

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

The many lives of WeChat: Curating histories of the web in museum environments

This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/2028611> since 2024-10-30T08:41:39Z

Publisher:

Routledge

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)

The many lives of WeChat

Curating histories of the web in museum environments

Simone Natale

<https://orcid.org/0000-0003-1962-2398>

Full reference:

Natale, S. “The Many Lives of WeChat: Curating Histories of the Web in Museum Environments.” In: *The Routledge Companion to Transnational Web Archive Studies*. Eds. Susan I. Aasman, Anat Ben David and Niels Brügger. London: Routledge, 2024, pp. 306-15.

Abstract

The chapter considers the role of museum in preserving histories of the Web, reflecting on how museum practice can provide insights relevant to wider efforts in Web archiving and historiography. Drawing from findings of the AHRC-funded Circuits of Practice project, it discusses the case of the acquisition of social media platform WeChat by the Victoria & Albert Museum through a theoretical perspective that is sensitive to the multiple dimensions or “lives” of the Web and of digital objects in general. The practices and strategies that museums activate to preserve and exhibit elements of the Web provide crucial insights for empowering not only ongoing efforts of museums to curate software Web-based content, but also wider approaches to Web historiography and archiving.

Introduction

Efforts to archive and preserve the history of the Web face enormous challenges, since they deal with objects that are ever-changing, volatile, and inherently situated in specific locations, times and experiences of use. As Brügger (2013) notes, “what is missing in a web archive is specifically the kind of information about ‘the web’ that the web itself usually offers us when we study the online web, such as search results and other information about what ‘the web’ looks like here and now” (757). Much of the materials and the practical experiences that users have of the Web are irremediably lost, due to reasons including the impossibility to record every activity, the complicated boundaries between private and public information, and the specific affordances of digital platforms where large part of online activities are situated but that remain largely outside the historical record (Ben-David, 2019).

Museum practice can provide a useful insight into some of ways to engage with (not, of course, to solve) this conundrum. At different points across the last two centuries, museums have been forced to ask questions about what should be collected and preserved, and consequently, what counts as ‘object’, where the boundaries between the tangible and the intangible can be drawn, and to what extent these boundaries should inform historical research and preservation (Foti, 2018; Graham & Cook, 2015). Today, the case of museums has the potential to contribute to approaches that help tackle broader questions about digital media and history, as curators, museum practitioners and their institutions are forced to reconsider many of the assumptions that have underpinned museum collections and exhibitions for decades.

Drawing from findings of the AHRC-funded Circuits of Practice project, which explored the role of museums in constructing a historical heritage about

computing and digital media (Natale, Parry and Foti, 2022), this chapter interrogates how museums preserve histories of the Web and reflects on how museum practice can provide insights relevant to wider efforts in Web archiving and historiography. From 2019 to 2021, the Circuits of Practice project brought together curators from leading museums in the UK (Bletchley Park, the Centre for Computing History, The National Museum of Computing, the National Science and Media Museum, the Science Museum, the Victoria & Albert Museum) and international institutions (the Computer History Museum in the USA, the National Museum of Emerging Science and Innovation “Miraikan” in Japan, the National Museum of Science and Technology “Leonardo Da Vinci” in Milan, Italy) to address the following overarching question: how do museums narrate modern computing? Findings from this project, particularly regarding the case of the acquisition of social media platform WeChat by the Victoria & Albert Museum (V&A), help reflect on the importance of making web histories and more broadly digital histories “alive” to museum audiences as well as to present and future Web users.

In a series of research workshops, action research methods were used to carry out a series of practical interventions within the museum partners (Natale, Parry and Foti, 2022). Action research brought together practical action and theoretical reflection in the pursuit of practical solutions to issues of pressing concern (Reason and Bradbury, 2001). Set within the overall design thinking structure, the action research allowed Circuits of Practice to move from practical problems and issues faced by each of the museum partners to work creatively and responsively with practice-based methods. The workshops involving V&A were framed within the second research group of Circuits of Practice, which addressed the question of how artefacts and objects are mobilized to narrate histories of modern computing. Based in

London, V&A was founded in 1852 and is today the world's largest museum of applied arts, decorative arts and design. With a permanent collection of over 2.27 million objects, the museum preserves and exhibits the cultural heritage of design, covering the history of applied arts in the UK and in the world.

In this chapter, I first present the theoretical framework developed through the project. Then I move to the examination of a specific case, V&A's curation of the social media platform WeChat (Kane et al., 2024). As I will show, this example provides insights that can empower ongoing efforts of museums to curate digital objects, including Web-based content and software, as well as wider approaches to transnational Web historiography.

The many lives of digital objects

Rosemary Joyce and Susan Gillespie (2015) have criticized the use of the “life” metaphor to consider material objects, contending that such notion replicates cultural bias that project the dynamics of human lives (e.g. birth, death, etc.) into objects, and proposed to use instead the more neutral notion of “itineraries.” While it is true that things and especially objects related to computing are often the subject of anthropomorphization, the idea that things have “lives” can be helpful especially it helps to acknowledge and critically examine how such projections and appropriations shape the ways material objects are appropriated and narrated across time. Exactly because things are inseparable from the social and cultural values and ideas that people attach and project onto them, examining their life trajectories framework illuminates the trajectories that shape our perception, representation, and engagement with material objects (Natale, 2016).

Using the plural form is crucial here since digital objects, which includes webpages, software, hardware and other materials related to web histories and archiving, have not just one but multiple biographies. As Domínguez Rubio (2016) underlines, any consideration of objects and artefacts should pass through the acknowledgement that things are subject to material processes that unfold over time. It is impossible to understand objects without a consideration of their fragile and temporal realities (Bell and Geismar, 2009; Ingold, 2012). Although digital media are sometimes treated as immaterial, they are never “pure information,” as any single bit is stored and processed through and within material technologies and networks (Kirschenbaum, 2008; Rinehard & Ippolito, 2022).

Second, beside their material trajectories in time, digital objects are also integrated in wider social structures and interactions. A crucial tradition of thought in anthropology and in art theory has unveiled that things, like people, have a social life (Appadurai, 1986; Gell, 1998). In Gell’s own words, “social agency can be exercised relative to ‘things’ and social agency can be exercised by ‘things’ (and also animals)” (Gell, 1998, pp. 17-18); therefore, artifacts can appear as agents in particular social situations. The meaning of objects, including the web (de Wild, 2019), is continually renegotiated within a process that informs their social status and their material circulation (Lesage, 2016), as well as the feelings and emotions people project onto them (Turkle, 2007).

Third, and finally, objects also have discursive lives: they are not only material things but also things that people perceive, imagine and talk about. Societies and individuals attribute ideas, appreciations, values to specific objects at any moment of time. This level of the discourse is not irrelevant to understand objects’ trajectories, since it informs how people, but also groups and institutions, approach and interact

with them (Reynolds, 2018). If anything, this dimension is especially relevant to digital objects, due to the degree of technical opacity that often characterizes digital objects. Since the functioning of hardware and software artefacts remains obscure to many, the narratives that circulate in the public sphere about digital objects play a strong role in directing their representation as well as their pragmatic uses: think, for instance, of the narratives and constant controversies about AI technologies and how they inform users' engagement with these technologies (Natale, 2019).

It is important to underline that these dimensions, when it comes to examining the trajectories of any specific object or artefact, cannot be treated as separated or distinct. All digital objects have material, social and discursive "lives," and the relationship between the three dimensions is subject to constant transformations and modifications across time. The advantage of considering the three dimensions, therefore, is that they help acknowledge the dynamic character of digital objects – the fact, in other word, that digital objects cannot be defined or described in univocal or fixed ways, but need to be examined and understood against complex social, material and discursive environments.

Explorations into web archiving and historiography have shed light on the fact that only the application of a wide range of different approaches, methodologies and practices can help fill at least some of the gaps left by existing projects and processes capturing online materials at different movements of time (Musso and Merletti, 2016; Ben-David and Amram, 2018). If it is true that a better understanding of the Web of the past is a condition for gaining a more complete understanding of the Web today (Brügger, 2018), only a perspective that is attentive to the multifaceted dimensions of digital objects' trajectories or "lives" has the potential to truly enhance such understanding. Preserving the past of the Web, in this sense, entails more than just the

material preservation of webpages: it also needs to embrace the social and the discursive dimensions that are an indissoluble part of what gives “lives” to the Web and to digital media in general.

An online platform is always more than one: The case of WeChat at the Victoria and Albert Museum

As cultural heritage institutions, museums aim at both the preservation of objects of the past and its exhibition to the public; therefore, their practices are particularly aimed at unveiling the different dimensions of digital objects lives (Keramidas, 2015; Foti, 2018). In both exhibiting and collecting, for instance, the Software History Center of the Computer History Museum in California, US, developed a holistic approach to software preservation which included its technical and material dimension (e.g. preservation of source code, but also the material culture of franchising and packaging objects associated to specific pieces of software), its social dimension (e.g. oral testimonies, the reenactment of hardware and software interfaces that shape users’ experiences) and its discursive dimensions (e.g. commentaries and reports shedding light on the software’s reception and impact, see Weber, 2016).

The acquisition of a social media platform operated by a major cultural heritage institution, the Victoria & Albert Museum in London, UK, provides an ideal example of how this approach can be mobilized to preserve and exhibit contents and software that constitutes the history of the Web. Three research workshops in the Circuits of Practice project focused on the case of Victoria and Albert (V&A)’s acquisition of WeChat (Cormier, 2017), a digital platform with over one billion users, most of them in China (Negro, 2017: 193-208). The workshops were conducted with the participation of three V&A staff members, Corinna Gardner, Natalie Kane and

Juhee Park. The first workshop, called “REFLECT,” aimed to identify and elaborate key concepts and a common vocabulary to be activated in the collaborative research. The second workshop, called “READ,” aimed to apply the conceptual tools developed in the first workshop on the case study of WeChat’s acquisition at the V&A. Finally, the third workshop was called “RESPOND” and aimed to mobilize work done in the first two workshops to feed back with practical suggestions and inputs that contribute to curatorial knowledge and practices at V&A. The complex strategies and practices that V&A developed and applied to complete this acquisition represent an exceptionally useful case study of efforts to integrate into the museum collection a Web-based platform whose ever-changing, volatile character makes it particularly challenging to preserve (Ben-David, 2019).

WeChat (*Weixin* in Chinese) is a social media platform launched in 2011 by Tencent, a major actor in China’s tech industry. Originally marketed as a messaging app, WeChat has taken up more and more functions, such as booking systems for different kinds of public and private services as well as electronic payments (Peng and Wang, 2021). Due to the breadth of available functions and its pervasive role in the everyday experience of many of its users, WeChat has been indicated as one of the most evident examples of the infrastructuralisation of digital platforms. As Plantin and de Seta argue (2019: 262), “because of the ever-increasing number of WeChat’s functions, it has become increasingly hard to live in China without a WeChat account.”

The acquisition of WeChat was proposed in 2015 by V&A curators Luisa Mengoni, Corinna Gardner and Brendan Cormier (Kane, Gardner & Park, 2024). The opportunity to add WeChat to V&A’s collection was first provided in the context of the exhibition ‘Values of Design’ for the V&A Gallery at Design Society in

Shenzhen, China. Curators from V&A met for the first time with members of the Tencent design team in 2015, expressing interest to add WeChat to the museum's permanent collection. As V&A Senior Design Curator Brendan Cormier (2017) recounts, V&A curators at this stage "weren't sure ourselves how that might work," due to the particular nature of this object. Curating software, in fact, presents specific challenges to museums, not only for its allegedly immaterial nature but also and especially for its situated and performative character (Foti, 2018). As historian of computing Michael S. Mahoney points out, what makes the history of software hard is that it is not only or even not primarily about computers: software reflects the histories of the communities that created them, and the cultural, social and practical circumstances underpinning its adoptions and uses (Mahoney, 2008). An additional complication, moreover, is that the very functioning of a social media platform such as WeChat relies on the information shared by its community of users. This not only opens the question of the difficulty to distinguish between software and data, but also problematizes the possibility to draw clear boundaries between digital objects and networks.

As an institution whose mandate revolves around the cultural heritage of arts and design, V&A was strategically placed to tackle such challenges (Atkinson, 2018). In collecting and exhibiting artefacts related to histories of design, V&A throughout its history has often faced the need to consider elements such as the experience of users and the performative dimensions of objects (Burton, 1999). The accumulated expertise and cultural identity of the institution informed the approach of V&A curators and helped them respond to the challenges posed by the acquisition of WeChat (Cormier, 2017).

Approaches that consider reproducibility of technical dimension as crucial to the conservation of digital objects (Agar, 1998) tend to consider the preservation of source code, and thus the capacity to reproduce the technical functioning of the object, as essential to preserving software (Di Cosmo, Gruenpeter and Zacchiroli, 2018). Such an approach presents, however, significant problems, including the need to adapt to different standards and programming languages and of preserving adequate hardware and software infrastructures where the software can run. Moreover, the difficulty - often, the impossibility – to have access to proprietary software code makes the preservation of source code impossible in many cases.

The design-oriented approach that characterizes the V&A, in this regard, provided the context to develop a holistic and flexible approach that brought software's social and the discursive dimensions to the center stage. Since acquiring a copy of a social network app would have been of little use without its insertion in the original networked space, the museum acquired not only a copy of the software but also an offline demonstration, in the form of a video, which illuminates crucial aspects of the software's user experience. The acquisition also included materials such as interviews and testimonies of the design process and development of the WeChat interface, as well as a selection of contents such as stickers and GIFs and a 2011 demo .apk file of the first release of WeChat, which had been used to pitch the network to Apple's AppStore (Kane, Gardner & Park, 2024). In V&A exhibition spaces, moreover, WeChat was framed alongside other objects and narratives that illustrated wider trajectories within the history of design. This contextualization in the museum's gallery further emphasized issues such as user experience and interface design for the presentation of WeChat.

The acquisition of WeChat and its exhibition in V&A galleries, therefore, was the result of the recognition that WeChat, like every other software, is not a discrete object that can be described and defined in univocal terms, but a multifaceted object that escapes fixed and rigid attributions of meaning and cannot be strictly separated from the wider technological, social and discursive networks that surround it. As a result, its acquisition within the museum's collection required the assemblage of not one but a plurality of objects that gave access to its multiple dimensions, emphasizing those that were deemed of special relevance to the museum, its visitors, and its mandate of preserving the cultural heritage of design.

WeChat's acquisition, in this sense, shows how practices for curating software can emerge not only and not predominantly by tackling the question of "what is software" in absolute terms, but rather by interrogating what software means from the particular point of view of the institution that operated the acquisition. The framing of WeChat as an object relevant to the history of design functioned as a prism to project specific dimensions of the object, such as the user experience, which appear central to the contextualization of software within the V&A.

At a discursive level, the exhibition of WeChat activated not to a single narrative but a plurality of narratives. On the one side, exhibiting a social media platform evokes personal experiences of visitors with software and social networks, opening up the opportunity for mobilizing private and collective memories regarding life online (Papacharissi, 2002). On the other side, the fact that this specific platform is strongly characterized as Chinese (Negro, Balbi and Bory, 2020) highlights the fact that digital media are both universal as well as culturally specific (Bell et al., 2018). The acquisition of WeChat, finally, produced a meta-narrative about the agency of

V&A itself, demonstrating the museum's capacity to shape new approaches that will impact on the politics of curating and exhibiting digital objects (Cormier, 2017).

V&A's flexible, design-oriented approach to software objects is enabling the institution to further advance its politics of acquisition in the area. The experience with WeChat, in fact, demonstrated that acquisitions of software in the museum's collection can be rigorous and productive even in the absence of elements that other cultural heritage institutions might consider central, such as the acquisition of software's source code. This is important also because it means that the museum might look for future acquisition of other networked, proprietary apps that shape everyday experiences of large masses of people around the world.

More broadly, the case under exam shows that rather than one definition of software, there are multiple definitions that are situated and contextualized alongside specific approaches, contexts, and points of views. While particular dimensions of WeChat were central to its acquisition at V&A, other institutions whose scope relate, for instance, to the history of science and technology rather than design, would have privileged different dimensions of the object and thus might have acquired different materials to be preserved and exhibited at the museum. The case of V&A's acquisition, in this sense, reminds us that digital objects are not to be defined in absolute terms but rather against the contextual and the circuitry of relations and attributions that surround and adds "lives" to them.

Conclusion

The case examined shows how in preservation practices within a museum environment, digital objects are never defined or understood in univocal ways. Their definitions, meanings and values emerge through and within a network of relations

between the objects, the other objects in the collection, the curators and practitioners, the institutions, and the visitors of the museum. In preparing WeChat for both the museum's exhibition and collection, curators selected the "lives" of the platform that were more relevant to the institution, its missions and its target public, but at the same time mobilized elements of all three dimensions highlighted above, i.e. the material, the social, and the discursive lives of WeChat. In this context, new practices on how to curate Web-based objects developed not only and not predominantly by posing the question of "what is software," but rather by interrogating what software means from the point of view of a design history museum.

The practice-based research conducted within the Circuits of Practice project provides not just insight into museum practice but also, more broadly, a gateway to consider the multidimensional nature of Web content and its impact on Web archiving and preservation. As Domínguez Rubio (2016) put it, "objects are anything but given or self-evident." The museum functions in this regard as a laboratory in which meanings, uses, and definitions of digital objects are self-reflectively negotiated and where the relational circumstances that characterize digital objects becomes manifest.

Importantly, rather than diverging from the characteristics of digital objects outside of the museum, the trajectories of digital objects in museum's collections and exhibitions are in a relationship of continuity with the material, social and narrative trajectories of digital objects outside the museum (Keramidas, 2015). Much like digital objects become repositories of multiple social uses, meanings, and exchanges as they are created, used, circulated, and eventually discarded in everyday life, so do digital objects establish a relational and iterative social "circuit of meaning" within the museum environment. The relational character of digital objects resonates, moreover, with the multiple ways in which visitors navigate the exhibitions, engaging

with digital objects just like the ones they encounter in their everyday life and projecting their own previous experience and ideas about digital media.

One aspect that deserves additional emphasis is the transnational character of V&A's acquisition. Online platforms may trespass national and linguistic contexts, yet at the same time they often bear trace of the cultures in which they emerge and are used (Peng & Wang, 2021). WeChat's acquisition worked, in this sense, also as a strong acknowledgment of the need for perspectives that are sensitive to the global dimension of the web and of digital media in general (Arora, 2019), and therefore, of digital heritage. Moreover, considering how tech corporations customarily struggle to shape histories of the digital placing their own role and agency at center stage (Natale, Bory and Balbi, 2019), WeChat decision to collaborate with V&A should also be read alongside Tencent's wider efforts to expand in the Western market. In fact, Tencent made in the 2010s some significant marketing investments to expand its platform across its traditional areas of use. In contrast to other social media platforms which were launched originally in China, such as TikTok, this strategy was, however, only partially successful for WeChat (Negro, 2017).

Museum practice, in conclusion, invites us to emphasize the need of considering the multiple dimensions of Web contents and software to question what needs to be preserved of the Web and how to do so (Parry, 2010). As Brenda Laurel (1993) noted, a "computer-based representation without a human participant is like the sound of a tree falling in the proverbial uninhabited forest." The lively community of historians, archivists, librarians, curators, practitioners and volunteers who contributed to this endeavor have developed very different approaches and strategies in order to archive the Web (Brügger, 2018). The diversity of the professional and institutional contexts to which such efforts are based – from museums to archives,

from public libraries to user-based practice – cannot but add to the breadth of perspectives through which the different dimensions of the Web and of digital content in general are introduced and preserved in the historical record.

While museums and archives have different mandates and approaches, they share their broader mission as repositories of public knowledge in the information age (Usherwood et al., 2005). Scholars have called for the need to diversify institutions such as libraries, archives and museums, since each of these operationalize very different ideas and practices about memory and preservation (Robinson, 2012). Much, however, can be gained also from perspectives that consider the common challenges that these institutions address and takes into account the different responses and choices that they make towards a common effort.

At V&A, decisions regarding the acquisition of a complex digital object such as a social media platform were informed not only by the need to make WeChat into an element of both the collection and its exhibition, but also by considerations about the institution’s mission as a museum of design. Other institutions would have taken very different decisions about which materials to acquire to introduce a record of WeChat in the museum (Natale, Foti & Parry, 2024). Similar choices, of course, limited the range of dimensions that were collected about WeChat in this acquisition; but at the same time, they ensured that aspects of WeChat that would have not made it into the record at other institutions – such as, for instance, video recordings providing a dynamic testimony of the platform’s interface – were included in the museum’s collection.

Transposed into wider debates about web preservation, therefore, the case examined here shows how much can be gained from considering the challenge of web archiving as a collective effort. Because digital media are multifaced objects that have

not one but multiple ‘lives’, the diversity of institutions (as well as groups and individuals) that contribute to the preservation of elements of the web has special value. The challenge of preserving the web, therefore, entails the involvement of a variety of actors, each shedding light on specific dimensions of objects related to the histories of the web.

Acknowledgments

The author is grateful to the Arts and Humanities Research Council (AHRC) UK, for its generous support of the ‘Circuits of Practice’ project 2020-21 (AH/T00276X/1). I would like to thank our project partners and particularly the V&A curators who participated in the workshops and helped shed light on the case presented in this chapter: Corinna Gardner, Natalie Kane and Juhee Park.

References

- Agar, J. (1998). Digital patina: Texts, spirit and the first computer. *History and Technology*, 15(1–2), 121–135.
- Appadurai, A. (1986). *The social life of things: Commodities in cultural perspective*. Cambridge University Press.
- Arora, P. (2019). *The next billion users: Digital life beyond the West*. Harvard University Press.
- Atkinson, P. (2018). The Role of Design History in the Museology of Computing Technology. In Moret, O. (ed.) *Back to the future: The future in the past: Conference Proceedings*. Edicions de la Universitat de Barcelona, pp. 464-468.

- Bell, J. A., Kuipers, J., Hazen, J., Kemble, A., & Kobak, B. (2018). The Materiality of Cell Phones Repair: Re-making Commodities. *Anthropological Quarterly*, 91(2), 603–632.
- Bell, J.A. & Geismar, H. (2009). Materializing Oceania: New Ethnographies of things in Melanesia and Polynesia. *The Australian Journal of Anthropology*, 20(1), 3-27.
- Ben-David, A. (2019). 2014 Not Found: A Cross-Platform Approach To Retrospective Web Archiving. *Internet Histories*, 3(3–4), 316–342.
- Ben-David, A., & Amram, A. (2018). The Internet Archive and the socio-technical construction of historical facts. *Internet Histories*, 2(1–2), 179–201.
- Brügger, Niels (2018) *The Archived Web: Doing History in the Digital Age*. MIT Press.
- Burton, A. (1999). *Vision & accident: the story of the Victoria and Albert Museum*. V&A Publications.
- Cormier, B. (2017). How We Collected WeChat. Available online at https://web.archive.org/web/20230715000000*/https://www.vam.ac.uk/blog/international-initiatives/how-we-collected-wechat (retrieved 24 February 2021).
- De Wild, K. (2019). *Internet Art and Agency: The Social Lives of Online Artworks*. PhD Dissertation, University of Dundee.
- Di Cosmo, R., Gruenpeter, M., & Zacchiroli, S. (2018). Identifiers for digital objects: the case of software source code preservation. In *iPRES 2018: 15th International Conference on Digital Preservation* (pp. 1–9).
- Domínguez Rubio, F. (2016). On the discrepancy between objects and things: An ecological approach. *Journal of Material Culture*, 21(1), 59–86.
- Foti, P. (2018). *Collecting and Exhibiting Computer-Based Technology: Expert Curation at the Museums of the Smithsonian Institution*. Routledge.

- Gell, A. (1998). *Art and agency: An anthropological theory*. Clarendon Press.
- Graham, B., & Cook, S. (2010). *Rethinking curating: Art after new media*. MIT Press.
- Ingold, T. (2012). Toward an Ecology of Materials. *Annual Review of Anthropology* 41, 427-442.
- Joyce, R. A. & Gillespie, S. D., Eds. (2015) *Things in Motion: Object Itineraries in Anthropological Practice*. SAR Press.
- Kane, N., Gardner, C. & Park, J. (2024) Social media enters the museum: Collecting WeChat at the Victoria & Albert museum. In S. Natale, P. Foti & R. Parry (Eds.), *Museums and the history of computing: Objects, narratives and practice*. Routledge.
- Keramidas, K. (2015). *The interface experience: A user's guide*. Bard Graduate Center.
- Kirschenbaum, M. G. (2008). *Mechanisms: New Media and the Forensic Imagination*. MIT Press.
- Laurel, B. (1993). *Computers as theatre*. Addison-Wesley.
- Lesage, F. (2016). A Cultural Biography of Application Software. In C. Paterson, D. Lee, & A. Saha (Eds.), *Advancing Media Production Research: Shifting Sites, Methods, and Politics* (pp. 217–232). Palgrave Macmillan.
- Mahoney, M. S. (2008). What makes the history of software hard. *IEEE Annals of the History of Computing*, 30(3), 8–18.
- Musso, M., & Merletti, F. (2016). This is the future: A reconstruction of the UK business web space (1996–2001). *New Media and Society*, 18(7), 1120–1142.
- Natale, S. (2016). Unveiling the biographies of media: On the role of narratives, anecdotes and storytelling in the construction of new media's histories. *Communication Theory*, 26(4), 431–449.

- Natale, S. (2019). If software is narrative: Joseph Weizenbaum, artificial intelligence and the biographies of ELIZA. *New Media and Society*, 21(3), 712–728.
- Natale, S., Foti, P. & Parry, R., Eds. (2024). *Museums and the history of computing: Objects, narratives and practice*. Routledge.
- Natale, S. Parry, R. & Foti, P. (2022) Circuits of Practice Research Report: Narrating Histories of Computing and Digital Media in Museum Environments. Loughborough: Centre for Research in Communication and Culture, Loughborough University.
- Natale, S., Bory, P., & Balbi, G. (2019). The rise of corporational determinism: Digital media corporations and narratives of media change. *Critical Studies in Media Communication*, 36(4), 323–338.
- Papacharissi, Z. (2002). The virtual sphere: The internet as a public sphere. *New Media & Society*, 4(1), 9–27.
- Parry, R. (2010). *Museums in a Digital Age*. Routledge.
- Peng, W., & Wang, W. Y. (2021). Buying on Weixin/WeChat: Proposing a sociomaterial approach of platform studies. *Media, Culture & Society*, 43(5), 945–956.
- Plantin, J. C., & de Seta, G. (2019). WeChat as infrastructure: the techno-nationalist shaping of Chinese digital platforms. *Chinese Journal of Communication*, 12(3), 257–273.
- Reynolds, D. (2018). *Media in Mind*. Oxford University Press.
- Negro, G. (2017). *The Internet in China: From Infrastructure to a Nascent Civil Society*. Palgrave Macmillan.
- Negro, G., Balbi, G., & Bory, P. (2020). The path to WeChat: How Tencent’s culture shaped the most popular Chinese app, 1998–2011. *Global Media and Communication*, 16(2), 208–226.

Rinehart, R., & Ippolito, J. (2014). *Re-collection: Art, new media, and social memory*. MIT Press.

Robinson, H. (2012) Remembering things differently: museums, libraries and archives as memory institutions and the implications for convergence. *Museum Management and Curatorship*, 27(4), 413-429,

Turkle, S. (2007). *Evocative objects: Things we think with*. MIT Press.

Usherwood, B., Wilson, K., & Bryson, J. (2005). Relevant repositories of public knowledge?: Libraries, museums and archives in 'the information age'. *Journal of Librarianship and Information Science*, 37(2), 89-98.

Weber, M. (2016). Self-Fulfilling History: How Narrative Shapes Preservation of the Online World. *Information & Culture*, 51(1), 54–80.

Author bio

Simone Natale is Associate Professor in Media Theory and History at the University of Turin, Italy, and an editor of *Media, Culture & Society*. His latest monograph is *Deceitful Media: Artificial Intelligence and Social Life after the Turing Test* (Oxford University Press, 2021), and he is also the author of numerous articles in journals including *New Media and Society*, *Communication Theory*, the *Journal of Communication* and *Convergence*. His research has been funded by international institutions including the AHRC, ESRC, the Humboldt Foundation, and Columbia University's Italian Academy.