

Digital museum experiences to support emotional learning and well-being

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The relationship between Art and Well-being

“health is a state of completely well-being, physical, mental and social, and not merely the absence of disease or infirmity”- WHO 1948

- Well-being now includes **psychological** and **social dimensions**, not just physical health.
- **Art** and **cultural participation** positively affect emotional regulation, stress reduction, and cognitive stimulation.
- Museums are evolving into **active learning environments** through:
 - **Object-based learning**
 - **Interactive and inclusive programs**
 - **Visitor-centered experiences**

Benefits of Engaging with Art

Supports to:

- Critical thinking, creativity, and problem-solving
- Emotional connection and shared reflection
- Collaborative and inclusive learning

Proven effects on:

- Health and longevity
- Cortisol reduction (stress biomarker)
- Improved emotional engagement (e.g., autism, neurodegenerative conditions)

Museums are now key actors in promoting individual and collective well-being

The relationship between emotions and learning

Emotions and Learning: an Integrated Approach

Emotions are key drivers of learning: they shape **motivation**, **attention**, and **memory**.

Learning is not just cognitive: it's a **neuro-emotional process**.

✓ **Positive emotions** → enhance synaptic plasticity and memory

✗ **Negative emotions** → impair cognitive performance and recall

A supportive and stimulating environment fosters motivation and reduces anxiety.

Emotional engagement strengthens self-efficacy and academic success.



Museums as Emotional Learning Spaces

Art interaction promotes:

- Emotional resonance
- Sense of cultural belonging
- Intrinsic motivation

Museums facilitate:

- Connections between prior and new knowledge (Falk & Dierking)
- Personal meaning-making through emotional activation
- Long-term memory via multisensory and narrative strategies

→ Emotionally rich experiences in museums lead to deeper and lasting learning outcomes

Previous Experiences

Research Pilot: Art and Well-being

October–December 2021

- **Objective:** explore how critical thinking methodologies can impact perceived well-being
- **Participants:** 18 trainees from a School of Psychological Counselling in Rome
- **Methods used:** → Artful Thinking (AT)
→ Visual Thinking Strategies (VTS)
- **Setting:** National Gallery of Modern and Contemporary Art, Rome
- **Artworks:** Vedova (abstract), Mengs (figurative), Cézanne (landscape)
- **Modes:** onsite and online (Google Meet with HD image exploration)



VTs vs. AT: Two Paths to Emotional Engagement

Visual Thinking Strategies (VTS)

Developed for museums

Uses a fixed 3-question routine

Highly structured format

No background info

Artful Thinking (AT)

Born in academic/formal education

Offers 20+ flexible routines

Adaptive to context and curiosity

Info optional, to guide discussion

Both methods promote

Slow, reflective observation

Collaborative
meaning-making

Active listening,
problem-solving

Emotional and
cognitive
engagement

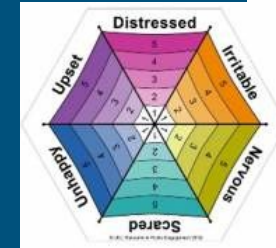
Results: Well-being and Reflection

154 questionnaires collected (pre/post/24h follow-up)

Wellbeing Umbrellas Toolkit (UCL) used to measure mood variation

6 positive / 6 negative indicators

Colour-coded scale from 1 to 5



Findings:

Both AT and VTS increased well-being and reduced discomfort

→ **AT**: stronger impact in early sessions (↑ positive mood, ↓ stress)

→ **VTS**: slightly better in final session

Conclusion: Art enhances holistic well-being by integrating thinking and emotion

The current research project

The Current Research Project: Objectives

Main goals:

- Assess **long-term memory retention** of historical-artistic knowledge from a 2021 museum-based learning experience
- Explore the **link between emotions and memory** after four years
- Investigate whether emotional engagement led to **lasting changes in cultural habits**

Framework:

- Based on **longitudinal research methodology**
- Focus on the “**sleeper effect**”: emotional-cognitive effects that emerge only after time
- Highlights the **importance of repeated measurement** to detect delayed impacts

Methodology and Tools

Follow-up structure (2025):

- Participants from the original 2021 pilot were recontacted
- A new Google Form questionnaire was distributed

Questionnaire Sections

Profiling

demographics
+
cultural
consumption
habits

Experience recall

memory of
artworks,
museums, and
methods used

Impact assessment

self-reported
changes in
cultural
behaviour

The project investigates how emotion-driven art experiences can foster lasting personal and social change.

Data analysis

	2021 Study	2025 Follow-up	Observations
Participants	18 in 3 groups (2 online, 1 onsite)	9 (50% of original sample) 66,6%online 33,3%onsite	Reduced sample but still representative
Gender	66% female, 34% male	77.8% female, 22.2% male	Similar female prevalence
Age	36–60 years	44.4% aged 46–55, 55.6% over 55	Natural progression in age
Education level	27.8%, Master's, 27.8%, Bachelor's, 33,3% Postgraduate, 11,1% Secondary	55.6% Master's, 33.3% Bachelor's, 11.1% Postgrad	High-level education confirmed
Pre/Post Museum visits	50% had not visited any museum	55.5% visited 2+ museums in the last year	Clear improvement in museum attendance
Relationship with art	Initial unfamiliarity	66% now appreciate art more	Greater engagement and interpretive confidence

Memory of Methodologies

- 55.6% do not recall the specific method used
- 33.3% remembered using **VTS**, 11.1% **AT**

Memory of Museum and Artworks

- 100% remembered the **museum** (GNAM, Rome)
- 55.6% never returned; 44.4% visited again (33.3% once, 11.1% multiple times)

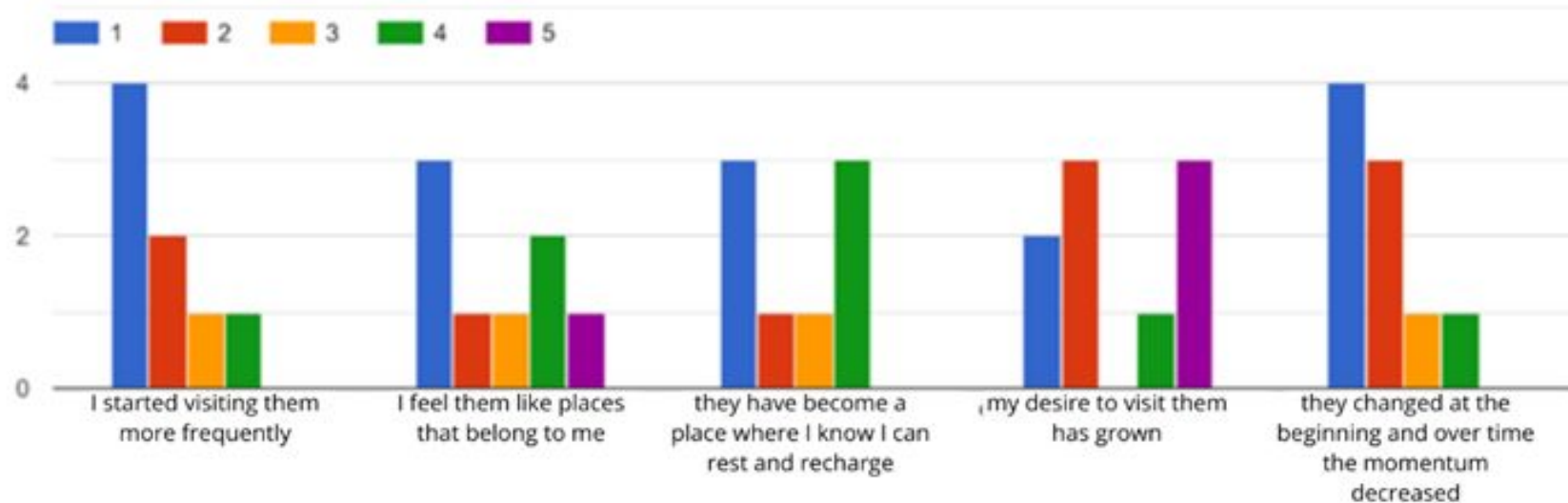
Memory of Artworks

- **Emilio Vedova's** abstract work: most memorable (55.5% recalled title/artist/colors)
Mengs' painting: remembered through emotional impressions (44.4%)
- **Third artwork**: least memorable (only 22.2% recalled the subject)

Long-Term Impact

- 55.5% recall the experience **clearly or very well**
- 88.8% have a **positive memory** of the experience
- 44.4% feel a **stronger bond with GNAM**
- 44.4% report a change in their **relationship with art**

Have your habits regarding museums in general changed? Indicate this on a scale from 1 (not at all) to 5 (very much)



Conclusion

Key Results: Learning and Well-being through Digital Museum Experiences

Digital and in-person museum activities foster:

- Emotional engagement
- Memory retention
- Critical thinking development

4 years later, participants:

- Remembered artworks and emotions
- Reported a deeper connection with cultural heritage
- Felt more confident and curious in front of unfamiliar artwork

Artful Thinking (AT) and Visual Thinking Strategies (VTS) both effective in activating learning and emotional reflection

Implications and Future Perspectives

Digital formats proved to be:

- Inclusive
- Emotionally effective
- Capable of promoting a sense of belonging to the museum context

The combination of digital tools + emotional pedagogy:

- Supports transformative learning
- Enhances cultural well-being

Next steps:

- Conduct further qualitative research
- Develop adaptive strategies for diverse audiences
- Promote sustained engagement through emotion-centered digital design

Thank you for your attention!

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