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## Modern Approaches in Museum Social Media Data Analysis

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**Abstract.** The use of social media by museums has attracted the attention of scholars and researchers who seek to understand the potentialities of social media for the museum sector, along with the types of engagement that are promoted through social media platforms, and/or investigating people’s perceptions, preferences and experiences. However, current methods to evaluate and assess activity on museum social media based on metrics and analytics provided by the social platforms are unable to capture the context, the specificities and the complexity of how communication unfolds. This paper presents the in-depth, mixed methods research approach I adopted in my PhD study, in which I used both quantitative and qualitative data, to study the experiences that social media users have when they interact with museums on Instagram, Facebook and Twitter (today called X).

**Keywords:** museum, social media, mixed methods study.

### 1 Introduction

Social media has evolved to a ubiquitous and powerful form of two-way communication, that is both to keep informed and connected, and to share opinions, thoughts and feelings. Social media data creates “unprecedented opportunities to answer significant questions about society, policies, and health” (Olteanu et al., 2019, p. 2). Social media has also become a source of data for researchers from different disciplines to understand social media users’ perceptions, attitudes, and feelings for various issues. The capacity to collect and analyze massive amounts of data from social media platforms has created a real “datafication” of many human activities, and new areas of research have emerged. Thus, automated techniques and tools have been developed to support social network analysis, based on mining text content from social media data, and/or identifying links that form the networks evolved on social media. However, computational social science still has various challenges to face regarding research ethics, pedagogy, and data infrastructure (Lazer et al., 2009, 2020).

Platforms also provide metrics that are visible in their interfaces, indicating the audience activity and engagement, or a post's popularity. But is this enough if we want to understand how people are engaged, connected and affected by the posted content? These visible metrics are integral to the "politics of platforms" as Gillespie (2010) points out, encouraging users to actively engage with the posted content, and also providing the currency to the advertising market. By employing platform affordances for research purposes and deploying the "methods of the medium" as Rogers says (cited in Jean Burgess, 2021, p. 30), the structures and strategies of the platforms shape the questions posed and the behaviors investigated. Thus, it is important to be critical about the way that platform data is structured, and the rules attached to the data access. Nancy Baym (2013) explains that "audience metrics are as important as ever in social media. They serve as proxies for size, engagement and affect, but can distort what they seem to measure". Furthermore, using platform data to understand human interactions remains problematic as long as "platforms are themselves opaque about their methods for managing user behavior" (Wu et al., 2020, p. 1175). Researchers should be aware that the metrics and gathered data provided by the platforms are structured in ways that meet their objectives, and not necessarily satisfy the needs of other organizations, such as museums.

Consequently, many scholars emphasize the need for more nuanced methods that go beyond platform metrics and affordances to better understand human behaviors and engagements on social media platforms, thus advancing knowledge through analysis and interpretation. For instance, Bouvier and Rasmussen (2022) suggest applying qualitative research methods to social media data, while Burgess and Baym (2020) advocate the use of hybrid methods, combining both computational and manual methods, to study platforms. To complement current debate about the methods and approaches in studying social media platforms, I present here the method I established in my PhD study to investigate the relationship that the museum and its users develop on social media.

## **2 Data and Methods**

My aim was to move beyond existing platform metrics in social media research, so I developed an in-depth, user-centered method to better understand what museum followers on Instagram, Facebook and Twitter/X want from museum accounts. The employed method comprises a three-stage including online surveys, semi-structured online synchronous interviews, and an observational analysis of social media data, focusing on users' comments on the three selected platforms. The case study approach (Simons, 2014) was employed to explore users' experiences when they interact with two selected art museums, the Van Gogh Museum (VGM) and the Museum of Modern art (MoMA). To understand why Instagram, Facebook and X/Twitter users do not follow museums and find out what could motivate them to follow museum accounts, I extended my study to include the perspectives of potential museum followers. By adopting a user perspective and giving the first word to the people who follow (or do

not follow) museum accounts, I managed to recognize both visible and invisible behaviors from social media users and enhance our understanding in ways that were not possible through the platforms' metrics.

Seeking to have a complementarity perspective to the study, I employed a mixed methods design, where quantitative data collection is followed by qualitative interviews with participants (Greene et al., 1989; Hesse-Biber & Griffin, 2013; Johnson et al., 2007). These two datasets are complemented by collected social media data consisting of users' comments on museum posts. Therefore, I used data from three sources, surveys, interviews and social media, to enhance and triangulate my examination of social media users' experiences when interacting with museums. My rationale behind the combination of methods and data sources is that they complement each other, enhance the examination of the investigated subject from different aspects, and give the opportunity for enriching explanations and exploring possible causes. Furthermore, combining quantitative and qualitative approaches can balance the limitations of each method and provide stronger evidence and more confidence in the findings, although it can be more complex to carry out, and requires more expertise and extra resources, such as time and means.

The research design for the whole empirical study consists of online surveys and semi-structured, online synchronous interviews, which were designed and conducted for the followers of the MoMA and the VGM in the three platforms, along with social media users who follow (or not) museums on Facebook, Instagram and Twitter. In addition, an observational analysis of social media data was conducted for the two art museums' accounts on Facebook, Instagram and Twitter. These three different stages also concur with the data collection stages. First, it is the Online Surveys stage, second is the Online Interviews stage, and third is the Observation stage of the social media data (posts and comments) of the two art museums.

The surveys and the interviews were implemented within the same timeframe, as most interviewees were recruited via the surveys. The observation stage was continuous and occurred in parallel with all the other stages of the research study. All the surveys and most interviews were conducted between the end of March 2020 and the end of July 2020. Some interviews with Facebook users following the Van Gogh Museum were also held in August 2019. The main research study was conducted during the context of the COVID-19 pandemic, and the outbreak of social, anti-racist, activist protests, in the wake of the murder of George Floyd by Minneapolis police, and the global response of the Black Lives Matter movement (Altman, 2020; Taylor, 2021).

Ethical issues have been addressed conscientiously during all steps of the research process, from planning and conducting research, until to writing and disseminating findings. My overall aim was to safeguard the dignity, rights, safety and well-being of all actual or potential research participants. Moreover, I am absolutely concerned about the ethical issues that could be raised using social media for conducting research, and I acknowledge that factors, such as the type of data, the creator of that data, and the intended use for the data, should be taken into consideration when it comes to using information from public social media accounts (Fiesler, 2019). Even in cases where the risk of harm is low, all the necessary actions should be taken (participants' consent, data anonymization, use of pseudonyms) to mitigate any possible risks for participants

in the studies (surveys and interviews). Furthermore, the data obtained during the observational period are not made available publicly and are presented only in aggregate form. They are also presented only partly, briefly and anonymously. It is important for researchers to take additional, proactive measures not only to protect their participants' privacy, but also to shape various possible futures regarding more secure online exchanges (Bakogianni, 2021).

The overall sample across the surveys conducted with VGM's followers, MoMA's followers, museum, and non-museum followers in the three investigated platforms (Instagram, Facebook and X/Twitter) consists of 911 respondents. The distribution of respondents by survey and platform is provided in Table 1 (see Appendix). Survey participants' profiles are summarized in a Table, which can be accessed here: <https://bit.ly/surveyparticipants>.

In total, 73 interviews were conducted, lasting approximately 80 minutes each. Table 2 (see Appendix) outlines the number of interviews conducted with the followers of the two case study art museums (the VGM and the MoMA), the followers of museums in general and with social media users who do not follow any museum (non-museum followers) on the three investigated platforms. It should be noted that in three cases it was not feasible to recruit any participants – MoMA Facebook followers, VGM X/Twitter followers, and Instagram users who do not follow museums. Interview participants' information and profiles can be accessed here: <https://bit.ly/museumfollowers> and <https://bit.ly/nonmuseumfollowers>.

It should be emphasized that this is an exploratory study that offers a snapshot of users' practices, perceptions, and feelings, with no claims to generalize the findings. The strength of the study is that it makes both museum and non-museum followers visible and offers an alternative approach to better understand the experiences they have (or could have) on museum social media.

### **3 Findings**

The findings of the empirical study have been analyzed following the analytical and conceptual framework of museum social media experiences, which was developed for the needs of the research. Drawing on Kelty and Ericson's (2018) approach of participation in social media, which highlights its experiential and affective dimensions, and following Hassenzahl's (2013a, 2013b) conceptualization of experience as a complex phenomenon of feelings, thoughts and actions, I interpret social media experiences as a complex phenomenon framed by users' communicative practices, their views, and their emerging feelings through their interaction with museums on social media (Bakogianni, 2022a). This section is organized in three parts: the first one presents the collected data of the surveys and the interviews conducted with museum followers, focusing on the behavioral, the perceptual and the affective dimensions of museum social media experiences; the second one presents the findings, which emerged from the surveys and the interviews carried out with social media users who claimed that they do not follow museums on Instagram, Facebook and Twitter; and the third one concerns

the analysis of users' comments employing the construct of affect to explain users' behaviors and practices.

### **3.1 Museum Followers' experiences**

#### **Users' practices**

It is common for museum followers to give a 'like' to museum content when they see it on their feeds (Holdgaard, 2014; Walker, 2016), but through the research conducted, the meanings that users assign to this practice were also identified. According to findings, people who are used to giving a 'like' to a museum post might want to show their appreciation to the museum and its posted content and support and help the museum to reach more people by affecting the platforms' algorithm. Furthermore, their network (friends and family) is also in their mind, and they are also interested in how others think about them through this action.

According to the study, mainly Instagram and Facebook museum followers hesitate to share and repost content from museums on their social (public) profile. Two things emerge that affect people's decision to share or not share a museum post: the content of the post and the preferences and interests of their friends and family. People are used to sharing content from museums mostly by sending personal (direct) messages to their friends, using the platforms that their friends prefer, indicating how smooth and unified communication can be across different platforms. Fewer people are used to reposting on their profile, or on Stories, museum posts because this content might affect others' perceptions towards them and influence their image.

Although the practice of "not commenting" on museum social media accounts is well-known, the reasons for this are not yet well documented (Holdgaard, 2014; Walker, 2016). According to the findings, four reasons emerged explaining this behavior. First, many museum followers believe that museums do not promote or invite a more dialogic and conversational approach. Second, they are discouraged to comment on public accounts, which do not respond back to commenters. Third, they do not feel confident enough to talk about museum and cultural issues publicly. And fourth, there are people who consider that commenting on social media is associated with negativity and toxicity and want to abstain from this practice.

Furthermore, it is well-established in the literature that only a small part of users interacts and participates actively on social media (Coretti & Pica, 2016; Russo & Peacock, 2009; Shirky, 2008). This is the case with museum social media, too. Remarkably, in this study, I managed to identify those users who adopt passive behavior. Thus, museum followers are used to reading comments on museum posts and having conversations with their friends or family, either online or in-person, over something they saw or read on museum accounts. Reading comments on museum posts indicate that followers pay attention to the posted content, they "listen" to the conversations evolved there and are part of those who follow museum accounts. On the other hand, having conversations over museum content on social media reveals that museum information is becoming relevant to users' daily life.

#### **Users' perceptions**

The research conducted brought to light the insights into the perceptions of museum followers. For instance, survey and interview participants consider that following museums on social media and encountering art there could have a positive effect on their mood and everyday life. There are also those who consider that museums should be relevant to the communities they serve and use their collections to address current social issues (Bakogianni, 2022b). Some people also mentioned their belief in the transformative power of art in all aspects of life.

### **Users' affects/ feelings**

According to findings, the most prevalent feeling for museum followers when they see a post from a museum is "curiosity", while the feelings of "happiness" and "excitement" follow. Furthermore, museum followers highlighted the fact that viewing and interacting with museums on social media made them feel part of an online community, giving them the 'sense of being' at the museum, and feeling 'closer' and feeling 'connected' with museums. For instance, Kelly, an Instagram user following MoMA from the USA, had the feeling of "being" at the museum in a time when most museums around the world were closed due to COVID-19 pandemic. She said:

"I am just grateful to be able to see artwork on a daily basis. It makes me feel like I'm still participating in seeing the museum without being able to visit the museum" (Kelly, between 25-34 years old, following MoMA on Instagram).

### **3.2 Non-museum Followers' experiences**

In my study, I have chosen to address those who do not follow museums on Instagram, Facebook and X/Twitter first, to find out the reasons why they do not follow museums and second, to realize what could motivate them to follow museums, in order to enhance our understanding of how museums could be experienced on social media from the perspective of potential museum followers. It came up that some people were not aware that museums had a presence on social media. Almost all respondents said that not following museums on social media was not a conscious decision, but nothing got their attention until then. It emerged that it is difficult for those who do not follow museums to get museum information on their feeds, because platforms' algorithms usually do not suggest any relative content.

To engage those who do not currently follow museum accounts, social media managers should consider adopting unconventional approaches in presenting content. This could include sharing tidbits of interesting and curious subjects and offering different perspectives and approaches to spark curiosity and imagination, according to what participants in the study mentioned. Additionally, incorporating beautiful pictures, aesthetically pleasing features, and 3D elements may attract the interest of this audience. Moreover, the manner in which social media managers communicate with users is crucial, as Wendy said:

"I think the tone of voice and the personal touch is important" (Wendy, Twitter/X user, between 35-44 years old).

### 3.3 Analysis of users' comments

In order to complement my analysis of the way people experience museum posts on social media, I examined and analyzed users' comments on selected posts from the two case study museum accounts on Instagram, Facebook and X/Twitter. Comments play a generative role in how users make sense of and feel about a museum post. Posts and comments form a whole that affectively comes together, and it is considered an assemblage. My analysis is directed by the feelings, senses, and thoughts that users convey through their comments in reaction to the visual and the textual content of each museum post, and I recognized three ways that users engage with museum posts in comments.

First, they express their appreciation for the post, second, they communicate with the museum, and the other users (e.g., sharing information, thoughts, feelings, tagging friends, etc.), and third, they build personal narratives in public to relate to museum posts.

Furthermore, the orientation that the comments take in relation to the meanings and feelings conveyed in both visual and textual content of museum posts is equally important. Thus, users' comments are either tuned into the meanings conveyed in museum posts or take a different direction away from them. These disrupted comments/ideas, as I call them, may convey a sense of discontinuity or disconnectedness from the museum post. In some cases, these comments may offer an unexpected perspective and enhance the whole experience. These comments may be individual cases, or may generate a stream, and other users follow them. Comments on museum posts are critical to users, and people who administer museum accounts cannot afford to abstain from them.

## 4 Conclusions

Employing a distinct research design, consisting of surveys and online interviews, I succeeded in voicing the views of both current and potential museum followers. I managed to include those museum followers who do not engage in visible interactions on social media but are part of the museum network. I also addressed those users who do not follow museums but have an interest in arts and culture. Furthermore, the study was complemented by online observations of social media data, resulting in a novel approach in the analysis of users' comments where the construct of affect reveals how commenters relate affectively to museum posts. The use of digital tools and social media exclusively to conduct the study demonstrates a new terrain for research purposes, and novel possibilities are emerging for the museum sector and beyond.

The relationship that the museum and its users develop on social media, the dynamics of this relationship, and the users' perspective regarding their preferences and expectations from museums on social media determined the methods and the research design used to address my research objectives. Repositioning museum social media from a tool or use-oriented frame to a socio-cultural frame, I gave the first word to the people who use (or do not use) these accounts, adopting a user-centered perspective.

The used research approach involved collecting data from people and social media content. Adopting a supplementary perspective to my study, I employed a mixed methods design, where quantitative data from surveys was followed by qualitative online

interviews with participants. These two datasets were complemented by collected social media data consisting of users' comments on museum posts. My research example illustrates the potential of mixed methods research approaches to uncover new insights through the complementary combination of methods and offers a novel way of understanding and assessing museum social media experiences, beyond the numbers of likes, views and comments.

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## Appendix

**Table 1.** The distribution of respondents by surveys conducted.

	Surveys conducted	Total responses
1.	Van Gogh Museum' s Facebook followers	25
2.	Van Gogh Museum' s Instagram followers	153
3.	Van Gogh Museum' s Twitter/X followers	19
4.	MoMA's Facebook followers	23
5.	MoMA's Instagram followers	103
6.	MoMA's Twitter/X followers	60
7.	Museums' followers on Facebook	137
8.	Museums' followers on Instagram	102
9.	Museums' followers on Twitter/X	96
10.	Facebook users (non-museum followers)	107
11.	Instagram users (non-museum followers)	30
12.	Twitter users (non-museum followers)	56
	All surveys responses	911

**Table 2.** Interviews numbers and groupings.

	Interviews conducted	Number of interviews
1.	Van Gogh Museum' s Facebook followers	10
2.	Van Gogh Museum' s Instagram followers	12
3.	Van Gogh Museum' s Twitter/X followers	0
4.	MoMA's Facebook followers	0
5.	MoMA's Instagram followers	12
6.	MoMA's Twitter/X followers	4
7.	Museums' followers on Facebook	4
8.	Museums' followers on Instagram	16
9.	Museums' followers on Twitter/X	8
10.	Facebook users (non-museum followers)	4
11.	Instagram users (non-museum followers)	0
12.	Twitter users (non-museum followers)	3
	Total number of interviews conducted	73