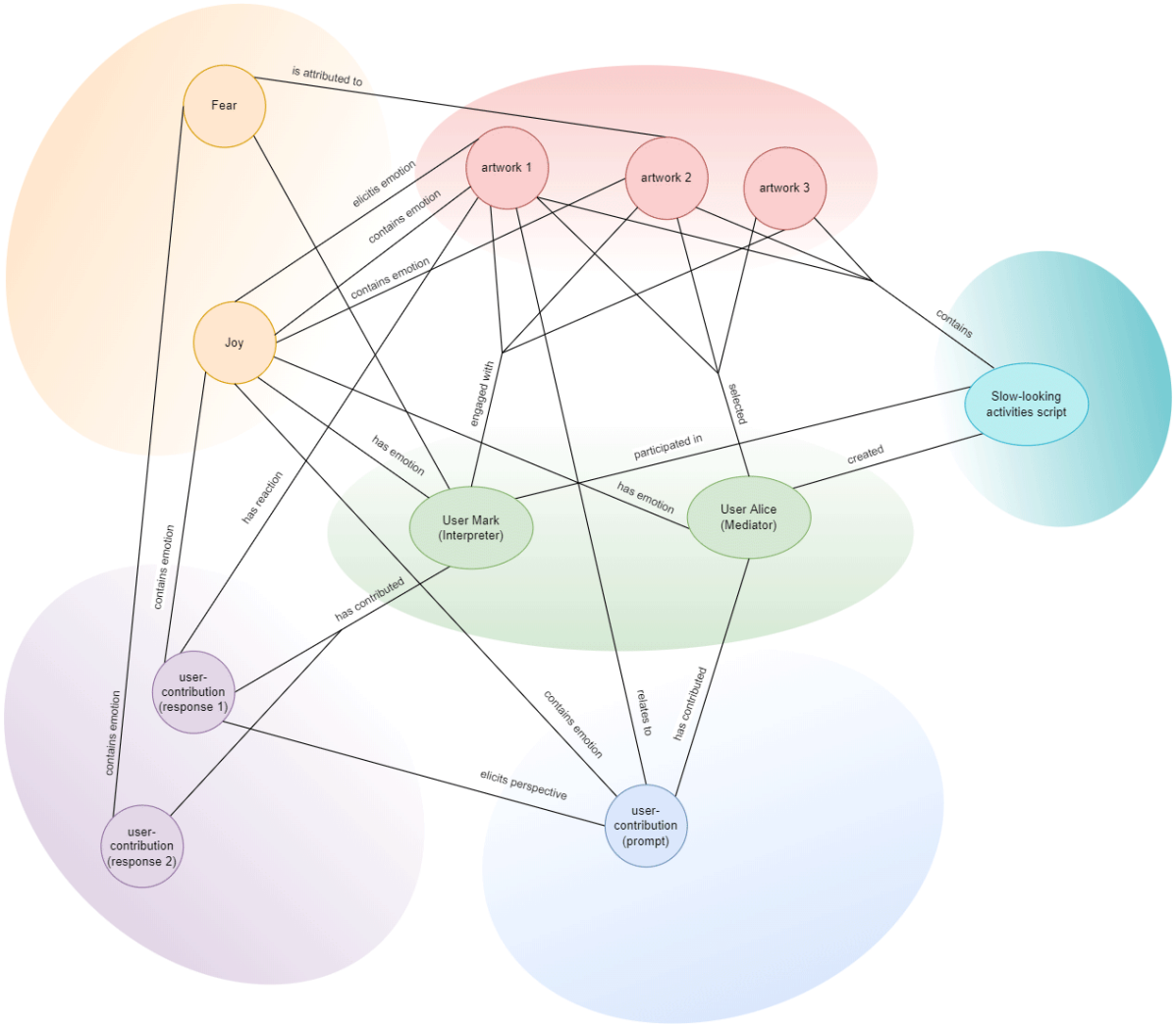

Fig. 29: Excerpt of hypothesized example of knowledge graph for IMMA user relations.
Showcases the relation between data generated by the mediation and interpretation phase respectively

6.0 Conclusion

In this report, we revised and continued our investigation of the various methods for citizen curation that were already considered in D2.1 and D2.2 (i.e., artefact analysis, interactive storytelling, narrative methods, collecting, and visualization techniques). In addition to revising these methods, we also introduced, investigated, and described other potential methods not already considered in the previous deliverables (i.e., slow looking, opinion coloring, autoethnography), and discussed their relevance to SPICE case studies.

Building on the concepts and theories introduced in D2.1 and D2.2, the focus in the present deliverable was on the adaptation and application of the methods in the context of the five SPICE case studies. For this purpose, building on the workshops conducted in year one (workshops 1 and 2, D2.1, and D2.2), two new workshops were designed and implemented (workshops 3 and 4).

Workshop 3 was intended to facilitate the co-design of “user-journeys” by the cases, considering their respective citizen groups. The workshop was conceived as a case-specific step-by-step co-design framework, facilitated in different sessions with specific design objectives and tasks. The results presented here highlight the differences, the diverse needs, and the requirements of each case study (and their specific target audiences), as well as the methods, activities, and other considerations regarding their specific user-journeys. Furthermore, the resulting case-specific user journey scripts were described here and analyzed in terms of their convergence towards Social Cohesion dimensions (also serving to inform the technical WPs in terms of case studies’ requirements/needs).

Workshop 4 was conceived to support the case studies in their testing process with the end-user communities with respect to the applied methods and related activities embedded in the designed user-journeys. As a result, the case studies generated and collected data from the implementation of their user-journeys, which will be subjected to analysis and processing in the upcoming workshop 5.

For both workshops we presented the objectives, design, results, and key outputs, to illustrate the practical uses and implications of the methods in terms of the SPICE case studies, being the main focus of this report how they have adjusted and adapted the methods and related activities to the needs and considerations of their intended target audiences. Based on this, we discussed the most prevalent and potentially effective methods for citizen curation not only in terms of specific target groups but also for more general audiences.

As foreseen in the section “next steps”, presented in the conclusion of D2.1, in the present deliverable we continued our work on the IRL model, by integrating and combining the interpretation methods in case-specific IRLs in alignment with the intended reflection methods. Through the co-design and implementation of case-specific user-journey scripts, we further researched, derived, and tested with end-users, concrete scriptable activities that can enrich opportunities for citizens to contribute content that could be amenable to the kind of dynamic, social cohesion-driven analysis aimed by the IRL, which is covered in D2.4.

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