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Rome 2021

DESIGN CULTURE(S)

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Design and Cultural Sites: New signage methods and languages for fruition, accessibility and storytelling.

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Abstract | The enhancement of cultural heritage is a relevant field for design research and practice, involving important issues such as accessibility, storytelling and knowledge sharing. A good fruition of cultural sites can be promoted through different scales of action and targeted strategies, including wayfinding design. Among its role in facilitating orientation, a signage system can convey identity and historical, cultural and artistic value of the context where it is placed. This contribution aims to evaluate, through the analysis of certain cultural heritage case studies, interesting strategies and tools used to narrate places, defining different approaches regarding interaction with the visitors and relation with the context.

KEYWORDS | INFORMATION, IDENTITY, COMMUNICATION, INCLUSIVE, NARRATION

1. Introduction

Nowadays, the enhancement of cultural heritage is an important topic where the contributions of several interdisciplinary subjects play a key role in communication, sharing, and narration of stories and identities of cultural places. In recent years, the design discipline has seen the growth and strengthening of this research theme and the related debate. The outcomes of these considerations are documented in the form of scientific publications, conferences and events, creation of research groups and university degree courses that place the design of cultural heritage at the centre of their attention and action. That is because design has a natural vocation to communicate the identity and the potential of a place, becoming an important narrator in the context of fruition, sharing and construction of culture (Trocchianesi, 2014).

In this scenario, this contribution focuses on the design of signage systems for orientation and fruition within artistic and cultural sites. Through the analysis of certain case studies, it is possible to outline interesting strategies and tools used to narrate places, both from the point of view of their spatial articulation and in terms of their cultural meaning. A critical interpretation of the design approaches is proposed, considering both the tangible and the intangible dimension, the analogical/digital possibilities, the declination on physical and cultural accessibility, also through non-verbal sensory solutions, and the symbolic-narrative aspect integrated in a specific context.

2. Fruition and accessibility of cultural heritage

Museums, cultural institutions, archaeological sites and even art cities are promoted – or, in other words, enhance their cultural value – when the fruition by a community of regular and tourists reinforces the collective memory and consciousness towards history and identity (Montella, 2009). To encourage a good fruition – intended as the opportunity for an audience to access and enjoy various cultural and art manifestations – every cultural site needs a recognizable visual and conceptual identity, integrated in a communication strategy addressed to a heterogeneous, global and multicultural public.

In this context, the project disciplines and design became strategic after the transition from a merely conservative approach – intended as protection and safeguarding – to promotion activities which provide new meanings and new values for empathic institutions (Lupo, 2013). In fact, various fields – such as exhibition, product, service, graphic, digital, branding and multimedia design – are involved at different scales of action and targeted projects, dealing with important topics including accessibility, storytelling and knowledge sharing.

The concept of enhancement is closely linked to the notion of accessibility, ideally setting the task of unlimited access to culture, regardless of disabilities or sensory limitations.

> "The categories with disabilities involved are not only the classic ones but also people suffering from a temporary disability due to illness or accidents, the elderly, the parents accompanying small children who often have specific needs and whose capabilities are not yet fully developed, people suffering from allergies, and even those who, for example, do not know the local language." (de Paolis & Guerini, 2015, p.73)

In early years, the focus was mainly on the aspects of physical access, determined by natural or architectural barriers, especially for those with reduced mobility. With the diffusion of the "Design for all" approach, the term accessibility took on a new meaning, involving solutions that facilitate and improve the experience to everyone and not just the majority. At present, the definition of barriers has broadened, also including social and economic factors that may affect fruition, from sensorial accessibility to the concept of cultural accessibility. In an accessible and inclusive cultural site, a similar visit experience is guaranteed to everyone in terms of time, understanding and enjoyment.

An integrated communication strategy with a powerful storytelling of a cultural site is shaped by its architectural context, its exhibit structure and all internal and external communication artefacts, from the institutional signboard to information leaflets and social media contents (Lupo & Vitali, 2018), as well as signage and orientation systems. When these elements are recognizable and express a precise and authentic narrative, the institution's identity activates visitor involvement and establishes an emotional relationship with the latter.

> "Ultimately, the image creation process becomes critical to visitors' final impression. In many instances, this image creation is achieved through the direct manipulation of environmental stimuli both inside and outside of the heritage attraction itself." (Bonn, Joseph-Mathews, Dai, Hayes, & Cave, 2007, p.346)

Among the traditional visual design artefacts and environmental stimuli, the role of signage is usually underestimated, whereas it can be a useful tool to optimize the fruition of a space and, at the same time, communicate its identity. Signage is not only about wayfinding, but it can be the means to supply information, stories, regulations and various contents like a mediator between the user and the natural or built environment.

3. The signage role between fruition and communication

As known, a signage system is an informational structure consisting of physical and/or digital elements that help visitors in the fruition and understanding of a place. It defines a space, identifies functions and suggests paths depending on the nature of the site with a hierarchic categorization (Gibson, 2009, p.47):

- Orientation signals represent an overview of the place, visually described by a site map with volumetric or planar view, as well as a directory of activities and points of interest. Usually, they are located near the main entrance on freestanding structures and indicate the current position – with the "you are here" symbol – and the boundaries of the site.
- Directional signals regulate the visitor circulation system, especially in the key decision points such as intersections, hallways and elevators/stairs.
- Identification signals are visual markers that display the name and the function of a space, also indicating entrances and exits to primary or secondary destinations. They can express a place's personality, character and historic context, for example by presenting a logo or evoking an image.
- Regulatory signals make explicit permitted and forbidden actions, usually complying with legal codes. Nevertheless, they should be unobtrusive and clearly communicate instructions or warnings.

However, a signage project is not just about the placement of indication signals. It is closely related to the concept of wayfinding (Lynch, 1960), the answer to our innate orientation need in complex and foreign environments. Understanding the current position, favouring the construction of a mental map and being able to make decisions about the path to take to reach a particular destination (Arthur & Passini, 1992) are cognitive tasks that can be supported by an efficient signage system, especially when environmental clues are not enough. In recent years, the concept has further evolved proposing an interdisciplinary approach that involves not only design disciplines but also environmental psychology, semiotics and ethological science to better understand human spatial behaviour (Zingale, 2010).

The functional role of signage can be summarized in effectively communicating the "hidden logic" of a place, a pattern of movement or spatial organization that becomes the framework to the wayfinding system and helps visitors to navigate easily and quickly in that specific space. On the other hand, the perception of signage plays a crucial role not only in the fruition of a place, but mostly in the narration of its identity. As known, a specific environment is a combination of different elements and its perception can be affected, positively or negatively, by their interaction with the visitor.

In particular, the concept of "ambiance" (Baker, 1986) concerns attributes such as lighting, sounds, temperature, signage, graphic elements and colour scheme.

In the context of heritage and cultural tourism, Bonn et al. (2007) demonstrated the link between specific atmospheric elements and particular visitor behaviours that affect intention to revisit and to recommend the attraction to others.

> "The presence of friendly, knowledgeable, and superior-service-oriented staff members as well as the availability of proper signage and general information all assist in ensuring the return of current visitors and positive word-of-mouth evaluations to others about their experience." (Boon, et al., 2007, p.352)

As any other communication artefacts in cultural sites, signals should balance environmental integration – or the capacity of preventing physical and visual interference – and environmental differentiation – or the ability to avoid excessive mimicry with the surrounding (García, 2007). This means that

> "the qualitative nature of the orienting stimuli must have its own aesthetic relevance, capable of activating an attentive fruition, able to capture the attention of a subject and, consequently, having the ability to make itself identified and memorized." (Zingale, 2010, p.29)

To assure the correct level of environmental integration and differentiation, every project should define a reference point from the local context, adding elements of reinterpretation and innovation. Among the different types of cultural heritage, three "design themes" can be identified (Bozzola & De Giorgi, 2017) in which signage can play an important role:

- Museum systems and historical buildings are place/containers of culture where human talent and historical memory are displayed and divulged.
- Environmental and natural heritage includes historical parks, theme-based paths, nature reserves, archaeological sites and areas of land with historical or landscape value.
- Art towns are cities or towns recognized for their strong cultural and artistic identity with an important tourist flow.

All these contexts should offer suitable tools for their fruition and communication, enhancing their uniqueness and personality. The interpretation of the *genius loci*, the "spirit of the place", is an added value needed to build a language capable of enhancing or reinterpreting the place's identity. Consequently, the action of promoting a cultural site involves the design of functional tools for communication and information, endowed of aesthetic significance, which becomes an important interface between visitors and the environment, making it easily accessible (Piscitelli, Ferrara, & Guida, 2013).

Signage methods and languages derive from the design choices concerning three main components (Calori, 2015):

- The hardware system includes size, materials, mounting solutions and all the physical aspect of signals. It can be tangible – with traditional systems – or almost completely intangible – using digital solutions.
- The graphic system includes the configuration between shapes, colours, typeface, symbols, layouts and pictograms. It is the core of the visual communication and an important element for the transmission of information, identity and storytelling.
- The information system involves the message that should be communicated. It mainly concerns hierarchic orientation instructions but can also extend to various contents such as multisensory stimuli and interactive experiences.

As discussed below, original solutions for each of these components combined with a sensitive approach to accessibility and, in some cases, the use of new media allows plural and multicultural narratives.

Today, the “one-to-many" model (Spallazzo, Spagnoli, & Trocchianesi, 2009) - mainly used in audio guide and information panels – is outdated and was replaced by a multimedia approach which allows a more personal fruition with tools for interaction, edutainment and appropriation of an individual memory in a community context.

4. Case studies

Based on these considerations, a number of case studies were analysed. Certain recurring attitudes may be identified and, in particular, it is possible to summarize four different approaches, resulting from the combination of opposite attributes.

Regarding interaction with the visitors:

- A passive signage system communicates its information with a low level of interaction with the user. It is clearly visible and reachable with a self-explanatory message, usually in graphic form. The storytelling aspect is guaranteed by its coherence with the communication strategy of the cultural site.
- An active signage system communicates its information with a high level of interaction, mainly involving the visitor in a selection process of multimedia contents. These tools allow a custom-made experience in terms of time and topics. The storytelling aspect is supported by platforms of information at

different scales with the possibility of connecting different cultural sites as a network.

As regards the relationship with the context:

- An integrative approach is realized when the physical elements are perfectly fitted in the identity of the context which is well represented and recognizable. They follow architectural alignments, recurring shapes or symbols and use selected colours that blend with the environment. Also, another form of integration includes the technological systems that dematerialize their presence with the effect of a place that "speaks" for itself.
- A divergent approach is realized when the signage elements are easily detected as external artefacts that instate their presence through foreign aspects such as strong colours and non-contextual materials. However, they do not interfere, but use a non-mimetic language that accompanies the visitors as a silent guide.
-

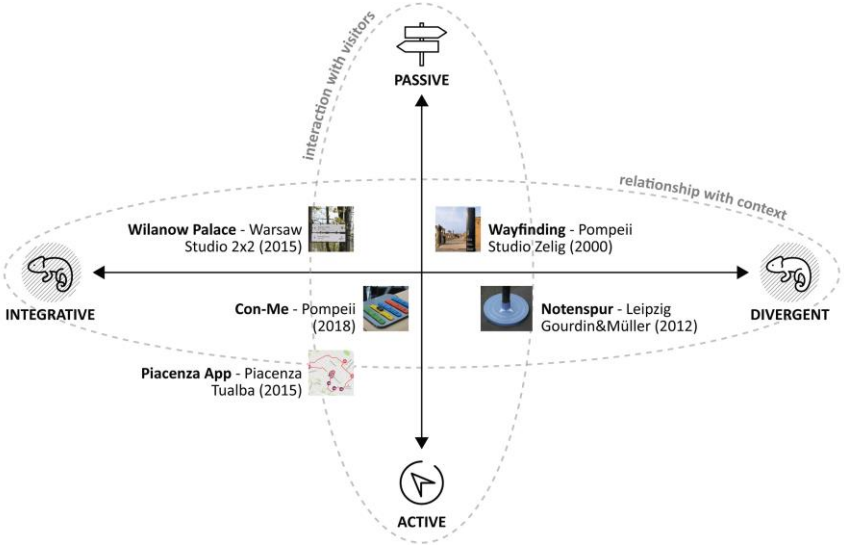

Figure 1. Four strategies to narrate places through a signage system. (Authors' diagram)

4.1 Same language, different versions of inclusion

The signage project for the Wilanow Palace Museum of Warsaw by Studio 2x2 (2015) is designed to make every visitor independent in the discovery of museum, park and surrounding areas. The system was introduced in order to organize the information space and to increase its visual coherence through the development of a range of indoor and outdoor panels and directional signs. The graphic operation overlaps with a multitude of forms, epochs, styles and hues existing in the context and minimizes its language in monochromatic signs and pictograms, designed based upon the structural elements of the chosen typeface. Visual coherence and integrated signals into existing elements – such as light poles and outdoor furniture – are the guidelines of a neat operation which effectively conveys the identity of the place without the involvement of other media.

In the perspective of inclusiveness, the studio created a specific guidebook for autistic people to help them have a more reassuring experience. Based on discussion with experts in the field, the information was translated into visual communication, considering the specific perception of the target users. This is an interesting example of a passive signage system with an integrative approach which enhances the value of the cultural site, leaving space for complementary accessibility-oriented actions.



Figure 2. Signage project for the Wilanow Palace Museum, designed by Studio 2x2, 2015. The simple visual language is recalled in all communication artefacts, including the guidebook for autistic people. © STUDIO 2×2, photo: Maciej Bączkowski.

4.2 Storytelling of musical heritage: a sensory narrative

The Notenspur (Music Trail) – followed by other paths like the Notenrad (Music Ride), Notenbogen (Music Walk) and Notenweg (Music Path) – is a 5.3 km city itinerary, articulated in 23 stations and accessible by foot which connects place of birth, lives and works of numerous prominent composers including Bach, Schumann and Wagner. The idea of a music trail for the city of Leipzig, proposed by Prof. Werner Schneider in 1998, was initially rejected by the city authorities as unnecessary and unrealizable. But in 2006, the Cultural Department prompted a feasibility study highlighting a potential interest on behalf of tourists and launched a design contest for a route and audio guidance system, eventually installed in 2012 (https://notenspur-leipzig.de/termine-verein-chronik/chronik/das-projekt-notenspur/design-wettbewerb-wegeleitsystem/).

The sensory narrative is the focus of the proposal by German design studio Gourdin&Müller. In a place deeply permeated by its musical heritage, urban exploration is combined with a music discovery tour by means of a traditional orientation system and relevant audio tracks for each location. Information panels, comprising a vertical information surface at eye level and an orientation point on the ground, are the tangible elements of the system which also create a strong and explicit visual identity, supported by the chromatic impact. In particular, the orientation disks are placed at every traffic junction, guiding the visitor from one station to another. Fruition of audio data is guaranteed in the form of download stations, free of charge, and with free-to-rent devices offered by the tourist service and cultural institutions. Additionally, sound oases are proposed in quiet, park-like locations. The audio reproduction is triggered by the visitors when they sit on a bench or cross a motion detector.

In this case study, the combination of tangible elements (signals) and intangible messages (music) creates a direct emotional and multisensory experience, making classical music a tangible presence in day-to-day living space. The Notenspur narrates the city heritage in a stimulating and accessible way for all age groups, regardless of their level of musical education, and encourages the interaction between present and past. The combination between divergent signage system and an active interaction reinforces the relationship between the musical heritage, the place and the curious visitor.

4.3 Augmented city for a custom-made cultural experience

The Italian city of Piacenza is the scenario for the “Sonorizzazione Urbana Aumentata” (Urban Augmented “Soundtracking”) project, developed by Tualba in 2015 and updated in 2019. It became the first city in Europe to be mapped with the use of Beacons. After the successful experimentation of the same technology within the wall of the art gallery Pinacoteca di Palazzo Farnese, the project has conceptually crossed the limits of the

single cultural site, transforming the entire city into an open-air museum. By using the Piacenza App, the visitor can choose between three urban itineraries: Sacred Art, Profane Art and “Luoghi Dotti” (Academic Locations). The audio tracks, wrote and performed by local talents, are triggered automatically by the proximity sensors, each associated to a point of interest. After the last update, the app also includes an events calendar with live notifications and information about commercial and food&wine activities.

The orientation system is fully digital: an interactive map shows 32 cultural and artistic attractions and live directions to reach them. Thanks to the Beacon technology, the informative level goes beyond the urban dimension, following the visitors inside museums, churches and art galleries, showing multimedia contents related to each location. Tourists and citizens can freely live the city and enjoy the beauty not through an invasive filter but with a personal guide. The map gives an overview of the points of interest and it is always accessible, so the itinerary of the visit can be planned in advance. As in the pilot project, the app is a practical tool to recover contents and information after the visit, with the search function or in a library of personal bookmarks (De Marchi, 2015). Apps and proximity detection systems are perfect examples of active signage systems with an integrative approach. They can change the cultural experience, giving a high degree of customization in terms of content, fruition time and categories of information. The cultural site becomes an open, flexible and multisensory space which proposes an immersive practice for habitual and new visitors. Nevertheless, from the visitor’s point of view, two accessibility-related issues could arise. Audio tracks must be available in two languages, at least, and a totally digital system could leave out certain categories of people not able to manage digital devices in autonomy. On the other hand, from the museum point of view, the Beacon technology allows collection of data on visitor behaviours (such as people flow and time of visit for every room/artefact) which are crucial to support future strategies and curatorial choices. In conclusion, the concept of augmented city as an active and integrated system is both part of a cultural marketing strategy for the promotion of the city and its territory and, at the same time, a means to enrich tourists and even residents with a custom-made experience, combining technology and creativity.



Figure 3. Piacenza App, developed by Tualba, 2015.
The information system based on proximity sensors is dematerialized, fully integrated in the context and works with a digital interface. Property: Piacenza Municipality

4.4 Complementary systems to narrate complexity

Traditional and digital orientation systems can coexist in a complex cultural site when its fruition involves several targets of visitors with different necessities and expectations. The Archaeological Park of Pompeii was the first Italian cultural site with a visual identity system, selected among competitors in a public contest and designed by Zelig studio in 2000 (http://www.alessandrococchia.com/2019/12/14/pompei-logo-brand-identity-signage/).

The project involves different archaeological sites – Pompeii, Ercolano, Boscoreale, Oplontis, Stabia – and the National Archaeological Museum of Naples, using a unified language for all the official communication artefacts. In particular, the wayfinding system changed the fruition of the location itself, compensating the lack of a single privileged path. Minimizing visual interference, signals were designed as narrow poles with an elliptical section, engraved information and colour combination of white, black and Pompeian red, perfectly contextualized in the excavations. Due to its durability and resistance to atmospheric agents, the studio decided to use the composite material Corian®.

The reduction of visual impact was a strategic choice that allowed a later integration with other support channels and accessibility initiatives such as “Pompeii for All” (Sicignano & Di Ruocco, 2019) and Smart@Pompei (Bruni & Papi, 2018). “Pompeii for All” allows all visitors to easily tour the site along an itinerary – realized within the

context of the Great Pompeii Project – that connects the most significant buildings and domus from the square called Piazza Anfiteatro to the Sanctuary of Venus. The 3.5 km-long itinerary has ramps, limited changes in height and allows a more comfortable visit experience, not only for mobility-impaired visitors. Also, the archaeological site proposes different experimental projects for other levels of accessibility, such as "silent visits", guided tours led by specialized mother-tongue LIS speakers for deaf people.

Moreover, Smart@Pompei is a pilot project – resulting from an agreement between MiBACT (Italian Ministry of cultural heritage, cultural activities, and tourism) and CNR (National Centre for Research) – that proposes an integrated technological model based on IoT technologies which allows management of the safety of people and monuments in both normal and emergency conditions. Starting in 2017, Pompeii is the first Smart Archaeological Park in Italy and in the world. In particular, the Con-Me system provides an electronic bracelet for blind and visually impaired visitors, designed to ensure an accessible and safe visit of the site. Each device is equipped with an SOS button, Wi-Fi and Bluetooth receivers, and a GPS module to check and detect the user position in case of emergency. A grid of sensors is positioned along the path and acquires visitor data, sending them to the central server via access points. Also, the visitor can request an audio aid describing his/her current location. The first twenty prototypes were tested in 2018 and received important feedback. Blind and visually impaired visitors suggested changes regarding the subject of the existing audio descriptive guide. Instead of historical information, they reported the need for an accurate description of the site. Currently, this project is being further developed, considering the results of the test.

The case study of the Archaeological Park of Pompeii is a successful example of complementary systems for the diversified fruition of the same cultural site. A passive signage system with a divergent approach represents the basic structure to which other active and multisensory projects are added, enhancing one another.

5. Conclusion

Cultural heritage is a particular context where design requires an especially attentive and sensitive approach based on the physical, symbolic and narrative characteristics of a location. In particular, its communicative capacity, expressed through wayfinding and signage systems, supports important activities for promotion and storytelling with the aim to engage different targets with different tools. The relationship with the context can determine alternative approaches, such as the integrative or divergent ones, while the interaction between signage and visitor can be either passive or active.

Following the case studies analysis, it can be stated that these four approaches are particularly effective, both for cultural institutions and visitors, when they are intended

as complementary and integrated strategies. The coexistence of various initiatives, even when implemented at different times, can meet the increasing need for accessibility and inclusiveness, highly promoted by cultural heritage sites.

An ideal project can be developed on the basis of a stratified system of information, from a basic level to a high degree of details, which is revealed to the visitor through different means. Fundamental data that are not subject to change – such as information about orientation, navigation and identification of landmarks – should be communicated immediately and using commonly known codes and languages, preferring a passive approach as provided by physical signage systems. On the contrary, in-depth data - such as historical/artistic information, descriptions, critical interpretations and related multimedia contents - can be delivered by digital systems that propose an active approach, offering simultaneously a high degree of updatability and customization. The identity and main characteristics of the location guide the designer's choice between an integrative approach or a divergent one, taking into account many factors including pre-existing initiatives. It is a virtuous circle where cultural identity becomes dynamics and participatory, encouraging revitalization of the sites and the combination of old and new solutions for an even more inclusive and engaging future fruition.

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