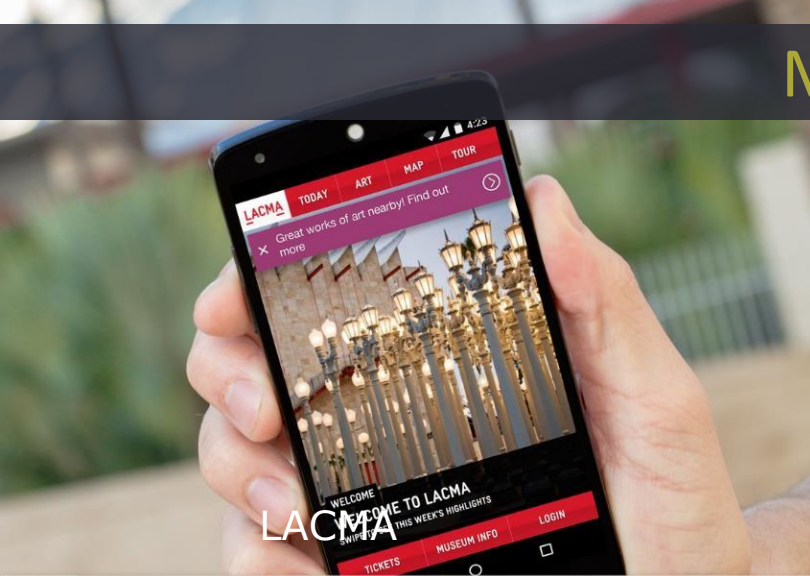


Designing and evaluating museum experiences

Maria Roussou



MOBILES & INTERACTIVES NOW COMMONPLACE



Cleveland Museum of Art



Acropolis Museum

augmented narrative

personalized storytelling

PERSONALISED DIGITAL STORYTELLING

<https://youtu.be/fZRIE7VR-xw>



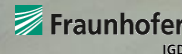
EU FP7, 2011-2014



The University of
Nottingham
UNITED KINGDOM · CHINA · MALAYSIA



National and Kapodistrian
UNIVERSITY OF ATHENS



Acropolis Museum



AUGMENTED NARRATIVE

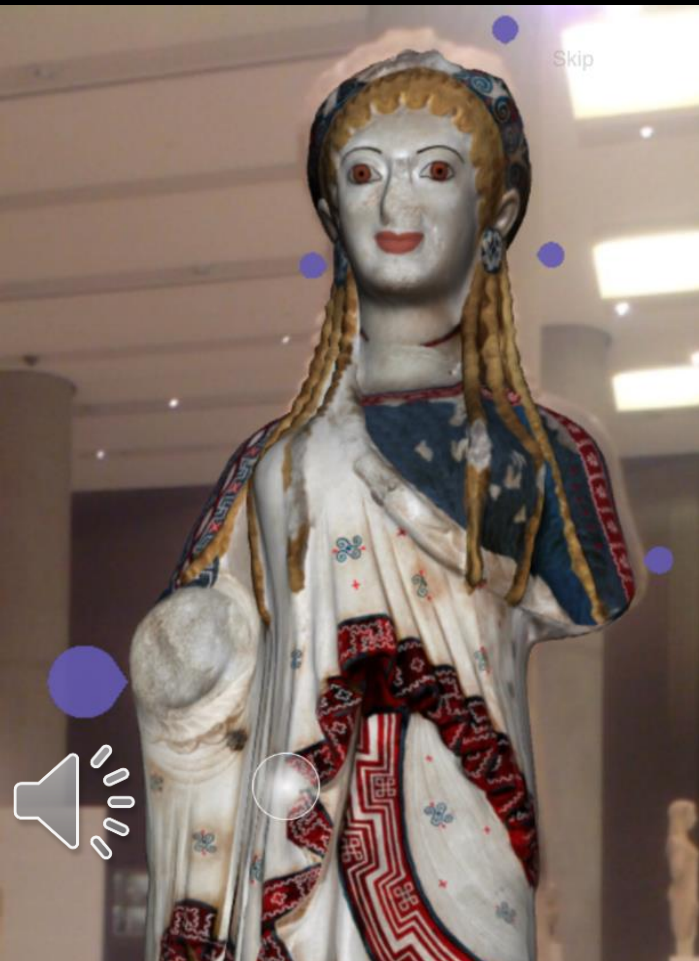


<https://youtu.be/K-A1ZC300JE>

AUGMENTED NARRATIVE



AUGMENTED NARRATIVE



<https://youtu.be/N8kL3Z46-6c>



EXAMPLE: THESEUS STORY



The character, **Theseus**, asks the visitor to collect “powers” (from objects, **exhibits** in the Archaic gallery)...

...to achieve a **goal** (which is to help Theseus confront King Minos’ soldiers after exiting the labyrinth!)



EXAMPLE: THESEUS STORY

Hercules & Triton - Hekatompedon



EXAMPLE: MELESSO STORY



The character, **Melesso**, talks about her life, inspired by the exhibits in the Archaic gallery

...in the end we see the offering (the real object) that the real Melesso (presumably a weaver) offered to the goddess Athena.



Introduction



Are you standing near the glass opening on the floor?

I am there!



EVALUATION

Formative (in 2012 & 2013)

Summative (in 2014)

ACROPOLIS MUSEUM, 12/2012



15 visitors: 6 male, 9 female

Ages: 10 to 55 y/o

3 x 10 y/o

1 x 14 y/o

1x 20 y/o

4 x 30+ y/o

3 x 40+ y/o

3 x 50+ y/o

Methods:

Observation

Think aloud

Semi-structured interviews

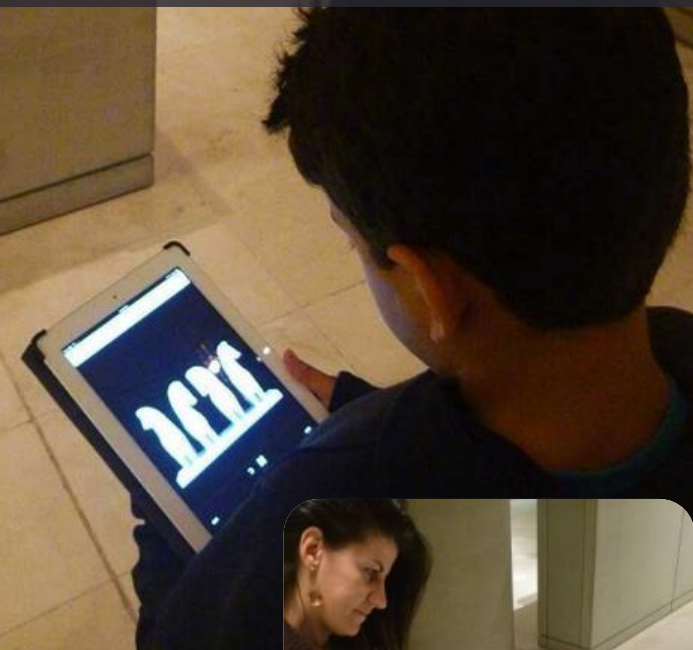
ACROPOLIS MUSEUM, 12/2012



Formative evaluation with visitors



ACROPOLIS MUSEUM, 12/2012



ACROPOLIS MUSEUM, 01/2014



28 visitors: 16 male, 12 female

Ages: 11 to 50+ y/o

5 x 11-12 y/o

2 x 17-18 y/o

6 x 20+ y/o

6 x 30+ y/o

7 x 40+ y/o

1 x 50+ y/o

14 experienced Theseus,

14 Melesso story

ACROPOLIS MUSEUM, 01/2014



INDICATIVE POSITIVE OPINIONS

*“I really don't care about "little statues half broken". It was the first time **I cared because of the story**. Otherwise to extract information from the labels it is hell for me.”*

“I want my museum experience to be fun.”

“This was exciting. It got to me.”

“I loved it! No comparison with roaming around the museum alone.”

INDICATIVE UNFAVORABLE OPINIONS

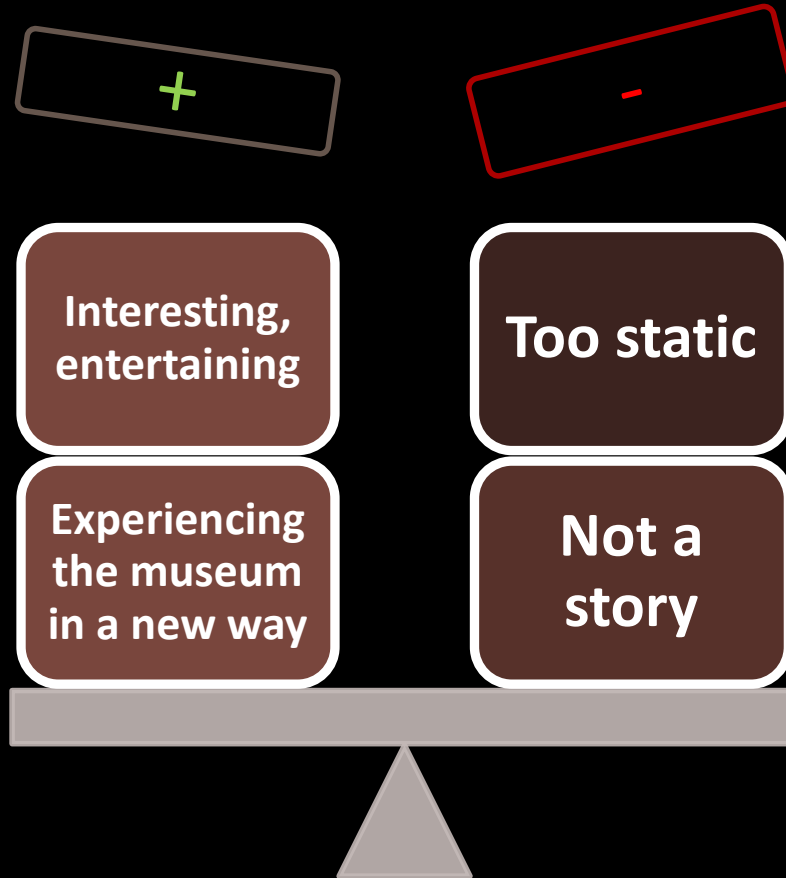
*“With this guide, I experienced only a selection of the museum exhibits. 99% of the exhibits were missing from the story; it felt like **cheating the museum.**”*

*“The story was nice and what you had to do here was nice. [...] But I would've liked it more if you could **feel "the rush"**. Maybe more sound effects would help to make you feel that you are more part of it.”*

“I need clear directions where to look because otherwise I am absorbed by the screen.”

“It's difficult to have 3 eyes, one on the tablet, one on the statue, one on its label. I ignored the screen.”

SUMMARY OF OPINIONS - STORY PLOT



INDICATIVE POSITIVE OPINIONS - STORY PLOT

Stories were interesting / entertaining

*“I liked the **humor** and the fact that it was talking to me, it was like a dialogue”.* [u8]

“It was narrated in a way that made things interesting”. [u14 - 10 y. old girl]

*“Not all the activities are related to horses but it is not a problem. **Mythology** is interesting”.* [u2]

“Oh no, my time is up!” [u5]

*“I loved the **character**, the **narration**, the **voice**. It was clear, not an academic text”.* [u4]

INDICATIVE POSITIVE OPINIONS - STORY PLOT

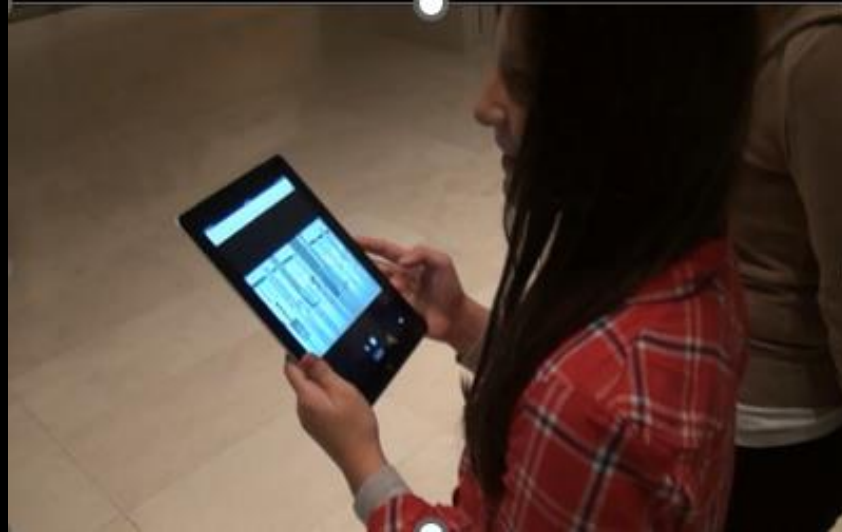
Experiencing the museum in a new way

“Very interesting because I have been here before and there were things I knew nothing about and were highlighted and I saw them in a different way. It was immersive in a way, because it was so interesting.”

[u7]

“I have been here many times but had not noticed Hippalektryon (the horse-rooster statue). It is a big success that I now noticed the exhibit because I can realize its importance and rarity.” [u9]

VIDEO EXCERPTS - STORY PLOT



<https://youtu.be/v26X8mCGVKg>

INDICATIVE UNFAVORABLE OPINIONS - STORY PLOT

Too static:

*“The story was interesting but just **standing** there listening and looking at the screen, made me feel awkward like something was missing.” [u4]*

*“Moving is interesting, **standing** is not” [u15]*

“I would have liked some more movement, particularly at the last part of the visit.” [u6]

INDICATIVE UNFAVORABLE OPINIONS - STORY PLOT

Not a story:

"I think it was bits and pieces, a narration with different flows." [u8]

"I expected that the things said should be related to the plot, the frame of helping horses, but not all were" [u8]

"There was a theme rather than a plot, with subplots" [u7]

"It kept asking me to go on with the "story" but I was wandering what the "story" is all about" [u7]

A CHALLENGING COMBINATION



storytelling

personaliza
tion

Interactive narrative: an oxymoron!

Adapt story yet achieve story flow?

For more results, see:

Roussou, M., & Katifori, A. (2018). Flow, Staging, Wayfinding, Personalization: Evaluating User Experience with Mobile Museum Narratives. *Multimodal Technologies and Interaction*, 2(2), 32. <http://doi.org/10.3390/mti2020032>

ADDRESSING CONTRADICTION

creating adaptive stories,
tailored to evolving visitor
needs and actions



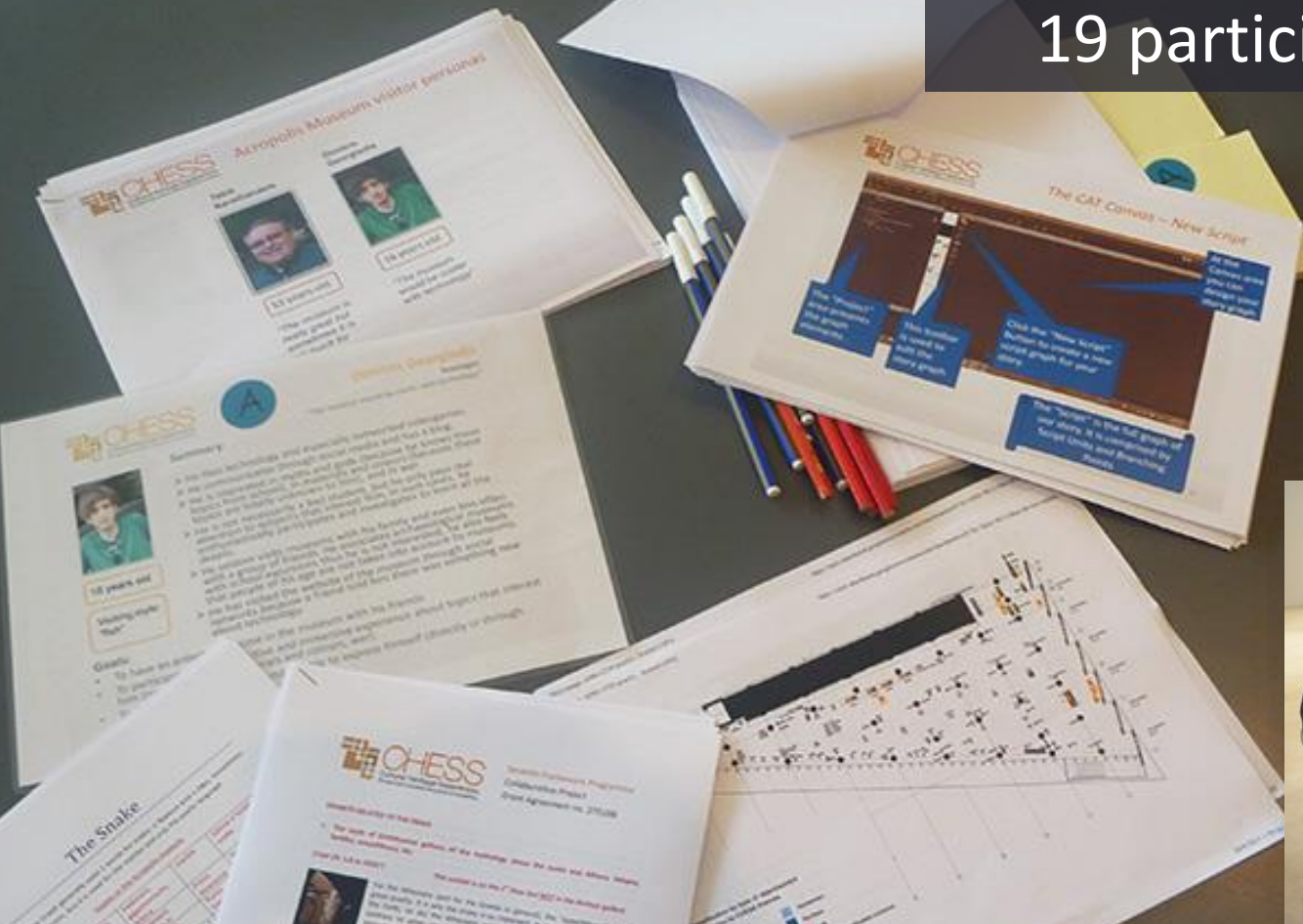
respecting story flow
and coherence



EAT

ACROPOLIS MUSEUM AUTHORIZING WORKSHOPS

19 participants (2 groups)



PARTICIPATORY DESIGN



01/2013



12/2011



06/2012



08/2013



07/2012

MAKE IT PLAYFUL



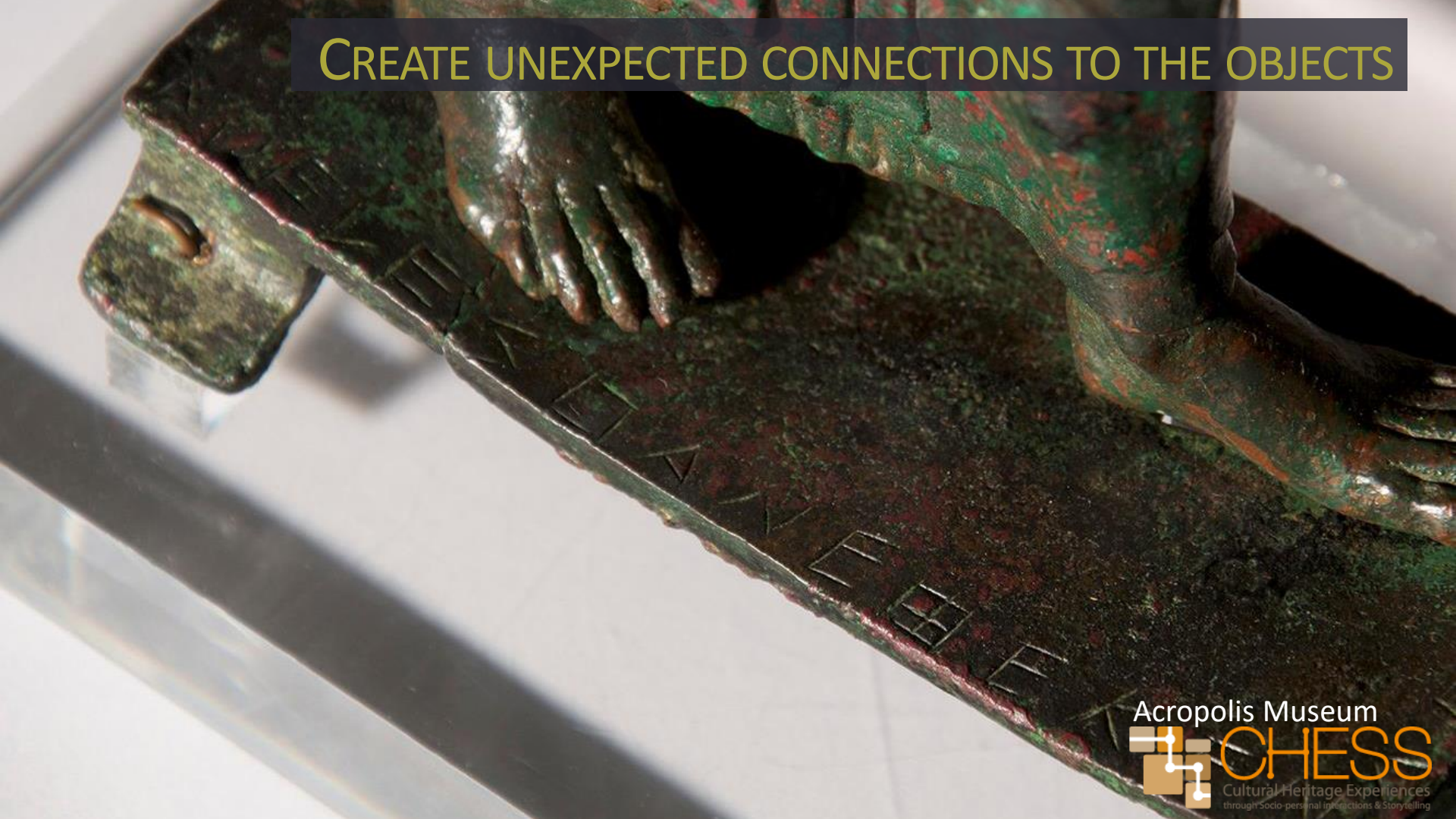
Acropolis Museum



PROVOKE CURIOSITY



CREATE UNEXPECTED CONNECTIONS TO THE OBJECTS



MAKE IT SOCIAL & PARTICIPATORY



EMOTIVE STORYTELLING

<https://youtu.be/pWURCB5TOLU>



H2020 RIA
2016-2019



Consiglio Nazionale delle Ricerche

Hunterian
Museum



EMOTIVE



Ancient Agora of Athens

The life of Hermeias

interactive storytelling, historical empathy

EMOTIVE STORYTELLING



Ancient
Agora



EMOTIVE

EMOTIVE STORYTELLING



Ancient
Agora



<https://chess1.karpathos.net/dev/story-player/d857b7476810e70452124c2a8d001947>

EMOTIVE STORYTELLING

POI 1 (Tholos)

POI 2 (?)

POI 3 (Agoraios Kolonos hill)

Explore your Feelings 1 (amulet?)

Explore your Feelings 2

2a
At the fish monger's

At the fish m / with amulet

You say about the amulet

You don't say about the amulet

At the fish m / without amulet

You say about your birth story

You don't say about your birth story

2b
At the hair dresser's

Outside the hair d/ with amulet

You say about the amulet

You don't say about the amulet

Outside the hair d/ no amulet

You say about your birth story

You don't say about your birth story

Explore your Feelings 5 (How do you feel about the bad news?)

Fear about your future

Hate for your master

Hope that the gods show mercy

Trust in your master

Trust in your fate

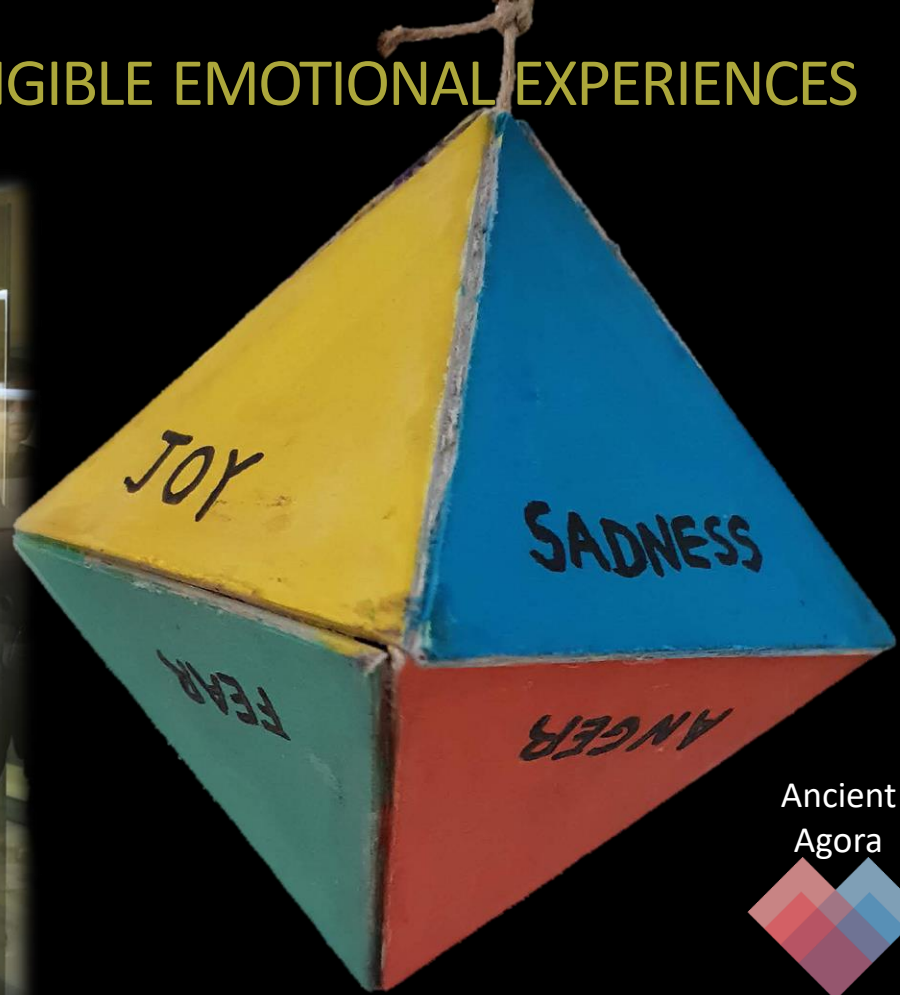
Branching narrative with 7 different endings

Ancient Agora of Athens

Emotions Speaking

storytelling, historical empathy, tangibility

TANGIBLE EMOTIONAL EXPERIENCES



Ancient
Agora



TANGIBLE EMOTIONAL EXPERIENCES



Ancient
Agora



EMOTIVE

TANGIBLE EMOTIONAL EXPERIENCES



Ancient
Agora



EMOTIVE

TANGIBLE EMOTIONAL EXPERIENCES

Emotions Speaking



Ancient
Agora



EMOTIVE

TANGIBLE EMOTIONAL EXPERIENCES

<https://vimeo.com/473760972>

video



Ancient
Agora

hybrid
eXtended Reality (XR)
experiences

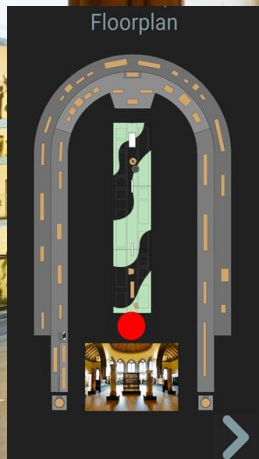
Hunterian Museum

Antonine Wall*

immersion, storytelling, tangibility

* UNESCO World Heritage site

HUNTERIAN MUSEUM - ANTONINE WALL (UNESCO)



THE ANTONINE WALL
**ROME'S
FINAL FRONTIER**

The gallery explores the legacy of one of the most important cultural monuments to be found in Scotland, which has protected our land for over 2000 years. The Antonine Wall was the northernmost frontier of the Roman Empire, stretching 63 miles across the Scottish Highlands. Through the Roman wall, we can see the power of the Roman Empire and the impact of the Roman occupation on the Scottish landscape.

By the end of the gallery, you will have seen the wall in its original state, and you will have seen the wall in its current state. The wall is a testament to the power of the Roman Empire and the impact of the Roman occupation on the Scottish landscape.

ACKNOWLEDGEMENTS
The gallery is a joint project of the Hunterian Museum and the Roman Scotland Trust. The gallery is a testament to the power of the Roman Empire and the impact of the Roman occupation on the Scottish landscape.

COMBINATION OF IMMERSIVE, MOBILE & TANGIBLE

A multi-part interactive storytelling experience about a Caledonian slave named **Verecunda**:

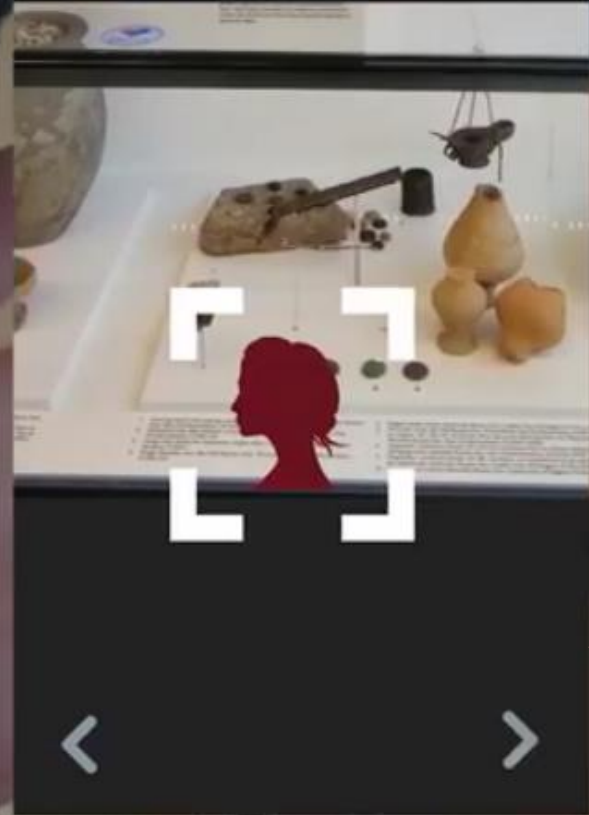
- 360° immersive VR intro
- mobile AR exploration
- 3D printed artifact casing
- group dialogue sessions



A DIGITAL WINDOW TO THE SCOTTISH ROMAN PAST

Using their magic window
visitors reveal AR effects
bringing the objects
and their role within
the story to life.

Frame the sticker for your
character's object below



<https://youtu.be/5V7om6oBtDU>

Hunterian
Museum



EMOTIVE

A DIGITAL WINDOW TO THE SCOTTISH ROMAN PAST



Hunterian
Museum



EMOJIVE

A DIGITAL WINDOW TO THE SCOTTISH ROMAN PAST

Menna ID



NAME: Menna
FROM: North Africa
WORK/ROLE: Cook
RELATIONSHIP: Fellow Slave

Corotica ID



NAME: Corotica
FROM: Caledonia
WORK/ROLE: Farmer
RELATIONSHIP: Friend

Julia ID



NAME: Julia
FROM: Roman
WORK/ROLE: Commander's
daughter
RELATIONSHIP: Friend

Lossio ID



NAME: Lossio
FROM: Caledonia
WORK/ROLE: Metal worker
RELATIONSHIP: Father



GROUP INTERACTION



Hunterian
Museum



EMOTIVE

A DIGITAL WINDOW TO THE SCOTTISH ROMAN PAST



A DIGITAL WINDOW TO THE SCOTTISH ROMAN PAST



Return your magic window
before it breaks completely
and loses power.

Hunterian
Museum



neolithic site of
Çatalhöyük*

immersion, storytelling, sociality

* UNESCO World Heritage site

ÇATALHÖYÜK

- 9000-year-old Neolithic site in the **remote** centre of Turkey
- Excavated for **60 years** by more than **1000 specialists**
- Occupied by up to 8000 people at once for over 1000 years without hierarchy (**egalitarian socio-economic organisation**)
- Street-less neighborhoods
- Nearly **10,000 FB users**, most of whom will never visit



ÇATALHÖYÜK



Çatalhöyük



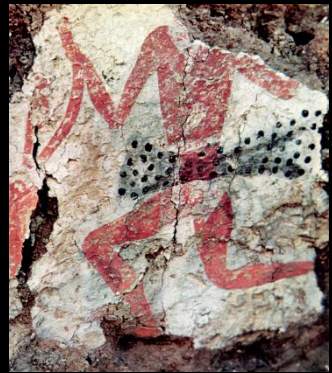
ÇATALHÖYÜK

- Burials of the **dead beneath floors** of homes
(up to 62 burials found in a single home)



ÇATALHÖYÜK

- Exquisite sculptural art & wall paintings...
reflected **community identities** and connections btw homes

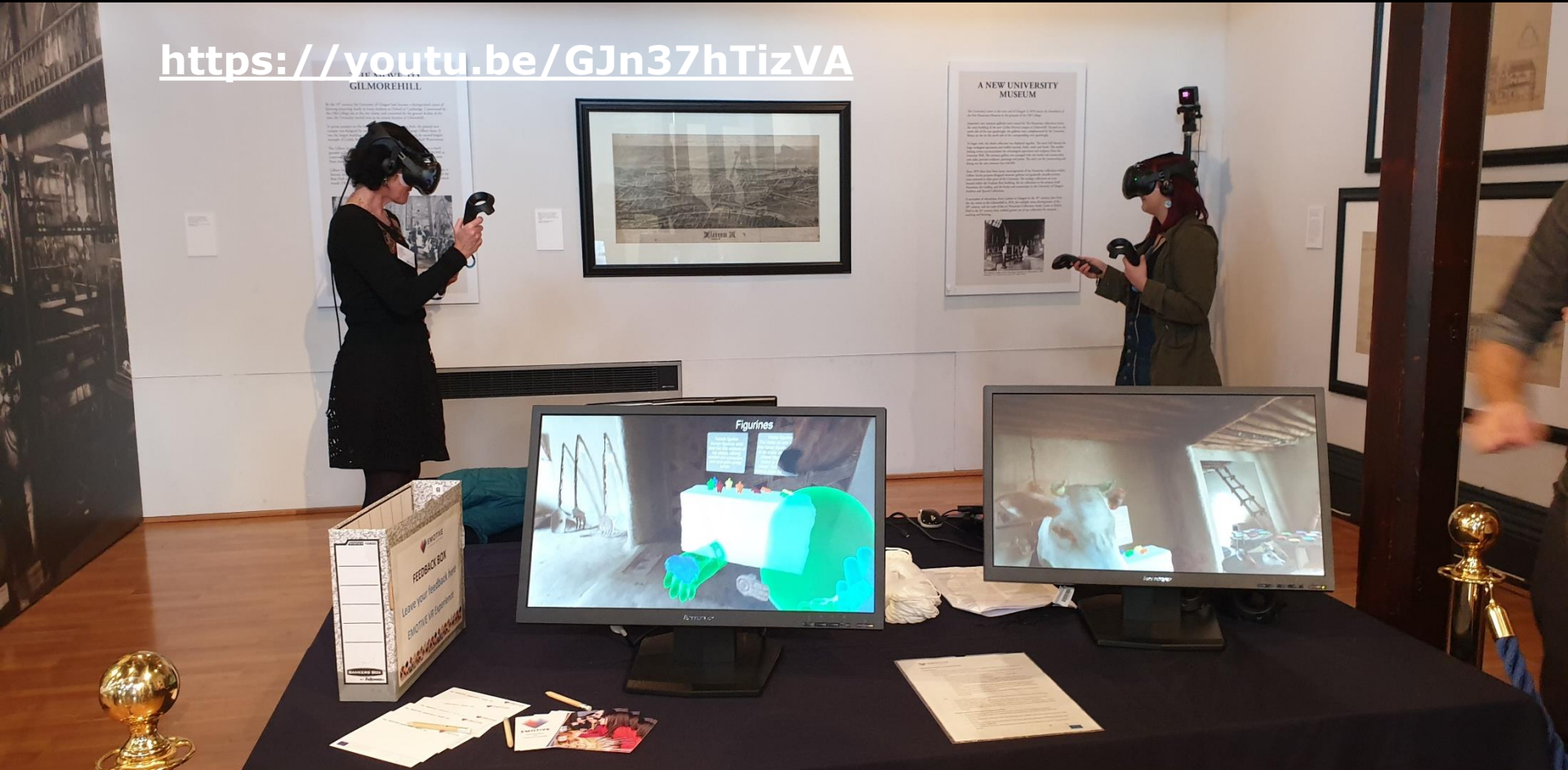


Çatalhöyük



AN EGALITARIAN TRADING EXPERIENCE IN VR

<https://youtu.be/GJn37hTizVA>



AN EGALITARIAN TRADING EXPERIENCE IN VR

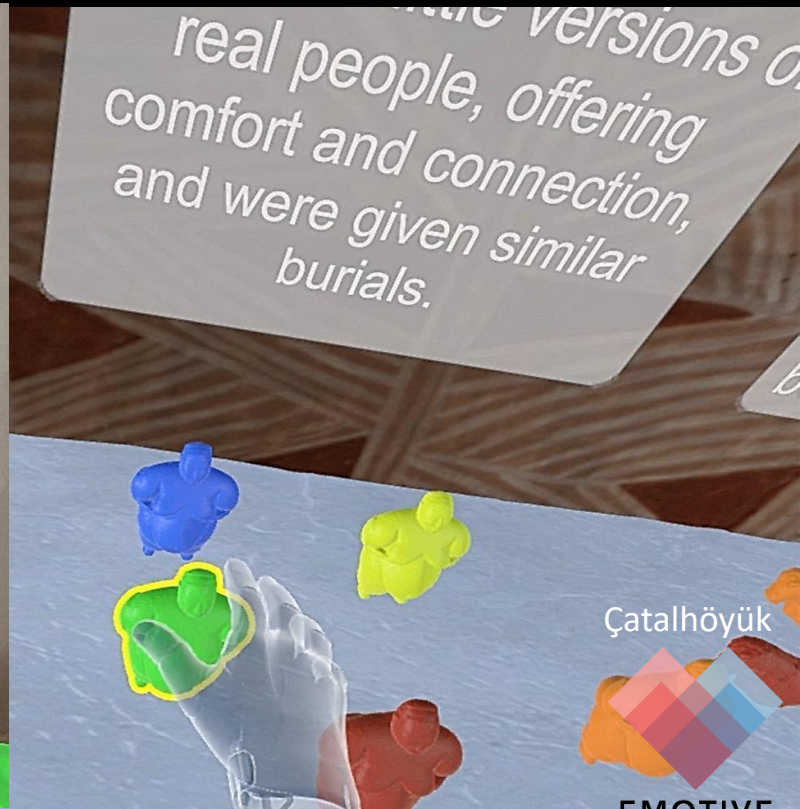


Çatalhöyük



EMOTIVE

AN EGALITARIAN TRADING EXPERIENCE IN VR



VIRTUAL & TANGIBLE



Çatalhöyük




Design process

EMOTIVE



PERSONAS

Group Name Ford-Jones Family

Picture 

Group Type American family visiting

Name Mary Paterson

Picture 

Age 70 years old

Gender Female

Background Scotland, widow. He is active socially.

Occupation Retired Historian

Language English

Hobbies/Interests She is a Hunter. As well as visits to Edinburgh to in crafts and material related to her.


Technology She has an iPad confused about the account, set up for days but is wary of material related to her.

Goals for the visit She wants to have a both enjoy. She wants love of objects and app learn more about dome for future visits with her.

Challenges & Frustrations She likes to be able to how technology can help.

Individual / Social Interaction Needs She will be visiting with he entertained but does not wa experience."

Name Susie Wong

Picture 

Age 21

Gender Female

Background From Scotland, Educated at Museum.

Language English

Hobbies/Interests She is a successful political blogger and works from. She is interested in History, particularly fascinated by the can find on it.

Technology She is a successful political blogger and works from. She is interested in History, particularly fascinated by the can find on it.

Group Name Ozan Family

Picture 

Group Type Family unit within a larger tourist group

Total Number 18 tourists in all; our family is 3

Relationship The tourist group is made of several group is grandfather, his daughter

Ages 67, 40, 10

Gender and Name Kemal Reis (male - grandfather), Seda Ozan (female - daughter)

Country of Origin Turkey - Ankara - 4 hour drive

Occupation Kemal is retired, Seda is a nurse

Language Turkish

Hobbies/Interests (1) Kemal enjoys gardening and a luddite. He particularly enjoys ancestry.
(2) Seda teaches middle school, running and swimming and really understand how it taking photos on her smartphone.

Group Name Sadik Family

Picture 

Group Type Local Turkish family

Total Number 4 people in total

Relationship Two parents, two young children


Ages 35, 36, 5, 2

Gender and Name Arash (male) and Cari (female) and their children: Fatma (female), Erol (male)

Country of Origin Turkey, Konya - about an hour's drive to Catal

Occupation Arash is a mechanical engineer, Cari is a full-time parent and used to work at a department store. They've been married for 6 years.

Name Callum Paterson

Picture 

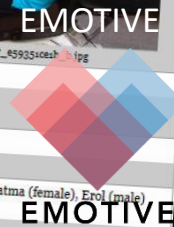
Age 10 years old

Gender Male

Background He was born in Newcastle where he lives. He is dyslexic.

Occupation School Pupil

Language English



CARD-BASED DESIGN AIDS

For example,

Approach

Format

Genre

Plot

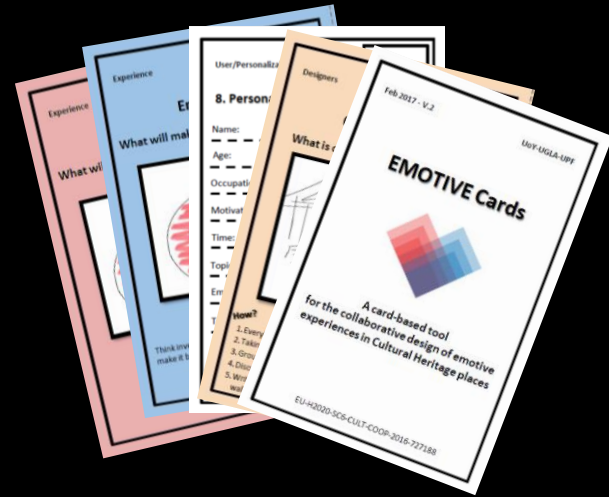
Character

World

Engagement

Emotions

Personalisation



EMOTIVE



ÇATALHÖYÜK AUTHORIZING WORKSHOP

17 participants (3 groups x 5-6)



EMOTIVE



ÇATALHÖYÜK AUTHORIZING WORKSHOP

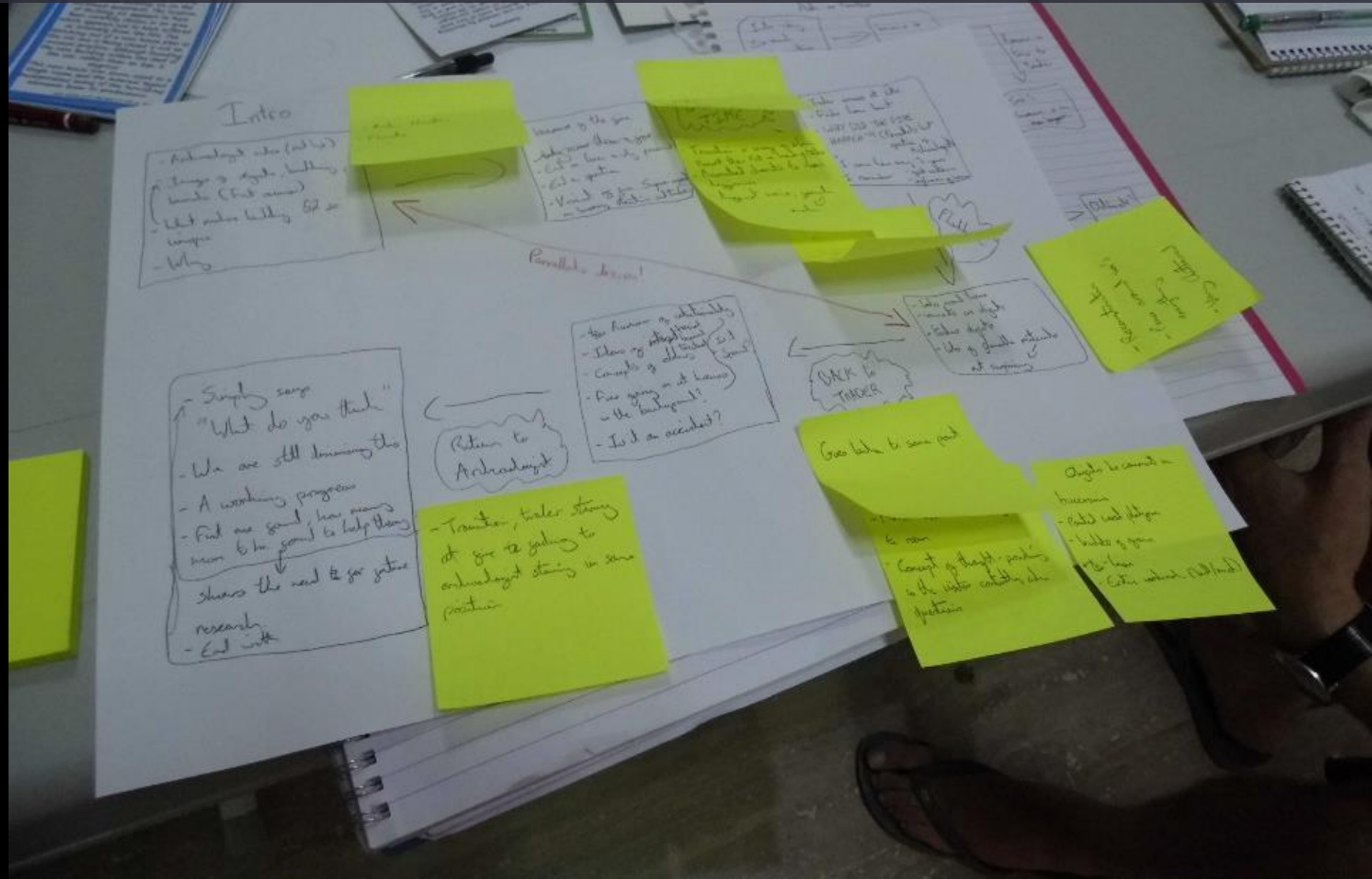


EMOTIVE



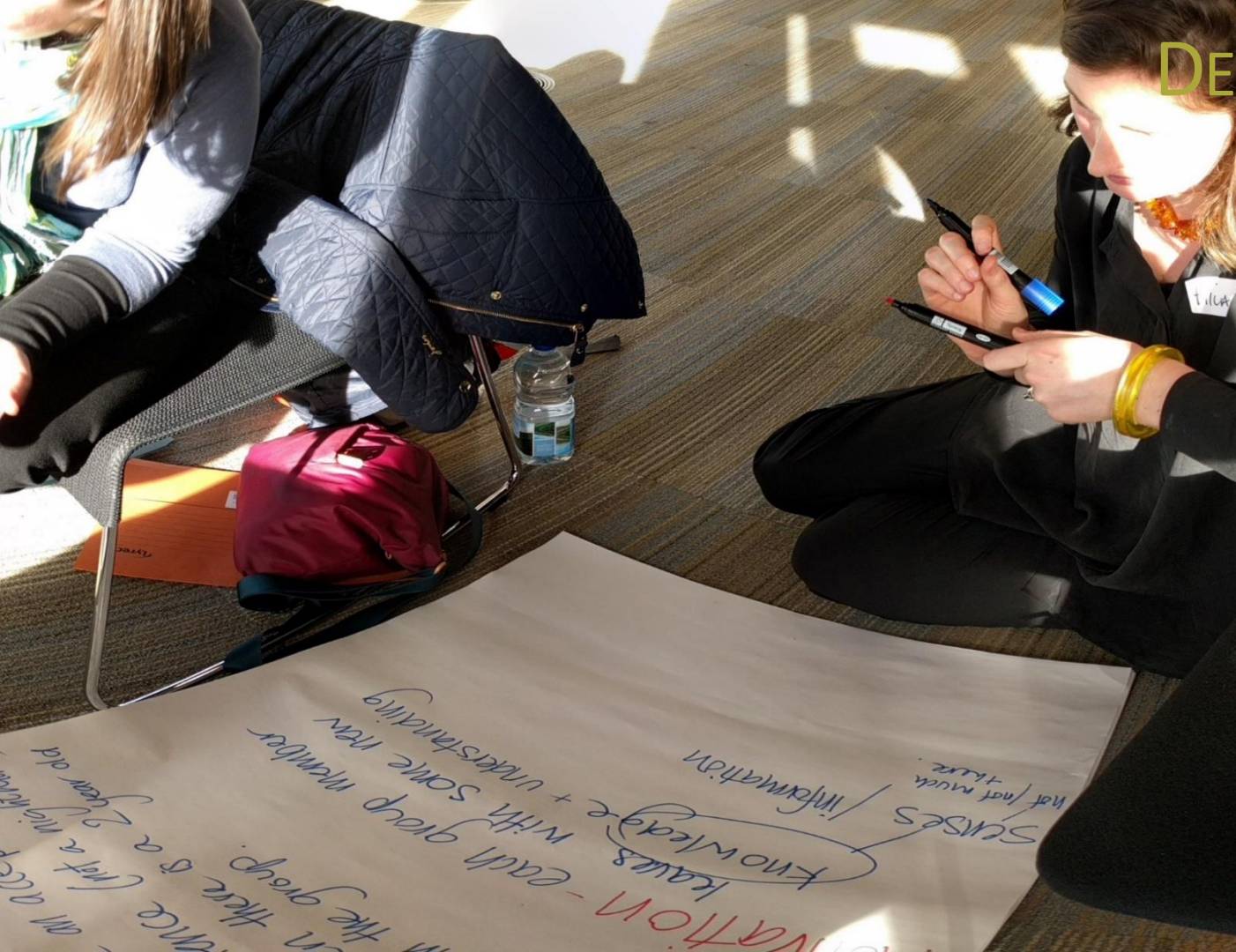
EMOTIVE

ÇATALHÖYÜK AUTHORIZING WORKSHOP



DESIGN PROCESS

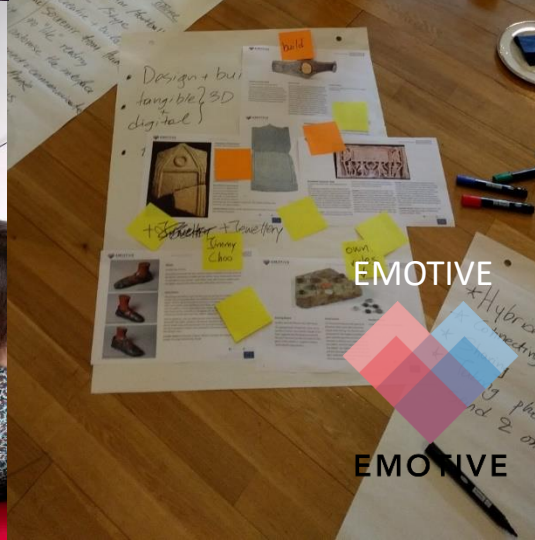
Prototyping &
“bodystorming”,
in situ



EMOTIVE



DESIGN PROCESS



DESIGN PROCESS



EMOTIVE

DESIGN PROCESS



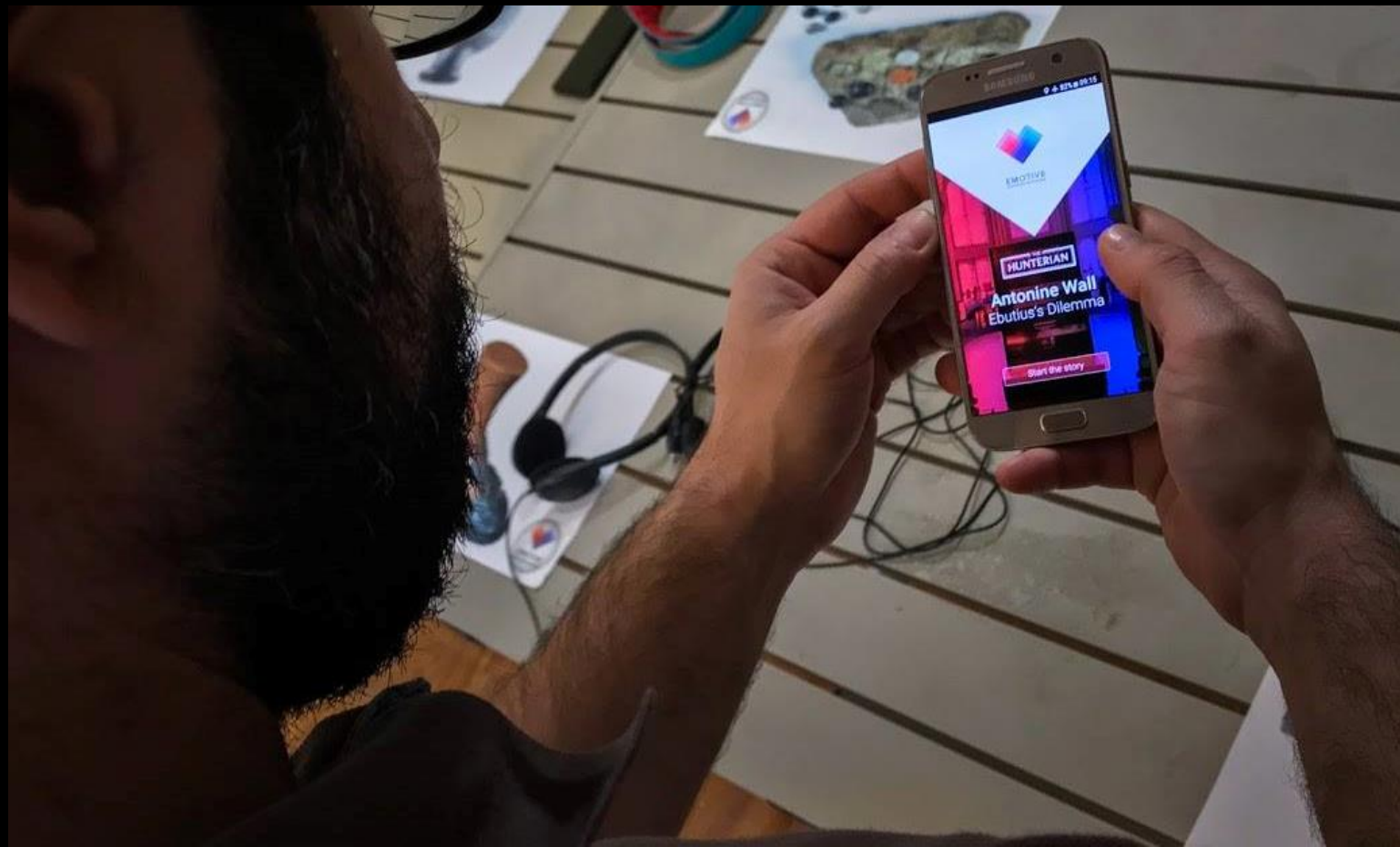
DESIGN PROCESS



EMOTIVE



TESTING



EMOTIVE



bringing it all together

BRIDGES

immersive, embodied, social, multisensorial

<https://www.bridges-horizon.eu/>



EMBODIED & MULTISENSORIAL XR

- multi-user concurrent co-located interaction
- room-scale movement
- device-less interaction
- interaction with physical objects
- multisensory: smell, wind, heat



EMBODIED & MULTISENSORIAL XR



Evaluated with **73** visitors in March 2023, looking into:

- meaningful interaction (dialogue, reflection, ...)
- emotional engagement, (historical) empathy
- embodiment - an active approach to cognition
- social, collaborative, distributed nature
- multiple, alternative, augmented representations of information

THANK YOU

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HELLENIC REPUBLIC
National and Kapodistrian
University of Athens
— EST. 1837 —