

# Curatorship and mobile applications: The physical-digital interactions of museum visitors

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## ABSTRACT

This article presents a semiotic analysis of the mobile applications employed by various European exhibition spaces, including the Rijksmuseum in Amsterdam, the History Museum in Vienna, the Louis Vuitton Foundation, and the Pompidou Centre in Paris, to examine how these digital tools participate in the configuration of the visitor experience. The study examines the design of these mobile applications, with a particular focus on the activities that they propose during the museum visit. The analysis delves into the types of interactions that they propose with the museum's architectural, curatorial, and artistic discourses, as well as between the visitors themselves. It seeks to address the following research question: How do museum applications, strongly linked to the use of social networks and access to online content, transform visiting practices and expand the museum experience beyond its physical confines? The findings indicate that while these applications can enhance the accessibility and personalization of the content available during the exhibition, their design disregards the spatial and material dimensions of museum visits, which involve the presence of other individuals with whom visitors interact and share the exhibition spaces. By interrogating the enunciative strategies of these digital tools, it becomes evident that the actions promoted by mobile applications involve practices whose spatio-temporal dimensions are incompatible with those of physical visits. This highlights the challenges of integrating mobile applications into contemporary curatorial practices.

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## Introduction: the physical-digital interactions of museum visitors

The study of visitor behavior in both physical and digital museum spaces is crucial since it enables the collection of data based on the public's experiences. This data is highly beneficial in terms of designing a visit that integrates the complex materiality of the exhibition space, which is composed of the institutional discourse (understood as that which fulfills the task of informing and orienting the visit by providing didactic and educational materials) and the curatorial discourse (which creates a bridge between the institutional discourse, the artworks, and the public). Furthermore, the museum space encompasses visitors' interactions with these discourses and the works of art, as well as with other visitors.

In this regard, contemporary semiotics, interactionist, and multimodal studies provide several analytical tools that can be used to analyze visitor practices. Their methodological approaches allow us to study the current state of museum visits and to design future digital tools that encompass the three fundamental aspects of the museum experience: the *interactional space* of the museum (architectural/institutional dimensions), the *interactional space of the artwork* (curatorial dimension), and the interactions of visitors between themselves.

Given these aspects, this analysis presents a semiotic study of the mobile applications available at different types of art museums: the Rijksmuseum in Amsterdam, the Museum of History in Vienna, the Fondation Louis Vuitton, and the Pompidou Center in Paris. The objective is to explore the different modes of contact with the displayed artworks that these digital tools propose. The term 'digital spaces' encompasses both social media platforms – from YouTube to Instagram – that mediatize the museum experience, making it circulate in the digital space, and mobile applications that function as educative tools inside and sometimes outside the museum. The corpus presented allows us to reveal the phenomenon's transversality.

### 1. The multimedia-multispatial experience

Historically, the evolution of media phenomena has systematically transformed the experience of the museum visit. This process has significantly accelerated in the latter part of the 20<sup>th</sup> and early 21<sup>st</sup> centuries. Nevertheless, integrating mobile devices and applications into the museum space, which has become a standard practice over the past decade, has resulted in even more significant changes that have impacted both the production and reception of the museum experience.

Incorporating new techniques and technologies into exhibitions has extended the museum space into the digital sphere. Most of the museum's digital content, accessible through mobile applications, is hosted on social media and digital platforms, including YouTube, Spotify, and Instagram. In the physical space, engagement techniques, such as using hashtags on exhibition walls and providing spaces especially designed for photo-ops, encourage the production of images that are meant to be published on visitors' social networks and, in some cases, to be reused by the institution. In this way, the museum experience is positioned between the most popular cultural attractions for local audiences and international tourists, and trending social media posts from audiovisual content produced in the museum.

From the visitors' vantage point, these techniques and technologies have established new visiting practices that entail new ways of accessing (and consuming) the museum experience and the artworks. As a result, the relationships between institutions and their visitors have undergone a significant transformation. Social media, particularly Instagram and TikTok, enable museums to become more *present* in people's daily lives by disseminating content that functions as regular 'microdoses of art.' Such content, designed to be *shared* by users, represents one of the most dominant positioning strategies in museum communication today. When republished, the circulation of such images and videos contributes to constructing the public digital identity of users who align with specific institutional values.

In turn, the content produced by visitors equally contributes to the construction of the museum's institutional identity, whether through *mentions* (tags) on the museum's Instagram account, the use of hashtags, or, even more so, through *reposting* of visitor-generated content on the museum's official profiles. In this way, institutions foster enhanced connections with their audiences, collectively constructing the museum experience promoted on social media (this includes even those *followers* who, despite never physically visiting the museum, contribute to its promotion by republishing the institution's content) (Rosso 2024).

The advent of mobile applications has also altered how people engage with museums. These 'apps' offer users the possibility of personalizing their visit and making more efficient use of their time by proposing 30 to 90-minute tours typically structured around different topics that highlight the masterpieces in the collection. Sometimes, these 'apps' also provide more innovative proposals, such as musical tours curated by artists or influencers. As previously stated, these pedagogical and educative digital tools are closely linked to the use of social networks to mediatize and promote the museum experience online. In fact, these apps often direct visitors to the museums' Instagram, YouTube, Spotify, and SoundCloud accounts, inviting them (directly or indirectly) to *follow* the museum on each platform.

Furthermore, many of these applications can be downloaded and used without being physically present within the museum building. Even if, in some cases, it is not possible to access certain services (such as live location and itineraries), users can still access the artworks and their related educative (or commercial) content by viewing a digital representation on the screen. Thanks to these applications, it is possible to 'visit' museums without being in them.

The application developed by the Rijksmuseum in Amsterdam (Fig.1) is a relevant example of a 'remote museum visit.' This digital tool welcomes users by asking them to state their location (e.g., at the museum, in public transportation, at home) and offering different options tailored to each case. Although its main objective is to help users plan a visit, the fact that the works of art are absent is not a significant issue when accessing the content, as will be discussed in the analysis.

Consequently, the notion of the museum visit must be reviewed, particularly its spatiotemporal determinations. Incorporating apps and social media into the exhibition space has dramatically affected these determinations, highlighting the need to study the museum visit in its entirety: that is, both in terms of its physical and digital components.

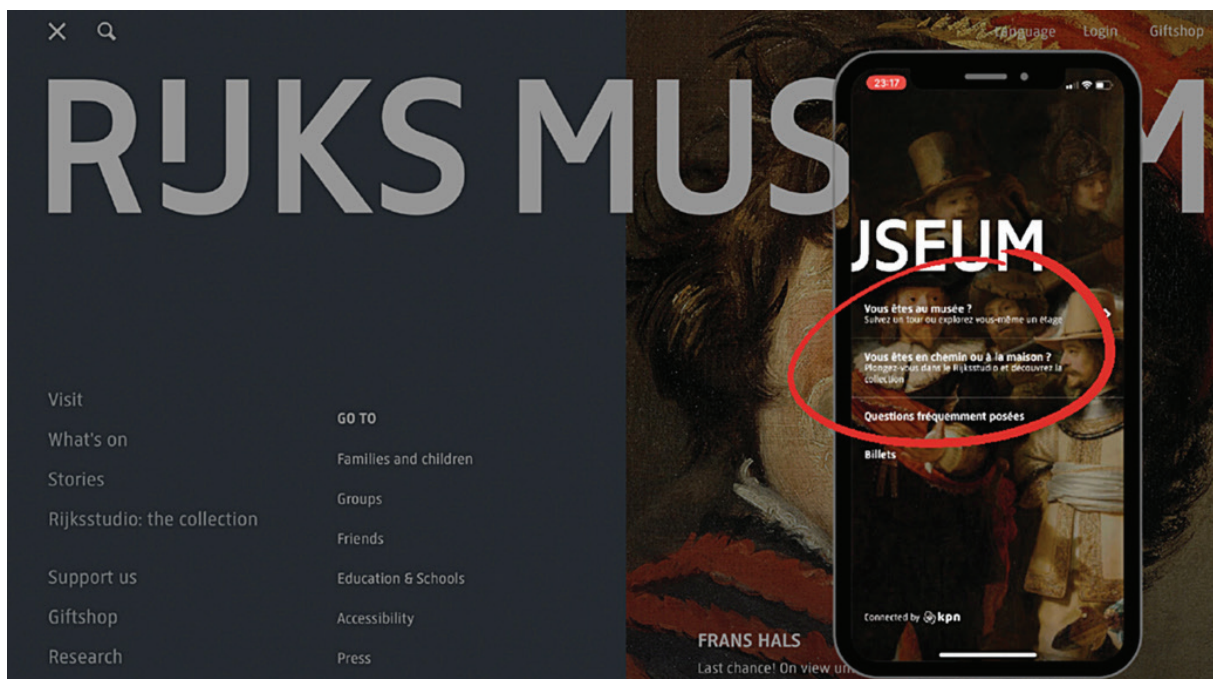


Figure 1. Rijksmuseum mobile application (image created by the author).

## 2. The study of visiting practices

Interactionist studies have long been concerned with visitors' museum experiences. Interactionist studies focus on how people's physical actions adapt to, utilize, and shape their material environment. In this view, space is not a fixed entity but is rather created through the interactions and arrangement of participants' bodies within that space (Mondada 2005). Interactionist studies employ audiovisual technologies that seek to capture the actions of individuals in their natural context (data collection techniques include, for example, 360° cameras). The audiovisual recordings are decoded according to a method of notation that highlights the interactions between the bodies participating in the action and the environment, exposing the combination of resources (gestures, words, movements) employed by the actors to carry out their actions.

Some of these studies pursue Charles Goodwin's (2018) notions of the semiotic body (2002) and *embodiment* (2000), emphasizing the importance of considering the environment as a structuring factor in individuals' interactions. According to Goodwin's theory, practices occur within a "semiotic field" (2000: 1490) comprising a range of resources, including the body, the environment, and objects. Building upon these proposals, Lorenza Mondada (2005) proposes the notion of *interactional space*, defined as a space configured by the relationship between the acting bodies and the material constraints of the environment. This configuration is shaped by the *participation format* appropriate to the activity in progress and the relationship between the bodies involved.

The concept of *interactional space* underscores the need to consider the *ecology of interaction*. In this respect, Mondada (2017) emphasizes the complexity inherent in studying social practices that involve movement and displacements in space. One such practice is the museum visit. Based on Mondada's proposal, Yaël Kreplak (2014) adapts the notion of interactional space to analyze the exhibition space as human beings apprehend it: during the action (Mondada 2005). Her primary interest lies in the space of the artwork as an *interactional space*. Accordingly, she finds that the *interactional space of the artwork* is not a given; rather, it is constituted through a diversity of spatialized activities and practices.

Vom Lehn, Heath, and Hindmarsh's (2002) interactional research likewise highlights the *reflexive constitution* of the artwork and the museum space through the visitors' practices. Based on visual records produced in museums and galleries, their analysis demonstrates how visitors socially organize their viewing activities, maintaining an *ecology of participation* with and around the exhibits. Visitors progressively

give each other access to different parts of the artwork by applying *peripheral monitoring* that enables them to notice other people's behaviors and organize their own conduct accordingly in museums and galleries. Their concept of *ecology of participation* is paramount for the general study of museum visits and the analysis of the visiting practices proposed by mobile applications.

As far as multimodal studies are concerned, they share certain points in common with interactional linguists. Overall, this approach is defined as a discipline that "interrogates how the resources and processes of meaning-making shape and are shaped by people, institutions, and societies," focusing on a range of "modes" that includes, for instance, the gaze, gestures, movement, and posture. According to Diamantopoulou, Christidou, and Blunden (2024: 250), multimodality provides concepts, methods, and theoretical frameworks "for the collection and analysis of a wide variety of visual, aural, embodied, material, and spatial aspects of interaction and environments and insight on the relationships between these."

It is important to note, as the authors point out, that this perspective draws from and is embedded in other disciplines, including social semiotics, systemic functional linguistics, conversation analysis, and interaction analysis. Thus, the notion of 'mode' has been met with some disagreement within the field of study and is accepted or rejected depending on the authors' theoretical-methodological perspective (Mondada (2023); for example, adopts the notion of 'resource').

Nevertheless, what is interesting about this perspective is that very early on, it interested in on the museum context and in the study of "the meanings that emerge both in and among the wide range of museum resources used in museums today, and of the visitor's experience as embodied and multisensorial, mediated by technologies and socially co-constructed" (Diamantopoulou, Christidou, and Blunden 2024: 251). Accordingly, multimodal studies have explored various aspects of the museum visitor experience, including visitor conversations in museums (Leinhardt et al. 2002), visitor interactions with exhibitions (vom Lehn et al. 2001), with musicographic devices (Roppola 2012), and with digital technologies (Fatah and Moutinho 2012).

In a related way, contemporary semiotics has also centered on studying practices. The proposals of Jean-Marie Floch (1990), Jacques Fontanille (2008), Marita Soto (2014), Oscar Traversa (2014), Eliseo Verón (1983-2013), Maria Giulia Dondero (2015-2016-2017), and Pierluigi Basso (2017-2021) provide fundamental analytical models for studying user behavior and the functioning of public social spaces, including libraries, subway stations, supermarkets, museums, and other public spaces.

In this regard, Eliseo Verón's (1983) work on visits at the *Centre Pompidou* in Paris represents a seminal contribution and a crucial methodological reference for contemporary visitor experience studies. His methodological proposal for studying practices shares certain similarities with the proposals of interactionist studies, in which the relationship between the visitor's body and the material dimension of the museum's spatial discourse plays a central role.

However, Verón's method is distinguished by its *analytic formula*, which focuses on the *gap* between the production of discourse (in this case, spatial discourse) and its recognition (in this case, the appropriation of space by visitors). Following this proposal, Verón first investigated the curatorial discourse (observing the unoccupied exhibition rooms) and then formulated hypotheses regarding potential routes and appropriations proposed by the discourse, which he subsequently corroborated through fieldwork analyzing visitor behavior using visual records, trajectory diagrams, and interviews.

This study of the visiting strategies of the *Centre Pompidou's* visitors – which has become a renowned typology of visits including ants, butterflies, fish, and grasshoppers – enables Verón to define the museum as a *mass media*, characterized by a specific condition: its dominant order is metonymic. In this way, the museum space is constituted as a network of spatial redirections, which are temporalised by the visitor's spatial appropriation. Consequently, the visit can be understood as the result of a negotiation between the properties of the proposed discourse and the subject's spatial appropriation strategies (Verón 2013).

Verón's methodological proposal shares some key theoretical-methodological references with interactionist studies. In an article published in 1988, the researcher not only exposes the links between Bateson's theory and Charles Sanders Peirce's semiotics but also clarifies his theoretical and methodological position regarding these two approaches:

Ma position est inséparable d'un triangle: celui que l'on peut tracer entre Buenos Aires, Paris et la Californie, sorte de dialogue Nord-Sud qui eut une importance considérable pour certains d'entre nous tout au long des années soixante. Depuis la position décentrée de Buenos Aires, nous étions en contact à la fois avec la recherche qui se faisait aux Etats-Unis et en France, ce qui nous donnait une 'double description' du développement des sciences humaines. (Verón 1988: 171)

Aside from interactionist and multimodal studies and semiotics, another perspective that can be used to analyze visitors' behaviors is *digital ethnography*, which investigates the physical-digital visitor experience. Hillman and Weilenmann (2015) adopt this approach to study visitors' use of mobile phones and social networks in cultural institutions. Their research aims to integrate an analysis of social media activities into a study of physical visiting practices. The researchers are interested in examining the entanglement between content creation and social media consumption in museums. They propose the concept of *social media trajectories*, which defines the relationship between online activities and actions in the physical space. This concept emerges from studying physical-digital behaviors observed through audiovisual recordings and creating a heat map of activity on Instagram during museum visits.

Furthermore, the authors employ in-depth interviews conducted after the visit. Their studies demonstrate that visitors orientate their social media presence according to how they appropriate the physical space. In other words, their spatial trajectories shape how they edit and share content online, which is directly linked to their experience in physical space. Hillman and Weilenmann's methodological approach offers certain benefits when it comes to studying how mobile applications extend the museum space. However, despite their approach's significant contributions, it does not address the relationship between the three spatial discourses (institutional, curatorial, artistic) that operate in the staging of the museum experience, nor does it address the interactions between the visitors who are mobilized by the use of social networks in the museum.

As previously mentioned, the museum visit environment includes the museum's (architectural and institutional discourses) interactional space, the artwork's (curatorial discourse) interactional space, and the visitors' interactions. Therefore, it is necessary to return to Verón's (1998: 8) postulate: "We access meaning through packages of signifying materials whose support can be varied," which range from the materials of the museum building to the bodily appropriations of those who visit it. Following Verón's theory, the semioticians of the Buenos Aires School (Soto, Traversa, and Steimberg) have shown a particular interest in the material environment where actions take place and how media devices that manage individuals' contact with the materialities of the discourses contribute to shaping social practice.

For this reason, we propose to apply Oscar Traversa's (2014) notion of the 'device' to study the relation between the physical museum experience and mobile applications, more specifically, how these apps 'redirect' the *museum's interactional space*. Traversa connects three central issues for both pragmatist semiotics and interactionist studies: the devices' materiality, the users' actions, and the enunciative possibilities given by this materiality.



### 3. Museums, media devices, and visitors

In accordance with Oscar Traversa's proposal (2001), devices act as contact managers between the materiality of discourses and actors' bodies, mobilizing technologies and techniques that regulate and stabilize certain social practices. The material support of the discourse (in other words, the *interaction environment*) occupies a central place in this conceptual model since the device organizes this materiality, potentially pre-determining social practices. To this end, the device admits certain enunciative pacts made possible by its material characteristics.

For instance, the material conditions of mobile phones (their materials, size, weight, and functionalities) enable different possibilities (and places) of use. Even the materiality of museography devices promotes or forbids different visiting practices: some devices *invite doing* (contemplating, sitting, circulating), and others *forbid doing* (touching, smelling, or approaching a work of art). Thus, the materialities of the exhibition devices, from the vitrines, the pedestals, or even the glass covering the paintings (which sometimes make it difficult to contemplate the works due to the reflection of the lights) establish modes of access to the works and enunciative pacts between the museum and its visitors (symmetrical, authoritarian, friendly). In this way, the device pre-establishes potential *bonds* between visitors and the museum.

Traversa's (2009) notion of *bond* is fundamental because, on the one hand, it gives a central role to the materiality of the devices and, at the same time, it focuses on the attributes of the bodies acting in different situations of discursive circulation, as well as the techniques at play in each of them. 'Technique' here indicates the implementation of specific procedures to achieve a relatively homogeneous result: walking, looking, photographing, touching, etc. It also involves the enunciative dimension as an articulating agent between the materiality of the discourse and the body. In the case of mobile applications that function as guided tours, the articulation of these three elements (materiality, techniques, and enunciative pact) that are integrated into the device reveals the different ways in which the institution allows the public to appropriate the exhibition space and *intermediary spaces* (stores, cafeterias, terraces, esplanades) (Rosso 2022).

According to Traversa (2009), there are four types of links managed by media devices. These bonds designate different bodily techniques and spatiotemporal dimensions that connect the discursive materiality, and the interaction of the actors involved. In this context, we take up his typology of linkage in light of the notion of the *interactional space* of the museum and the artwork. This functional distinction enables us to segment and map the visitor's interactions. It is important to note that there are overlaps and gaps (or pauses) between the moments that visitors interact with the institution and the moments they interact mainly with the artworks (and other visitors, of course).

**Complete bonds:** The actors' bodies interact in the presence of materiality through corporeal techniques such as walking, looking, touching, and talking. This type of link is observable in the *museum's interactional space*. Thus, these bonds involve a temporal and spatial coalescence with the materiality of the museum visit (with its overlapping enunciation: architectural, institutional, curatorial, artistic) and with the other visitors.

**Semi-restricted bonds:** The mediation of a technical resource reduces some of the actor's bodily dimensions. This type of bond is observable in interactions with, for example, the museum's social networks. More specifically, the visits transmitted live through social media (such as Instagram) occur in temporal coalescence but not in spatial coalescence. Users can interact with museum visitors through the social network, but these bonds take place in the digital interactional space of social media.<sup>1</sup>

**Restricted bonds:** One of the bodies is absent, and the other is in front of a text. It is the mode of contact with most of the museum objects exhibited (primarily paintings and sculptures), as well as other forms of time-based media implying repetition techniques, such as cinema and music, and reproductions, as in the case of books, photographs, and records. These links do not include temporo-spatial coalescence and are observable in the *interactional space of the work of art*.

**Paradoxical bonds:** These emerge from the technical aggregations that disrupt how the body and its faculties participate in the constitution of bonds. They involve all technical procedures from the 20th century to the present, from radio to mobile screens. In this case, the temporal and spatial coalescence are variable, involving several variants of bodily behaviors. These links are observable in the use of applications and social networks that leverage the resources of the three previous categories: it is possible to watch videos, chat, produce texts, take pictures of a work of art, or share photos. In the museum, these bonds are established in three spaces: the interactional space of the artwork and the museum and the digital space of the mobile application.

In the case of museum apps, these operational categories highlight how devices configure different types of linkage between institutions and their visitors. Thus, when studying museum visits, it is necessary to consider the multiple devices and materialities that organize different practices, even more so when museum guides organize the visit as a script that must merge physical and digital experiences. Even if institutions conceive the two levels as a continuum, different devices (e.g., room paratexts and exhibition podcasts) configure different bonds with the visitors. Traversa (2009) argues that although the substance of *what is said* – namely, what is proposed by the museum – may be very similar, even identical, in the physical and digital space, in each case, *each device will model the content differently*.

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<sup>1</sup> See: Thornborrow, J. (2017). The Interactional Spaces of Social Media: Ethics, Methods and Research Practice. *Discours des réseaux sociaux: enjeux publics, politiques et médiatiques*, 43-62.

Consequently, the analysis of museum visits must center on the enunciative strategies applied in the institutional and curatorial discourse, as well as on apps and social media. These devices generate new bonds between museums and their audiences while transforming visitors' interactions with architectural space, institutional discourses, curatorial proposals, and works of art. From this perspective, we analyzed more than a dozen mobile applications proposed by art museums to visitors to study what kind of experiences they offer. These digital applications were examined in terms of a) the user experience, b) the proposed contact with the curatorial discourse, and c) the practices (involving physical and technological techniques) involved in the physical visit.

#### 4. Iconoclastic applications?

Our examination of mobile applications as devices that articulate the physical and digital dimensions of the museum experience led us to conclude that they are not designed for art appreciation. Their contents are disconnected from the in-situ experience, revealing that these pedagogical engagement tools ignore the museum and the artworks' interactional spaces.

The companies that produce mobile applications maintain that they offer visitors self-guided tours and provide access to all the content they need without having to join a group at a specific time. They also purportedly improve accessibility by offering multilingual content, audio, text, and subtitled videos. The companies propose their apps to institutions as solutions to reduce the clutter occasioned by paratexts, thus 'visually cleaning up' the exhibition space and reducing visitor crowding. Apps also offer a solution to renting audio devices that must be constantly sanitized, allowing visitors to use their own devices. Finally, they hold the promise of increased membership sales and donations.

However, these solutions overlook several fundamental questions: What kind of museum experience do they offer? What type of art appreciation do they foster? What criteria do they use to select the works of art that make up the proposed itineraries? The applications respect the basic principles of UX/UI design: screen flow, interactivity, interface functionalities, and wording, but they do not consider the physical context of their use: the exhibition and museum space.

Even in the case of apps more focused on the physical experience, such as the application developed by the Vienna History Museum (Fig. 2) in collaboration with education and mediation professionals, the proposed activities do not consider the museum's *interactional space*. This space includes factors like the size of the room, the objects, the constraints imposed by the presence of other visitors, and the overall experience of being in the museum.

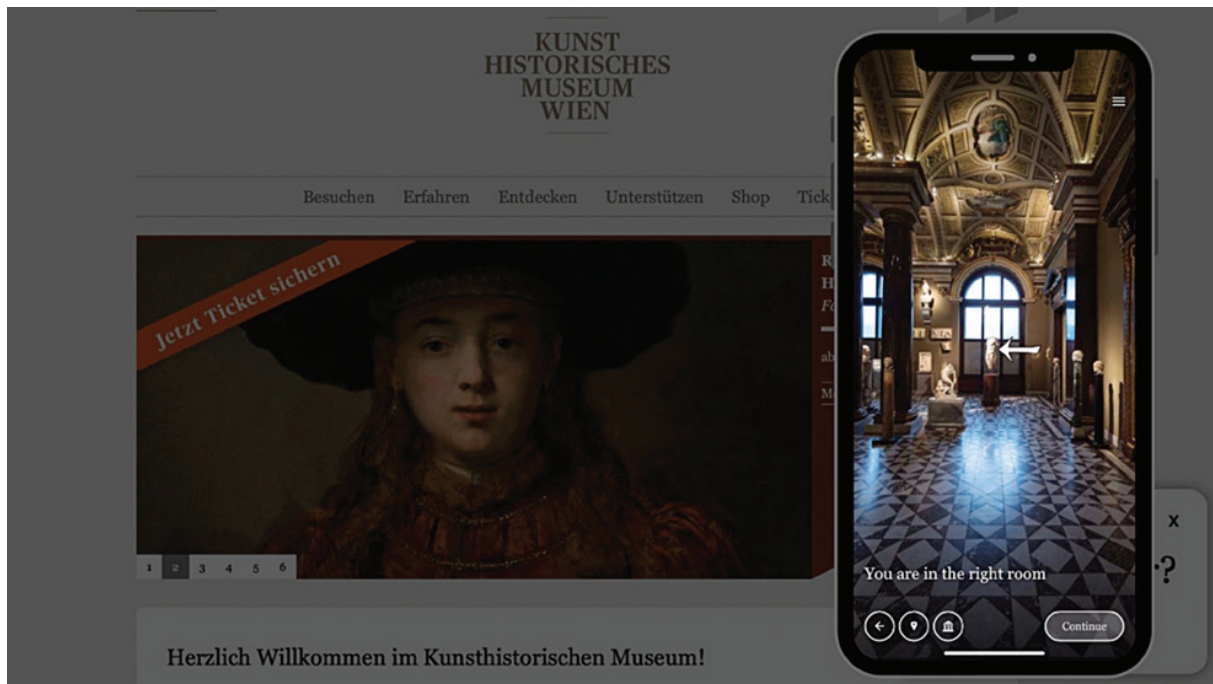


Figure 2. Vienna History Museum mobile application (image created by the author).

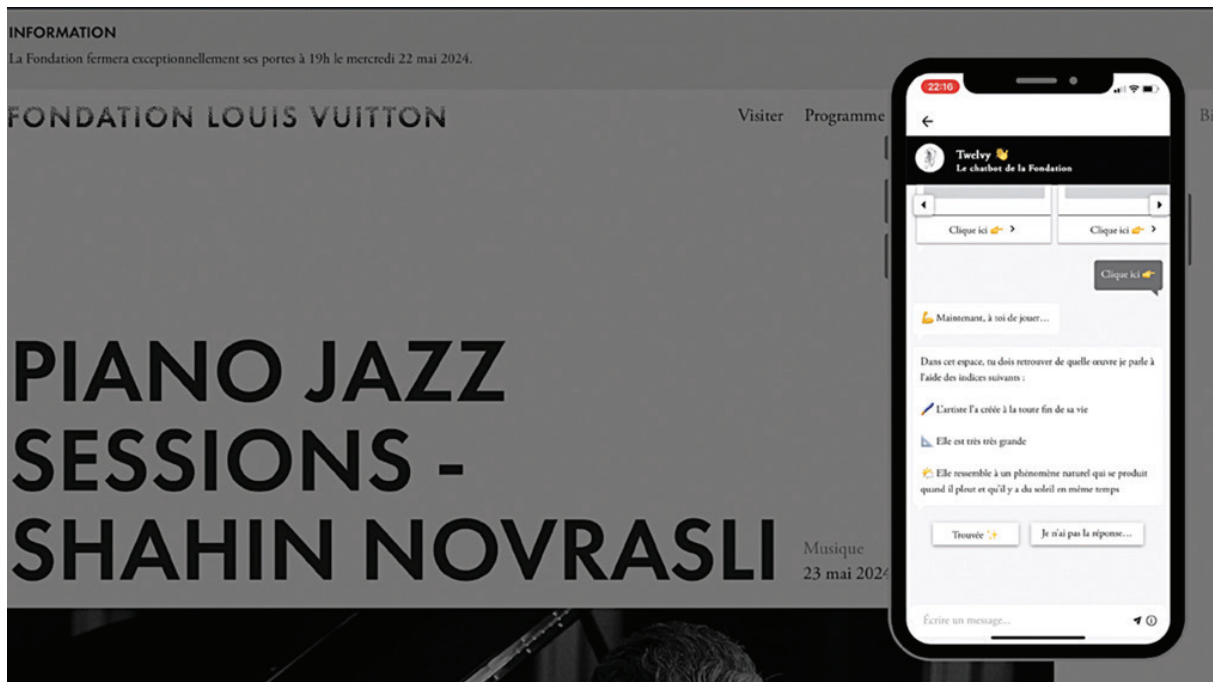


Figure 3. Louis Vuitton Foundation mobile application (image created by the author).

We encountered the same situation with the application created by the Louis Vuitton Foundation for the Ellsworth Kelly exhibition (Fig.3). This application includes various educational and entertainment tools, offers customizable maps and itineraries, audio and text content, and even a chatbot designed with artificial intelligence to answer personalized questions. The content is also differentiated according to the type of audience: families with children or teenagers, and adults. However, the proposed content does not take into account the *interactional space* and the essential issues of visiting exhibitions: the time spent in front of each artwork, the distance between visitors, the flow of visitors, the waiting times to approach the artwork, the total duration of the visit: in short, the *ecology of participation* mentioned by Vom Lehn, Heath and Hindmarsh (2002).

The experience proposed by these various museum applications is interactive within digital space and essentially created to circulate outside the museum's physical space. This is clear from the fact that these apps encourage users to *share* the proposed content through social media and email and can be used autonomously outside the museum (Rosso 2023). Indeed, as can be verified in cell phone app stores, many of these applications can be downloaded and consumed outside the museum, as in the case of the Rijks Museum, the Fondation Louis Vuitton, the Musée de la Vie Romantique, the Andy Warhol Museum, among others.

The Rijks Museum presents an interesting case because it offers content adapted to mobile and remote visits. Users can plan their visit or take a virtual tour by accessing high-quality information in an audio guide (or micro podcast) format, as well as audiovisual content. Users can also share the content on their Instagram, Facebook, and WhatsApp profiles and email it to their contacts, as well as buy tickets and items from the online store.

This raises the issue of the connection between social networks and mobile applications, exposing the role that they play in marketing, segmentation, and positioning beyond cultural mediation and education. Above all, by *sharing* content on their social networks, visitors become active participants in promoting the museum experience, establishing other types of bonds with the institutions, and embodying new roles as co-promoters of the museum and co-producers of its institutional identity.

To illustrate this point, the following section provides a more detailed analysis of the chatbot *Suivez le guide!* developed for the Pompidou Center. It constitutes an exceptional case for studying the different bonds (and enunciative pacts) configured between museums and visitors through the overlapping practices proposed by exhibitions, architectural and curatorial devices, social networks, and mobile applications.

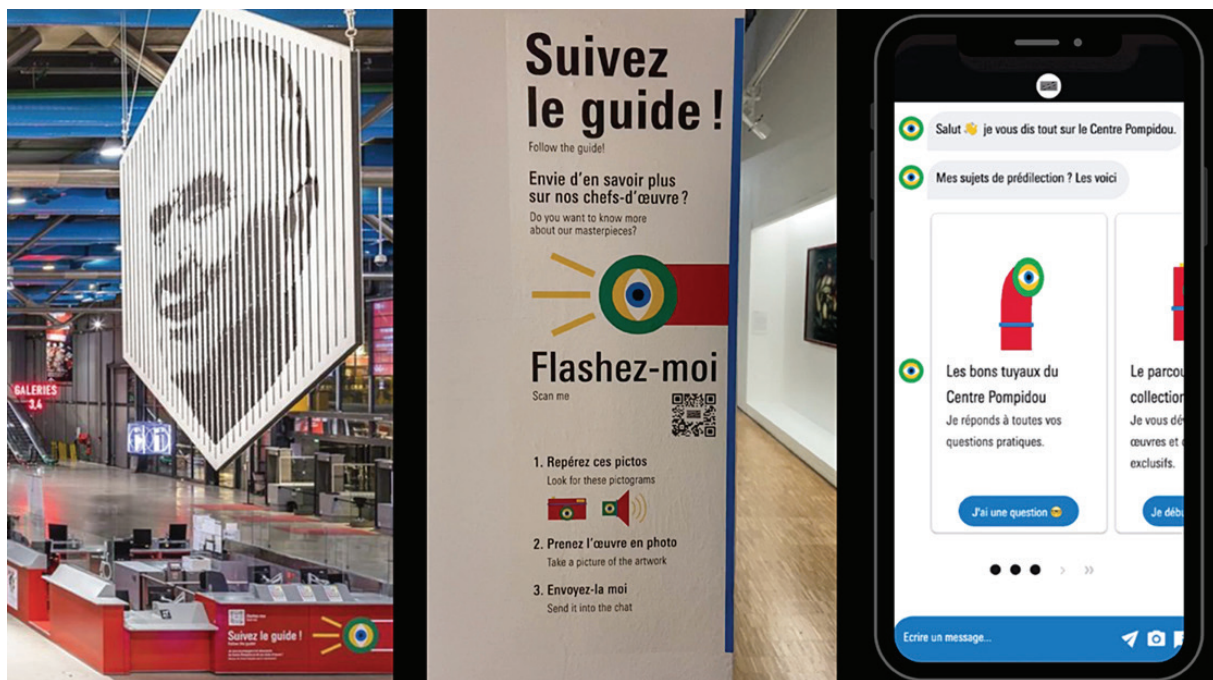


Figure 4. Centre Pompidou chatbot (image created by the author).

## 5. Follow the guide: the multimedia and multispatial space of the Centre Pompidou

The Centre Pompidou has integrated into its digital offering a chatbot called *Suivez le guide!* (Fig. 4), accessible through a QR code, as a pedagogical and didactic tool to help visitors discover its collection. This chatbot lets visitors initiate a conversation with the virtual guide without downloading an app on their phones. To do so, they must take photos of selected artworks classified as VIPs (indicated by icons in the galleries) and upload them to the chat, allowing them to access content in different formats. Throughout the conversation, the guide provides information about the artworks and their authors, offering texts generally published on the web, videos on YouTube and Instagram, and podcasts on Spotify. Its goal is to provide organized, pleasant, and friendly access to the vast educational content published in *Beaubourg's* digital universe.

Interestingly, once visitors have scanned the QR code, the chatbot can be used outside the museum by uploading the images taken during their exhibition visit. If the works are part of the VIP selection, visitors will receive the same information as they would in the museum; otherwise, the virtual guide will recommend trying another

artwork. Once the content has been viewed, the guide asks the visitors about their sensations, suggests options, and responds with a certain complicity: “I understand you.” The chat continues to offer information and options about the content that the museum has published online on its website and on social media (Spotify, YouTube) and repeats the question about the visitors’ feelings after each exchange.

Take as an example a dialogue with the chatbot about the work *Plight* (1985) by Joseph Beuys, which is on display in the museum and part of the digital guide database. Once visitors upload a photo of the work, the guide offers three types of content (as it does for each work): a video, a podcast, and text. We chose the two-minute video that tells the story of Beuys and *Plight*. The content (hosted on YouTube) takes the format of Instagram videos, which does not consider the fact that visitors are in the museum, in front of the artwork.

As a result, while it provides valuable information in a pleasant tone and classic social media format that presents the data dynamically, allowing access to details of the work almost inaccessible in the room, such as the thermometer over the piano, it does not encourage us to physically experience and engage with the work: to smell, to feel the warmth of the material, and to listen to the acoustics of the space, three actions central to the experience of Beuys’s work.

As for the conversation with the chatbot, users mainly interact with the platform by selecting options. Thus, both the guide’s words and the visitors’ pre-established answers have an informal tone, abounding (or exaggerating) in emoticons. The configuration of the enunciator is not entirely clear if the user is not a visitor capable (e.g., old enough) of performing all of these actions: scan the code, recognize the VIP artwork, take the photo and upload it, and choose the content that they want. So, why resort to an infantilizing enunciative tone?

This friendly, informal, and complicit enunciation is, in fact, commensurate with the *Centre Pompidou*’s Instagram profile but conflicts with the more ‘classical’ enunciation of the paratexts in the exhibition room. Moreover, the chatbot’s enunciative strategies also differ from the friendly but still academic ones that typically characterize Spotify content, to which the app also directs users. Integrating these contents into a single device poses difficulties linked to the specificity of each digital platform, but above all to the types of contact established with the museum space and the artworks: their ‘representation’ and presentation.

Thus, each content hosted on different social networks implies:

a. Different enunciative scenes and, consequently, different enunciative pacts and *bonds* with the institution. As mentioned, on social media platforms such as Instagram, the museum becomes a provider of daily ‘micro-doses of art’ and even a ‘legitimiser of users’ identity.’

b. The bonds are manifested in different social practices that regulate access to this content. In the case of Spotify, listening to podcasts is not usually associated with a visit to the museum, but rather with moments of relaxation, waiting, or traveling. Podcasts do not function as audio guides but rather as radio broadcasts wherein there is no emphasis on the physical context in which the content is consumed.

c. In that sense, social practices imply and demand different genres or discursive types that correspond to the specific requirements of each distinct social media environment. This means particular manners of production and distinct modes of reception tailored to every kind of digital content.

d. Finally, although the list is not exhaustive, the museums' social media contents pursue institutional objectives that differ from those of audio guides and traditional educational tools. These institutional objectives are two-fold. On the one hand, they aim to get visitors to join the online community of each social media platform; on the other hand, they aim to facilitate the circulation of these contents on social media, particularly Instagram. In other words, institutions encourage the viewing and sharing of content so each *follower's* 'community' can view it and share it anew.

## 6. Preliminary conclusions: do not follow the (digital) guide

Integrating social media content inside the museum space highlights the complexity of the overlap between the *mediated museum experience* and the *mediatized museum experience*. Although these experiences can occur in parallel, we understand the mediated museum experience as one that contributes to *in situ* contact with the artworks, the museum, and curatorial discourse (in the case of the apps, the artwork is mediatized in its passage to the screen of the phones). In contrast to the mediated experience, the mediatized experience breaks with the time and space of the museum experience by fostering its circulation in digital space (i.e., the content about the visit posted on social networks). In the case of the chatbot used inside the museum, it is possible to describe this particular museum experience as *mediatized in proximity*.

In some cases, the *mediatized visit* effectively establishes enunciative scenes of complexity. It allows access to details or information unavailable in the exhibition room, as confirmed by *Plight's* video or podcast that offer more information than the text on display. However, the chatbot does not refer to the physical visit in the museum, nor to the bodily dimensions that are at the core of this artwork. Thus, its function does not seem to 'guide' the visitor by proposing digital tools that encourage *interaction* with the artworks *in* and *with* the museum's physical space. On the contrary, it ignores the museum space by suggesting content that does not consider that visitors are in front of the artwork, surrounded by other people, and mediated by museographic devices.



The app only mentions the museum space when it asks questions about the visitor's feelings in front of the artwork, but the question could just as well refer to the digital content presented.

In sum, the virtual guide provides a solution to the challenge of sustaining the type of enunciative pact proposed on Instagram – where visitors build *together* an interactive and collective experience by sharing or producing videos, photos, and comments – within the exhibition space, which is structured according to specific rules linked to order, silence, and contemplation. The chatbot does so by bringing together and providing virtual access to all of the content scattered on the various digital platforms of the Centre Pompidou.

However, the proposed outcome is an *assemblage* of media experiences that cannot easily coexist since the museum must address at least three different publics: its onsite visitors, its digital *followers*, and its different online communities. These media experiences establish distinct types of *bonds* with the complex materiality of the museum experience through diverse devices providing varied access to its physical and digital spaces. Thus, while the intention is for the chatbot to serve as a guide to the Centre Pompidou's collection by linking content published on different platforms and social media, the actual experience is far from a guided tour supporting education and engagement with the museum's complex materiality.

The challenge of combining different media experiences in a single mobile application lies precisely in the difficulty of sustaining similar enunciative pacts on platforms that establish different *bonds* between the museum and its different collectives, which consist of:

1. The visitors, traditionally considered as those who visit the museum's physical space.
2. The users on platforms such as Spotify or YouTube, who consume the content and can react and comment but do not necessarily produce audiovisual content; and
3. Facebook, Instagram, and TikTok followers, who 'must' produce or interact with the content on offer.

These three collectives are embodied through different practices determined by the material supports of the institutional and curatorial discourse (the building, the collection, the museography, the phone screen, and the artworks) and by the modes of access that, in each case, offer distinct experiences. Even if, hypothetically speaking, we could consider the cell phone, among all the devices that intervene in the exhibition space, as the only contact manager with the materiality of the museum experience, we would still see that access to the institutional discourse varies according to:

1. Different spatial contexts: The phone screen in the exhibition hall differs from the same screen (even if it has the same educational content) in the subway, at home, or at work.

2. Different temporalities: time spent visiting an exhibition *vs.* listening to a podcast about the same artwork.

3. Different enunciative pacts: The museum applies specific enunciative strategies and discursive types according to the kind of audience and the communicative situation: an exhibition opening in the museum *vs.* its live broadcast on Instagram.

4. The different content formats and the horizons of expectations that they set: An audio guide differs from a podcast, and an Instagram video differs from a didactic content conceived for the exhibition space.

These points allow us to see that, although the different platforms offer thematically similar and even, at times, identical discourses, the devices effectively shift the focus from the *énoncé* to the enunciation. The museum experience is materialized precisely by the opposing and complementary enunciative *games* involved in each media device (exhibition space, social networks, digital platforms, mobile applications). In this way, the visit is shaped by combining different ways of 'making available' and 'consuming' the museum's multiple materialities.

## Conclusions

Mobile applications, as pedagogical and entertainment tools, hold out the promise of personalized access to content related to the physical visit and the artworks on display. However, this involves a spatial and temporal rupture with the experience of the artworks, now mediatized (in proximity) on the screens of cell phones. Users remain in a spatiotemporal coalescence with them in the museum's physical space. Yet, mobile applications often forget that their users are museum visitors who interact with other visitors as well as exhibition devices and information, and experience noise and thermal sensations.

Using apps also introduces new temporalities that disrupt the visit's past, present, and future. Consequently, using these media devices in museums adds complexity to the experience's material supports and, therefore, to the contact with them, generating new social practices that imply new behaviors in physical and digital spaces.

The parallel physical spatial analysis proposed by interactional linguistics and semiotics shows that the design of digital platforms and applications that function as visitor guides must always consider the museum's physical space. Thus, UX researchers should consider the research conducted by these disciplines; meanwhile, UX designers should work with curators and education specialists to create adequate tools and quality visitor experiences.

In this respect, an example of good practice can be found in the recent project *Augmented Artwork Analysis (AAA)*, which aims to produce a tablet application that augments the perception and interpretation of works of art encountered in museums.

Once completed, it will allow links to be forged between the paintings exhibited *in situ* and works in other museums, creating a *complementary museum*. Thus, this digital tool will link two ways of observing: directly, in front of the painting in the museum, and augmented, creating a network of images connecting with it. In this way, the application will be involved in what we call museum and artwork's *interactional spaces* while operating in the interactive digital space.

To conclude, if the applications do not consider the specificity of the museum's and the artwork's *interactional space*, viz. the particularity of the devices and their enunciative contrasts, the physical-digital visitor experience will be constituted as a set of disjointed communicative and consumption proposals that will alienate individuals from the exhibition environment and the artworks, which are and have always been, at the core of the museum experience.

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