# 8. Accessibility design for museums. Synaesthetic communication tools

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## 8.1 The relevance of the topic of museum accessibility

The importance assumed by the theme of museum accessibility is demonstrated by the recent redefinition of *museum*. After years of work and discussions, the ICOM (International Council of Museums) – an international organization founded in 1946, with a history of representing museums and their professionals – presented at the Extraordinary General Assembly in Prague, on 24 August 2022, a new definition of museum:

> A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing.

One of the new features is the inclusion of the word *accessibility*. In fact, the new definition requires museums to be *accessible and inclusive* and to promote *diversity and sustainability*.

This reformulation action is extremely important, because it constitutes a declaration of intent aimed at designing museum spaces that are more accessible and inclusive for all.

The importance and necessity of this action in Italy is demonstrated by the data that Istat provides on the usability of museums. The *Istat Report on Italian Museums*, published in December 2019, just before the COVID-19 pandemic, returned the following data: 53% of museums are equipped for physical accessibility, with ramps, elevators, etc. useful for people with motor disabilities; only 12% of museum structures have alternative modes of use to the visual, providing «tactile itineraries and information materials for the visually impaired and blind» (Istat, 2019).

If we compare the subsequent *Istat Report*, relating to the year 2021 and published in 2022, we find that after two years physical accessibility has increased by 8 percentage points, but sensory accessibility does not seem to have improved as much. The data from the two reports are aggregated differently, so it is not possible to compare the percentages of accessibility of the same services.

However, if we consider that in 2021 there were 4,292 museums open to the public in Italy, and 61% have ramps, wedges and/or slides, lifts or lifting platforms, which can be used by people with motor disabilities – but only 9.5% of those 4,292 museums have tactile itineraries and/or cards with relief drawings, and/or explanatory panels in Braille – that means only around 400 museums out of the total are sensorially accessible.

This may seem like a setback compared to the 12% previously indicated for the year 2018, but presumably the discrepancy is simply due to a different aggregation of the data. In any case, there is still a lot of work to be done on improving accessibility in museums.

The critical issues regarding accessibility of museums, and of places of culture more generally, are also highlighted by the Ministry of Culture, which aims – thanks to PNRR investments – to achieve 80% accessibility in overcoming architectural barriers and 50% in overcoming sensory-perceptive barriers. According to the *Piano Stra-*

*tegico per l'Eliminazione delle Barriere Architettoniche* (Strategic Plan for the Elimination of Architectural Barriers, MIC/PNRR, 19.05.2022), the deadline for achieving the accessibility objective throughout the national territory is June 2026. In the document we read the following:

> **Through the implementation of the investment envisaged by the PNRR it is possible to overcome architectural barriers in 80% of places of culture, including State Archives and Libraries, and in 50% of these the overcoming of perceptive barriers.**

Furthermore specifying that:

> **Accessibility understood in its most all-encompassing and all-comprehending meaning (overcoming architectural, perceptive, cultural and cognitive barriers) still constitutes a critical issue today for places of Italian culture: this emerges from the annual report on the management of services for the public at state institutes and places of culture, published by the MiBACT General Directorate of Museums in July 2020 [Ministero della Cultura, PNRR "Piano Strategico per l'Eliminazione delle Barriere Architettoniche" (Decree no. 534, 19 May 2022); in particular, cf. "Rimozione delle barriere fisiche e cognitive in musei, biblioteche e archivi per consentire un più ampio accesso e partecipazione alla cultura"].**

Italian institutions therefore express awareness of the critical issues of accessibility in places of art and culture, combined with the desire to pursue and offer expanded accessibility. However, responsibility and commitment are also needed on the part of schools and universities, in order to offer training opportunities for new generations that allow them to acquire specialist skills, to encourage and experiment with expanded ways of use and to respond to the needs of people with differing capabilities, and thereby satisfy a diverse user base.

# 8.2 Best practices in museum accessibility. The origins

The data demonstrate how numerically limited the museums that apply sensorial accessibility practices are. However, there is no shortage of qualitatively excellent experiences, at an international and also Italian level, including some practices that can be understood as models, to be replicated in multiple contexts. It was in the 1970s, even before the concept of accessibility in the project was introduced and set as an objective, that experimentation began in exhibition solutions aimed at broadening the sensorial involvement of visitors. Solutions that go beyond the *work to be seen*, and that break the *do not touch* taboo so characteristic of museums. As Pia Vivarelli (Director of the Galleria Nazionale di Arte Moderna, Rome) writes in the presentation of *Le mani guardano* (1980, p. 8):

> the "do not touch" of museums remains and will remain an inelim-inable condition of a way of understanding the management of a cultural heritage, on the one hand, and of enjoying it, on the other, which can only be based on the profound common belief that the first task of individuals who believe in history is to protect the con-servation of documents.

By creating targeted solutions for specific needs, we can see how solutions designed for relatively few individuals, and specifically people with visual disabilities, actually benefit everyone. Not only that, but pursuing a design practice that allows people with sensory disabilities to access content, culture and art leads to experimentation activities and the creation of new communication solutions.

The exhibition *Les mains regardent* certainly played a pioneering role, set up at the Center Pompidou in Paris in 1977 – the year the centre was inaugurated – to provide a place where visitors are *allowed to touch* (Giraudy, in *Le mani guardano*, 1980, p. 9). To allow people to discover the potential of tactility in art appreciation, develop knowledge of the third dimension and ways of perceiving the senses, train tactile perception to know and recognize objects even with eyes closed. As Marianne Seydoux writes:

in France, the "forbidden to touch" notion is still sacrosanct, and "allowed to touch", typical of supermarkets, is not a rule for museums (Seydoux, in *Le mani guardano*, 1980, p.10).

Similarly, and more recently, Maria Antonella Fusco (Ministry for Cultural Heritage and Activities) wrote about Italian museums:

> The detection of touching the works concerns basic principles of heritage conservation (*Museo Statale Omero*, ed., 2006, p. 28).

Bruno Munari (1985) describes the same concept when talking about the sense of touch in the introduction to *I laboratori tattili*:

> *Don't touch!* How many times do children hear this imposition repeated? No one would ever say: don't look, don't listen, but it seems that touch is different, and many think that we can do without it.

*Les mains regardent* is a project to overcome the inhibitions on tactile sensoriality produced by a cultural and communicative context of the work of art based on prohibitions, in a period in which *looking, but not touching* is imperative in museums and exhibitions. The exhibition already explains its purpose in the title, suggested – writes the curator Danièle Giraudy – by the curiosity of a blind little girl, from whom one day she heard an unusual question: «Madam, what colour is the wind?». We then discover, says Giraudy, that

> our five senses work badly, while the four senses of the blind work miracles, so much so as to teach us how to find the way from a smell, read a smile with the tips of the fingers, feel the tiredness of a voice or its sweetness.

That question about the *colour of the wind* prefigured the name of a travelling exhibition created thirty years later by the National Federation of Institutions for the Blind, dedicated to books created for children to touch: *Di che colore è il vento. Alla scoperta del libro tattile illustrato* (*What colour is the wind? Discovering the illustrated tactile*

*book*), set up at the Loris Malaguzzi International Center in Reggio Emilia (22 January -25 February 2011) with the collaboration of the local Institute for the Blind.

The exhibition itinerary is divided into seven sections:

1. the hand (a series of gloves and hand sculptures are on display);
2. caressing (compositions and surfaces of different materials are on display, to be caressed, or touched with light acts);
3. bury/buried (collections of things immersed in surrounding bodies are on display);
4. imprint (marks left on surfaces or objects by bodies imprinted on others);
5. volume (three-dimensional objects and bodies);
6. assemblage (union and combinations of heterogeneous parts);
7. the city (paths, labyrinths, structures).

In the edition edited by the Galleria Nazionale di Arte Moderna of Rome, two more sections are added:

8. a tactile path through twentieth-century sculpture (with works by artists from the collections of the relevant Gallery);
9. *Il Serpentone* sensory path (a structure featuring a 40m path).

In summary, as the curator Giraudy writes, the exhibition begins with the handprint, the gestures to draw it, then:

> **surfaces for the fingers, volumes for the palms and, at the end, contemporary sculptures to "feel" ("à jouer") with your hands (*Le mani guardano*, 1980, p.9).**

The exhibition – the result of a heterogeneous working group made up of researchers, architects, doctors, sculptors and animators, with the collaboration of blind people – is designed for children under 12 and initially dedicated to blind people, but in fact it becomes an exhibition event visited and appreciated by all (Vivarelli, in *Le mani guardano*, 1980).

The exhibition *Le mani guardano* becomes itinerant, and in the following years it is set up in various countries, including Italy: first in the same year (1977) in Milan, where Munari inaugurates the first tactile laboratories directly connected to the exhibition, coordinated by

Renate Ramge Eco, and three years later in Rome (Galleria Nazionale di Arte Moderna, 1980). Of the original exhibition we find iconographic documentation relating only to the materials and works, available in the catalogue (*Le mani guardano*, 1980), and not addressing the exhibition design. It is therefore interesting to observe the exhibition design of the Lisbon edition (1980), complete with iconographic documentation, in which the thematic sections and the types of works and objects are recognizable (Figure 1).

This first exhibition can be understood as the wellspring of a new typology of exhibition experiences, which will be followed by other important travelling exhibitions, in which the opportunity to *touch* the work, expanding the possibilities of enjoyment, becomes the principle that guides accessibility.
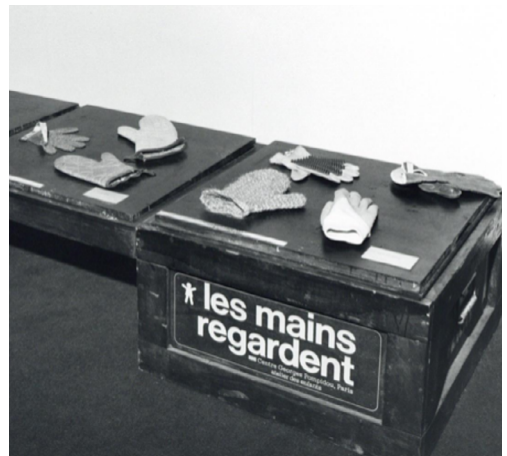
Figure 1. Exhibition design of *As Mãos Vêem / Les Mains Regardent* (Lisbon, 1980). Available at https://gulbenkian.pt/historia-das-exposicoes/exhibitions/137/.

In this direction, *Vietato NON Toccare* (Siena, 2004) was created, a project carried out by a research group from the University of Siena, to experiment with good practices in accessible exhibition planning, dedicated to historical, archaeological and naturalistic themes. It consists of multisensory exhibition projects – the first was inaugurated in Siena, at Palazzo Patrizi – travelling to various Italian cities, including Florence, Ferrara and Grosseto (available at *unisi.it/vietatonontoccare/*).

The exhibition projects include itineraries through prehistory with tactile, olfactory and auditory information, to help visitors understand the characteristics of spaces and objects with a visit that takes place in the dark, integrated during the itinerary with the relevant scientific

information. The visits are accompanied by other activities, workshops, and training courses for university staff (Sarti and Poesini, 2020, p. 130). Of great interest is the use and remodulation of consolidated techniques usually used for other purposes, e.g. the tactile reproduction methods applied in experimental archaeology research are used, now with a new purpose which is to make the finds accessible to all.

Another exhibition of the same name is set up in Milan (*Vietato Non Toccare*, Muba. Children's Museum, Triennale di Milano, 2016). This is a tribute to Bruno Munari in the year of his centenary, a travelling exhibition that goes from Milan to Rome, Naples and San Paolo. In the exhibition we find a selection of projects that Munari dedicates to pre-school children (2-6 years), combined with tactile workshops and workshops for the creation of *pre-books*.

Finally, I mention *Toccare la beauty / Touching beauty* (Ancona, 2019; Rome, 2021), an exhibition set up first at the Omero Museum in Ancona, the only state-run tactile museum in Italy, and subsequently at the Palazzo delle Esposizioni in Rome. Here the concept of *beautiful* is translated from the visual to the tactile, and the exhibition presents the work of Maria Montessori and Bruno Munari, two authors who understood tactility – one in pedagogical activity, the other in design – as a central sensorial modality of their own work. Also in this exhibition the references between the tactile experience and the visual mental image, or vice versa, are strictly interdependent in the exploration of each object. Montessori's material is designed to train the senses:

> **Sensory material can certainly be considered from this point of view a "materialized abstraction". It presents the "colour", the "size", the "shape", the "smell", the "noise" in a tangible and distinct way and ordered in gradations that allow us to classify and analyze the qualities (Montessori, 1950).**

Along similar lines, Bruno Munari (1985) explains in the Tactile Workshops the importance of refining tactile perception in the construction of scales of gradations and contrasts, both in the same sensorial register and in the relationship with other sensorial qualities.

## 8.3 Synaesthetic translations for the accessibility of the work of art

A recurring aspect, and something we may notice when examining examples of museums that activate enjoyment methods for people with visual and auditory disabilities, is how the accessibility of the work of art passes through translation practices. That is, content becomes accessible – consistently with the guidelines of the *European Accessibility Act* (2019) – when it can be used in different ways.
In the case of a visual work, there are essentially two ways to make it usable via different senses:

1. *tactile translation*: i.e. three-dimensional materials, or in any case featuring appreciable reliefs that can be explored by touch (Riccò, 2016, 2019);
2. *audio description*: or spoken word element, e.g. part of an audio guide, which phenomenologically describes the work, not so much as a historical/critical object, but rather how it appears, what are its formal characteristics, colours, organization in space, etc.

We know that the tactile translation of visual content requires simplification processes, since tactile discrimination capabilities are less refined than their visual counterparts. Interesting examples of this are the tactile translations of pictorial works. I particularly remember the *Josef and Anni Albers exhibition. Voyage inside a blind experience* (Siena, 2018), where the tactile translations of 12 works by Josef and Anni Albers were exhibited, some in bas-relief and others three-dimensional, made in resin by the Istituto dei Ciechi of Milan.
By separately comparing the visual exploration to blind tactile exploration, without seeing, it is possible to detect which characters facilitate recognition. This happens in particular when the visual representation reproduces a two-dimensional figuration and the tactile equivalent is in bas-relief. It is more complex, however, to translate abstract figurations that represent three-dimensional figures where the concave/convex alternation is visually perceptible; this kind of perceptive reversal proves difficult to reproduce for tactile exploration. Another option, for a video or a film, is to provide an audio description,

i.e. describe what is happening on the screen with a voice-over, which is added to the original audio, therefore to the voices, music and on-screen noises; similarly, an audio description could accompany any static visual artifact. This is a complex task, because the possible descriptions – of a scene, of the characters, of their actions, of an object or a work – are multiple, and may or may not be capable of suggesting visual mental images; and also because things can be perceived differently by different people. We consider that any description passes preliminarily through observation, reading and visual exploration by someone other than the user. On audio description, see the research conducted by Bustamante 2011, and a summary in Riccò, Caratti and Bustamante 2011; see also Riccò 2012, with the results of an accessibility analysis test conducted on the film *Mojito*, directed by Stefano Bruno, 2007.

As Carlucci (2023) writes, regarding audio description in museums, «a neutral description can be proposed, or a subjective, objective and/or enriched description, or one designed to be heard by children»; in other words, there are a number of ways to describe, in terms of styles and pre-established time limits, and these should be defined from time to time in relation to the user and the communication functions.

To facilitate such a complex task, the National Subvedenti Association (ANS) promoted research that led to the definition of *DescriVedendo*, a method for making the contents of visual works of art accessible to people less able to see. Based on descriptions, the evocative potential of language, and guidelines to follow when describing a work of art, it comprises ten points:

1. Provide a dimensional framework;
2. Technique and materials used;
3. Define the subject of the work;
4. Specify the point of view;
5. Agree on the descriptive sequence;
6. Locate the parts in the whole;
7. Indicate postures and shapes;
8. Characterize;
9. How is the light;
10. What about colours.

The guidelines are the result of a collaboration between people with and without visual disabilities who took turns in the roles of describer and listener/validator, i.e. those who had to form a mental visual image of a painting from the story alone.

Tactile translation and audio description are principles and techniques that we apply in teaching activities with students and in research by graduate students. I mention in particular an educational experience called *ControSenso* – an exhibition project sponsored by the School of Design and the Department of Design of the Politecnico di Milano, with the scientific collaboration of the Fondazione Istituto dei Ciechi di Milano and Rai Accessibilità – designed to experiment with vicarious possibilities of sensory information, based on the translation of contents to ensure that they are usable in multiple media and with different sensory modalities, to support accessible communication of the work of art (Riccò, 2023). Another example on the same principles is the project on accessibility to the Civic Museums of the Visconteo Castle of Pavia, in Jacopo Dufour's degree thesis (2023) (Figure 2), carried out in collaboration with the Fablab Spazio Geco of Pavia, in which several possibilities of reading come together: visual by seeing the typography, tactile by touching the Braille and the 3D printed relief portal, and auditory by listening to the audio description accessed via NFC technology.

## 8.4 Conclusions: designing with accessibility requirements

*Touching in order to see*, put into practice in the cases mentioned above by preparing materials to be enjoyed even with eyes closed, has been demonstrated scientifically. Studies conducted with neuro-imaging techniques – see the works of Sadato *et al.* (1996), Zangaladze (*et al.*, 1999) and Sacks (2003) – demonstrate how plastic the brain is, and how, for example, a tactile stimulus can activate the visual cortex, i.e. produce visual mental images even in the absence of corresponding stimuli. This happens in blind subjects, who remodulate the lost ability on other senses, but the same happens for sighted subjects who are temporarily deprived of access to the visual, i.e. when they are

temporarily blindfolded while carrying out a tactile task. Therefore, even exclusively tactile and haptic perception can – through synaesthesia – enable us to see and produce visual mental images.

Offering the same content on multiple sensorial registers, and working to offer synaesthetically congruent translations, allows us to broaden access – to the work of art, to cultural heritage and more generally to contents and information – to users who have different needs. The possibilities of tactile sensorial rendering that current printing techniques allow, even on a single specimen, are an opportunity to experiment with solutions and to acquire new skills and knowledge about sensory discrimination capabilities.

We would like to point out that it is not a question of making content or a work of art accessible, but of designing with consideration of accessibility requirements, i.e. in the initial phases of the project, providing for expanded fruition methods. This is a task that requires specific knowledge and skills, paying particular attention to the continuous evolution of accessibility in digital technologies, which opens up new application possibilities for making communication accessible to all people. Ensuring everyone has access to content should be a priority in the work of every communication designer.

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