



Learning in the Digital Era: Frontiers, Challenges and Transformations in the Museum Field

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**MUSEO
NAZIONALE
SCIENZA
E TECNOLOGIA
LEONARDO
DA VINCI**

THE MUSEUM

FACTS AND FIGURES

50.000 m² overall surface

25.000 m² dedicated to 17 exhibitions and 14 learning spaces

16.700 objects in the collection

45.000 volumes in the library

50.000 photos and audio-visual items

IN 2019

556.000 visitors

4.690 school groups

155.439 students

17.792 teachers



OUR INTERACTIVE LABS: INTEGRATING CONTENT, METHOD, MATERIALS, SPACE, FACILITATION

Space Base 'Mars'
Future Inventors
Chemistry
Tinkering Zone
Leonardo (2)
Energy and Environment
Mathematics
Food and nutrition
Biotechnologies
Genetics
Soap Bubbles
Travelling the sea
Young children's lab



WE KNOW THAT

- ▶ Individuals build knowledge as they learn.
- ▶ They create connections between new ideas and already-acquired knowledge.
- ▶ They learn by observing and interacting with phenomena, situations and the world around them.
- ▶ They use conversation with others as a way to assimilate new concepts.

WE ALSO KNOW THAT

- ▶ Visitors' experience in the museum is a complex process, is unique and personal. It is also brief, irregular and voluntary.
- ▶ Visitors make meaning through a multifaceted learning process with affective, cognitive and socio-cultural dimensions.

WE KNOW THAT

- ▶ Visitors should be at the centre of their own learning.

WE ACKNOWLEDGE THAT

- ▶ **Learning at the museum is much more than acquiring subject-knowledge; it is a process of being, knowing, becoming.**
- ▶ **Learning at the museum is built not that much on what the museum wants the visitor to learn, but rather on what the visitor encounters, elaborates, assimilates during the visit through investigation, experimentation, imagination, emotional involvement, narrative...**

IN THE MUSEUM
LEARNING FIELD,
THE DIGITAL CAN
BE MUCH MORE
THAN LOOKING
AT A SCREEN...



**NOT ABOUT SOLVING PROBLEMS
WITH ONLY ONE SOLUTION
(DEFINED BY SOMEBODY ELSE)**

THE DIGITAL AS A WAY TO CREATE A CONVERSATION WITH THE MATERIAL

**Through mindful immersion, the learner
establishes an intimate connection, a dialogue,
among head, eyes, hands, and tools (or machines).**

Enjoying and immersing in such a dialogue means developing an “intelligent hand” and a “playful mind”, falling in love with the materials and becoming so fluent in using tools that the learner feels at one with them.

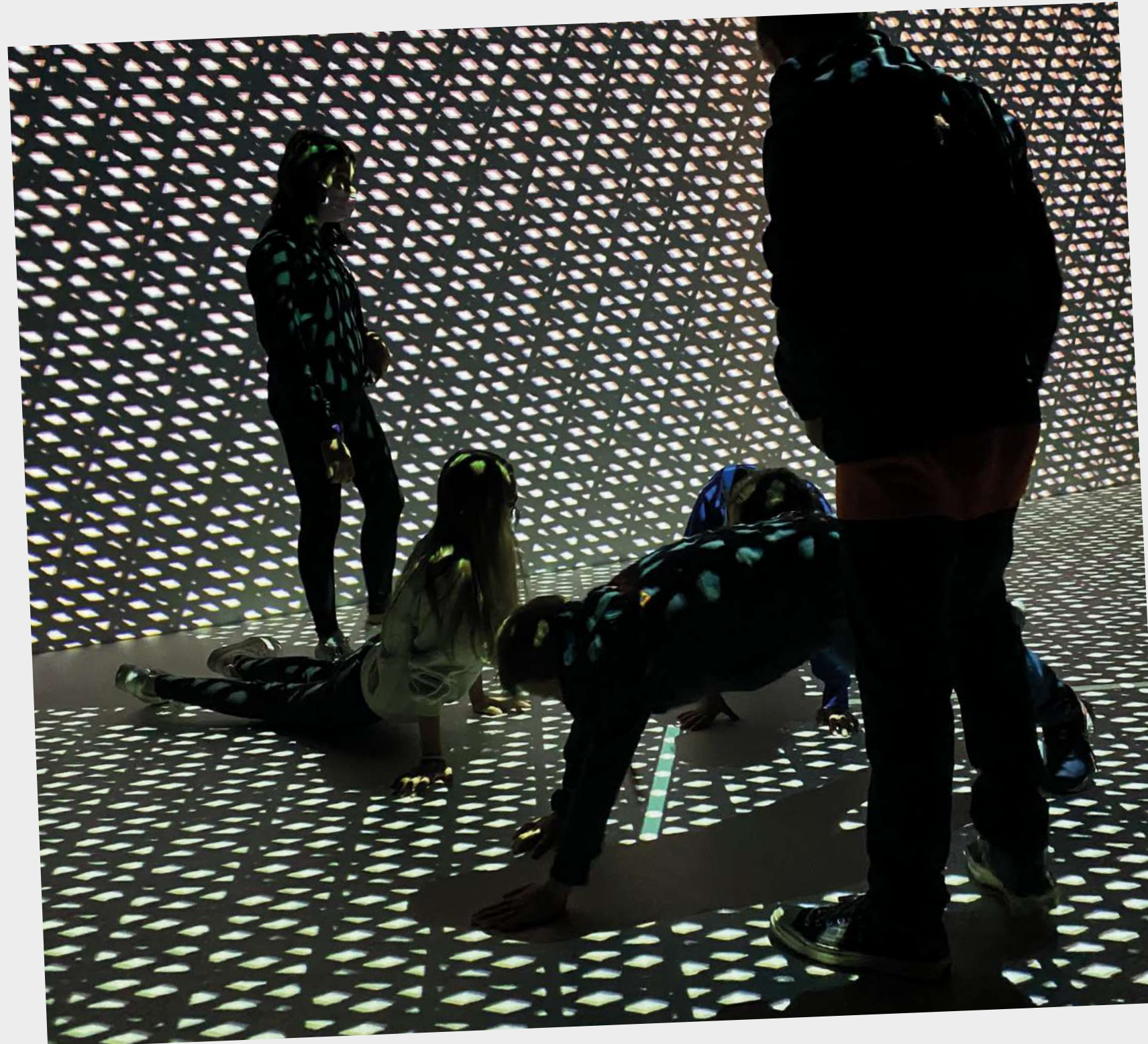


NOT JUST HANDS ON

THE DIGITAL ENHANCES THE POWER OF THE AESTHETIC EXPERIENCE

Physical experience and the body (senses, emotions, gestures and words) as the means to encounter and understand the world around us.

The use of embodied cognition, creativity, self-expression help create a strong bond and engagement with STEM and a compelling, transformative experience.



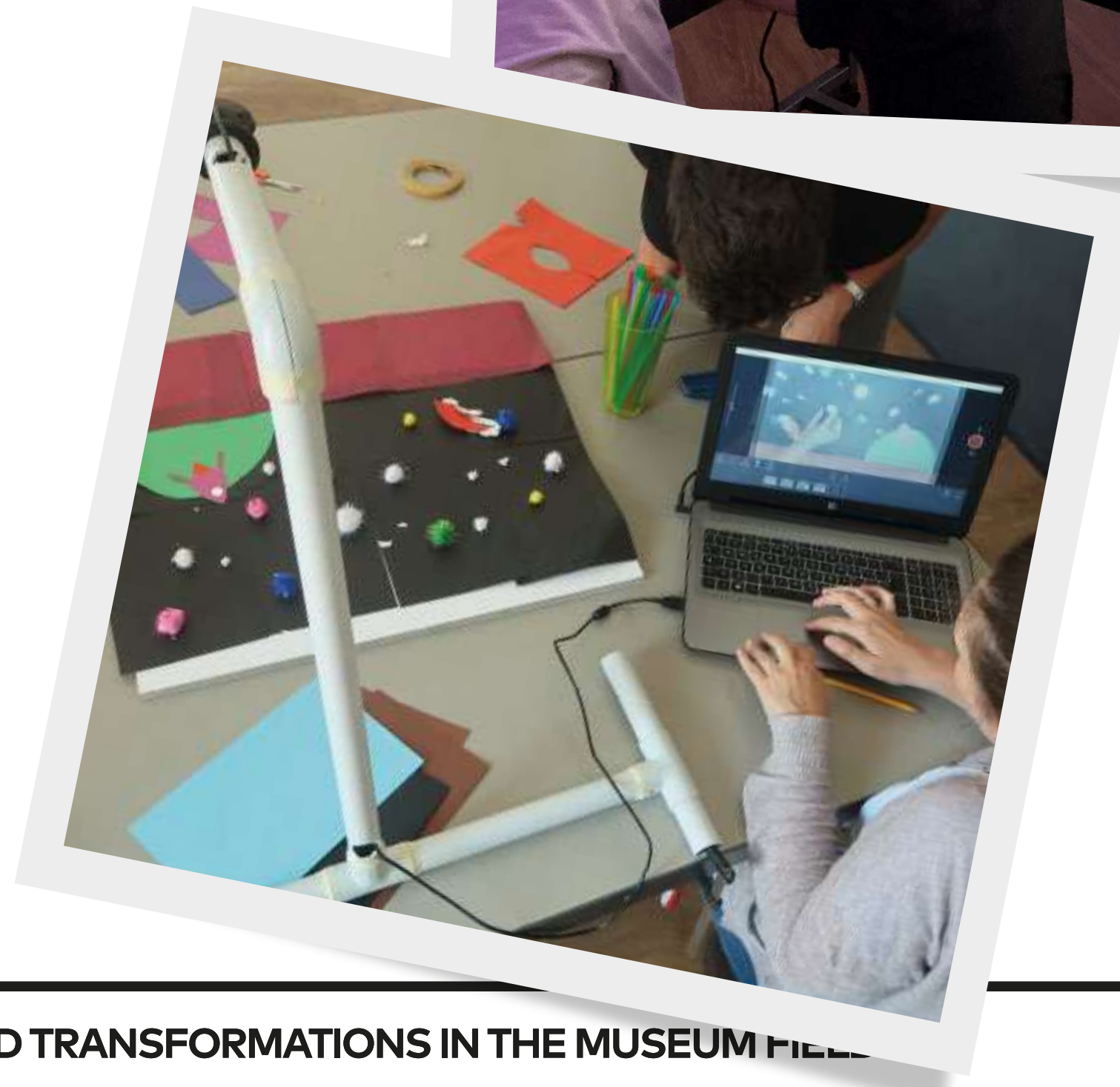
**NOT THE COMPUTER PROGRAMMING
THE CHILD (RATHER THE CHILD THAT
PROGRAMMES THE COMPUTER)**

DIGITAL OBJECTS TO "THINK WITH"

**The digital media are not themselves the new
object to think with; they are tools – among many
others and together with many others – that
help learners build objects to think with.**

Creating digital experiences that have a "holding power":

- ▶ open enough to let you in.
- ▶ intriguing enough to capture your imagination.
- ▶ safe enough to let you enact otherwise risky ideas.
- ▶ generous enough to always give you a second chance.



**THE DIGITAL IS NOT AN END IN ITSELF,
NOT (ONLY) A TOOL, IT IS AN ENVIRONMENT
IN WHICH INDIVIDUALS CREATE EXPERIENCE
AND UNDERSTANDING**

**«An 'ordinary experience' is when, although
we may be actively involved in the process,
the value and significance remains external
to ourselves.**

**An 'aesthetic experience' changes the way
we see the world and our place in it.»**

John Dewey



A blue-tinted photograph of three students (two girls and one boy) working together on a project. They are gathered around a table, focused on a small robot or mechanical device. The boy on the right is leaning over, pointing at something on the device. The two girls on the left are looking down at the work. The background is slightly blurred, showing what appears to be a classroom or workshop setting.

Thank you!

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