ONLINE EXHIBITIONS AND ONLINE PUBLICATIONS: INTERROGATING THE TYPOLOGIES OF ONLINE RESOURCES IN ART MUSEUMS

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ABSTRACT | As art museums undergo a digital transformation, institutions rethink physical exhibitions and print publications to create online resources that expand or replicate them. Collection websites, online exhibitions, online publications, exhibition websites, and online exhibition catalogues coexist with interactive features that cannot be easily categorized in the previous typologies, the exhibition and the publication. Often these different types of online resources share characteristics and functions. This article focuses on two of the most relevant online resources' typologies in art museums: the online exhibition and the online publication. The aim of it is to discuss and understand what makes them similar or dissimilar and ultimately call into question the two typologies' accuracy. The discussion is built upon empirical data representing the perspectives of art museum practitioners and a scholarly audience. The viewpoints of the two collectives help us understand existing conventions and interpretations with regards to online exhibitions and publications in art museums.

KEYWORDS | exhibition/presentation, GLAM institutions, scholarly publishing, data-driven narratives, online resources

Two discursive typologies, as well as material configurations, prevail to this day in art museums, these are the exhibition and the publication[1]. With the adoption of digital media, museums produce online resources inspired by the exhibition and the publication models. Online exhibitions and publications have been increasingly produced by museums as they expanded their web presence in the last decades. In the process of remediation[2], from the physical exhibition and print publication to their digital reinventions, art museums replicate, revise, and enhance the qualities of the two types. While some art museums' online resources are digital replicas of the exhibition or the publication, some online resources distance themselves from the exhibition and the publication models. Some online resources are hybrids that integrate features from both the exhibition and publications model. Differentiating them becomes a difficult task. An interrogation of art museums' online resources typologies based on the exhibition and publication models reveals the existing overlaps and contradictions in the way each typology functions invite us to consider whether we need to establish new typologies.

Beyond terminology

The scrutiny of the terminology used by museums and museum studies literature helps to reveal existing coincidences and contradictions between the two types. Terminology differentiates the two types, yet it is used inconsistently in some cases, revealing overlaps between online exhibitions and online publications (Figure 1). A review of museum studies texts and museums' websites shows that the term online exhibition is used to refer to several types of online resources: the website or interactive feature that accompanies a physical exhibit[3], a virtual reconstruction or reproduction of the museum galleries[4], an exhibition that exists exclusively online[5], and a multimedia and interactive resource about museum objects[6]. Additional, and more descriptive terms, are also used to refer to online exhibitions. Some articles employ the term "exhibition subsite"[7], others use "online interactives or projects"[8] or "online galleries"[9]. But this is not always necessarily the case. Sometimes authors employ terms in a questionable manner revealing the disparate frameworks defining the
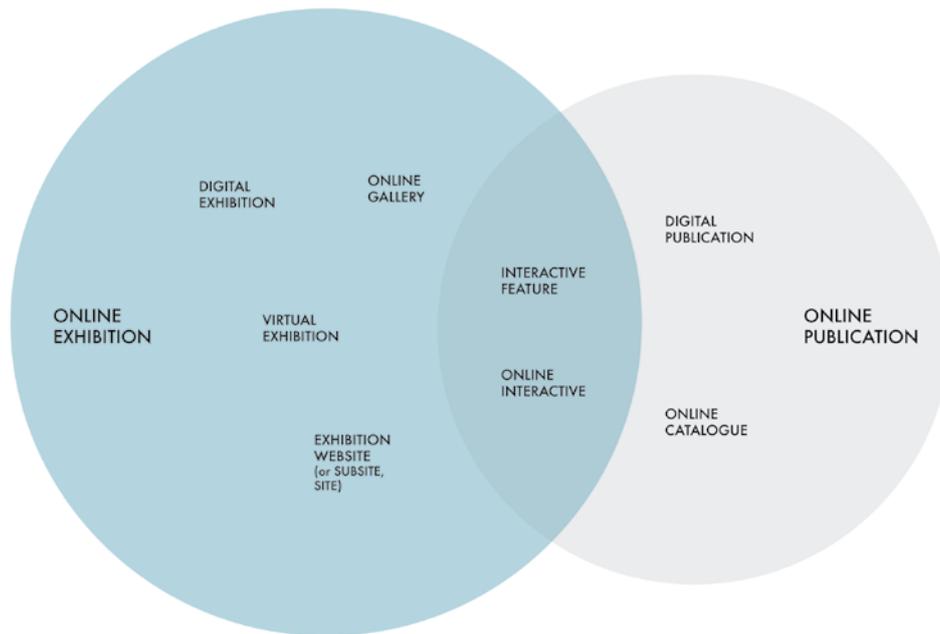
Figure 1. The diagram illustrates the terms museums and museum studies literature use to label online resources and highlights the overlaps between the notion of online exhibitions and online publication.

typology. A recent study uses "virtual exhibition" to broadly refer to "online exhibition, online museum, virtual museum, digital museum, museum website, and e-museum."[10] This ambiguous use of the term does not take into account early discussions of online exhibitions which acknowledge a difference between the museum website and online exhibitions: "a website hosted by a Museum is not in and of itself, an online exhibition"[11]. Additional approaches to terminology raise further issues around the conception of online exhibitions. Galleries tours can be excluded from definitions of the online exhibition. For instance, in her studies, Liew[12] does not consider three-dimensional views of galleries as online exhibitions. Marty[13] instead groups "online tours of galleries/interactive exhibits" together. "Interactives/online exhibitions"[14] are, according to del Río, the two ways to denominate the same resource. Yet, museums' interactives might not be recognized as online exhibitions. In fact, a major museum lists on its website the same online resources under two different categories, online interactives and online publications[15], suggesting that interactive resources can also be online publications. This leads to the next point: online exhibitions can be categorized as online publications, and vice versa. Paradoxically, online publications are identified as online exhibitions in professional forums. This is reflected in the categories of awards given in a professional conference in which a couple of online publications are included in

the category of "online exhibition"[16]. Literature also argues that the role of the online exhibition can be fulfilled by other resources because "online publications (...) could facilitate such experiences"[17].

The online publication type is representative of a range of varieties, from digitized catalogues often downloaded as PDFs[18], catalogues in e-book formats[19], rich media catalogues that include exhibition catalogues, collection catalogues, and catalogues raissonés[20], to general audience-oriented online publications associated with both temporary exhibitions and permanent collection[21]. As with online exhibitions, generic terms are used to designate the various types of online publications. Online catalogues, e-catalogues, online publications, online editions allude to either digitized catalogues, e-books, or rich-media web-based catalogues. While in principle digitized and e-book formatted catalogues are easily recognized as publications, the status of web-based catalogues is under interrogation. It is perhaps the increasing popularization of rich-media web-based scholarly catalogues[22] that clarifies the discussion of the relationship between the online publication and the online exhibition. Interestingly, promoters and producers of online scholarly catalogues draw upon online "exhibition modules"[23], as well as the collection database and printed books[24], to generate their new publications revealing relevant connections between typologies. As online publications reconceptualize the printed catalogue,

become hypertextual (and more multimedia), similarities between the online exhibition and the online publication arise.

A method to study typologies

Museum studies and museum practice literature rarely engage in debates around the two typologies, and a discussion exclusively centered on typologies is not a frequent topic of debate. Some texts have focused on describing and identifying subtypes of online exhibitions[25], and online publications[26] as well as comprehensively surveying existing online exhibitions[27], Therefore, comparing the two types requires a review of existing literature on the matter as well as a closer examination of professional practice and audience reception. Accordingly, the methodology used in this research is not exclusively focused on existing discussions that museum studies texts offer, and draws upon empirical qualitative data to expand on existing arguments.

A comprehensive survey of art museums' online resources was compiled to give a picture of the variety of typologies[28] and chose online resources for further study. The survey includes online resources labeled by art museums as online exhibitions, online publications, and analogous types, such as interactive features, online catalogues, or exhibition websites. Six online resources from the survey, encompassing online publications, online exhibition catalogs, and interactive features, oriented to either a scholarly audience and the general public, were finally selected in order to obtain relevant data. The final online resources are from six major museums from the United States, the United Kingdom, and Spain. The titles of the selected resources are: Online Editions[29], Object:-Photo[30], 82nd & Fifth[31], Bosch. A story in pictures[32], Featured Artworks33, and Building the Picture: Architecture in Italian Renaissance Painting[34]. These online resources illustrate the variety of functionalities and features museums employ online. Subsequently, ten art museums professionals—curators, editors, and digital media professionals—involved in the development of the selected online resources were interviewed[35]. The interview questions were aimed at understanding how online resources are produced. The perspective of the audience, a scholarly audience of twenty individuals in this case[36], was captured through think-aloud protocol performed during the visit of the online resources and retrospective questions. Some were designed to determine what led them to consider an online resource an exhibition or a publication.

The data and responses are interpreted from a textual approach that sees the "museum-as-text"[37]. This approach that studies how museums represent and communicate narratives and discourse, provides a strong framework to examine the mediality of the museum, its space and temporality, as well as audience perspectives. In fact, both responses from museum producers and audience resonate with this textual approach. The emerging topics exposed in this article relate to the notion of museums as narratives, a debate on online resources' mediality marked by the differences between visual and verbal or the image and the text, temporal and spatial dimensions of online resources, and the implied audience and purpose of the resource.

Discourses and narratives

Like their physical counterparts, online exhibitions and publications are used by art museums to present the stories of their artworks and collections to the audience. In museums, narratives order "non-discursive and random collection of objects."[38] Texts remark that from "the thousands of digitized museum images in existence, only a small percentage of them are immediately compelling or engaging. Most digital reproductions only gain depth when they are presented as part of a larger story."[39] Museum studies texts have highlighted the narrative ordering that guides exhibitions. Since their inception, online exhibitions have presented themselves as discursive or narrative constructions. Besser states that multimedia exhibition packages "offer a coherent view of some domain"[40] This opinion is shared by others. An online exhibition "should do more than put collections online; it should reveal the underlying relationships that transform a random collection of objects into a meaningful exhibition."[41] In order to form an exhibition, museum objects should be carefully chosen "to illustrate a theme and tied together by a narrative." [42] The novelty of online exhibitions resides in its multimediality, a feature used by museums to "present more vivid narratives and deeper contextual information."[43] But narrativity is not exclusive to online exhibitions, publications present a similar characteristic. Online publications are an alternative to online collections databases that "present a comprehensive collection with little information"[44]. Publications extend the narratives of individual objects and provide an overarching narrative that unifies them. Online publications provide the audience with "structured narrative experience with opportunities for self-guided exploration"[45] thanks to a model that combines the best of the book-like linear narratives with the parsed structure of the hypertext and the database.

Narrativity and discursiveness of online exhibitions and online publications is a clear nexus point between the two types of online resources. Research data confirms the clear narrative or discursive intention guiding the creation of online publications and exhibitions as much as it shows how online exhibitions, more than online publications, are recognizable

by the audience because of the overarching narratives and discourses that tie objects together. Every museum professional interviewed for this research alluded to their narrative or discursive intentions as they produce online resources. The presentation of a conclusive statement[46] is implicit in the design of any online resource, regardless of whether they are online exhibitions and online publications. Mirroring the above quotations, discourses and narratives serve museums as ordering and contextualizing tools. As museum practitioner number four explains:

For example, a lot of museums tend to think if you have a collection online then you're done, this is, our whole collection is online that's a big achievement but there is no context, that you're not telling people how to look at it. And I think when I, as a regular visitor, come to the website and see we have 400.000 records I don't care. Where do I start? What should I start with? What is interesting?[47]

The views from the audience prove that if an online exhibition and an online publication related to a physical exhibition are identified as such is due to the presence of an "overarching theme or concept"[48] in them. Scholar number fifteen argues that "an exhibition should be guided by a thesis, a discourse."[49] However, even if the research does not show that participant scholars distinguish an online resource as online publication because of that very reason, the data demonstrates that overarching themes and narratives are also present in online publications. When visiting online publications the audience of scholars pays particular attention to titles, introductions, and other indicative texts that provide a sense of the scope and argument of the resource and what links artworks together.

In short, online exhibitions and online publications are defined by the narrative and discursive character. This common characteristic would effectively differentiate both online exhibitions and online publications from collection databases, but not the two types that are under analysis in this research. In continuing this comparison, attention is directed towards differences in the way narratives and discourses are articulated in online exhibitions and online publications. Are they directed towards a different implied audience? Do they use different spatial and temporal forms? What defines their mediality?

Implied audience

Online exhibitions and online publications are developed by art museums with an audience in mind. The notion of "implied reader", coined by Iser[50], mirrors the concept of an "implied audience" understood as the presupposed audience of an online resource. This concept becomes useful when applied to the distinction of typologies. A widespread assumption is that certain online resources appear to be better suited to specific audiences than others. Museum studies texts reinforce this idea. On the one hand, online exhibitions are generally conceived to educate and engage a general audience with limited knowledge of art historical scholarship and is often deemed an "educational" online resource[51]. On the other hand, most accounts on online publications describe publications that serve specialized audiences, namely scholars[52]. Some museum projects have sought to override preconceptions related to the implied audience and purpose of the two typologies of online resources. From an online exhibition with the "scholarly authority" of a major institution in-gallery exhibition[53], to an online interactive resource that refuses to provide educational content which is "distilled and summarized in small, layered didactic chunks" and involves scholars in the co-authoring of content[54]. These examples demonstrate that the focus of online exhibitions and interactives is not limited to basic and introductory contents suited to the general public. If online exhibitions and online publications may indeed have the same scholarly value and potential and be oriented to the same audiences, can we differentiate them based on these principles?

Relevant and even surprising insights emerge from research data that call into question dichotomies of education/research and general audience/scholarly audience. Some participant scholars noted that online scholarly publications not only can be used in their research but also in teaching at university level[55]. The availability of high-quality images and authoritative texts, which can be consulted anywhere, make them a valuable resource. Nevertheless, other participants indicated that the scholarly resources contained materials suited to teaching, either at secondary education level[56] or undergraduate education; or were not that adequate for scholars[57].

Online resources with contents targeted to a general audience, or online exhibitions, are also useful resources for teaching, according to some of the participant scholars[58]. They show potential for introductory art history courses at university level. Their varying approaches to the representation of artworks, as well as their visual emphasis, would facilitate the engagement of students:

They give people—especially if you are like a student in art history, let's say you are thinking of majoring in art history—They give you options on how you can approach a work of art, which [...] a lot of teachers have one way of approaching. They're stuck in one methodology [...] [Students] see different ways in which you can look at a work of art. You can look at [it] like in terms of technique, in its context, iconography, so it opens up your mind.[59]

Temporality

Narrative theory differentiates between the time of the story and the time of narrating or discourse time60 . The first corresponds to the time represented in the story, and the second to the time of the presentation or experience of the narrative. When applied to the museological domain these two notions can be translated on the one hand into historical time, museum visitors in fact "walk through history"[61], and on the other hand into the time imposed by the exhibition display[62]. It is generally thought that museums preserve objects from time, they have a "special and controversial relationship with time"[63]. Artistic objects as actors and witnesses of history acquire permanence when displayed in museums. This contrasts with the transient quality of the temporal arrangement of artworks in museums' exhibitions introducing modifications to the time of the narration.[64] Print exhibition catalogues extend the "life" or temporal dimension of the exhibition "providing a permanent record that outlives an exhibition."[65] In this way, the publication emerges as an element of stability and preservation in museums. Although this suggests that the museum exhibition displays are less stable than publications, but is this always the case?

As museums embrace the digital medium, traditional conceptions around temporality are challenged. When the museum, an exhibition or a publication becomes digital "would seem to be achieving immortality."[66] Online exhibitions are frequently seen as devices that revert the temporality of exhibitions. They would offer "a continuing life to the ideas presented in the brick-and-mortar galleries long after the exhibitions have closed"[67] that complement and extend the physical visiting experience[68]. In principle, the permanency and stability of print publications would be preserved in their online counterparts, and they can be conceived as "sites of research and appear during and after the exhibitions to harvest and disseminate their significance."[69] Yet, because certain types of scholarly publications, such as catalogue raisonnés[70] and collection catalogues[71], are affected by changes in scholarship and require new revisions and re-editions, the malleability of digital media allows updates and changes. Online publications may be edited multiple times to accommodate new research findings.

Research results partly confirm but also overturn the previous temporal model which regards online exhibitions as permanent and online publications as evolving entities. Some of the museum professionals interviewed have embraced a dynamic publishing model, similar to the described by Ballon and Westermann; they either sync online publications to the collection database which is regularly updated, or update essays when changes in scholarship emerge. However, the dynamic publishing model coexists with the idea of the publication rooted in notions of stability: "in some ways, I

think we treat them like books. Once it's published is on the shelf and then, if they look old then, that's it. All our projects come with funding so [when] the funding ends it's not like we fund them to keep them going forever."[72] From this quotation, one may infer that the nature of digital media is not fixed or "immortal", online resources should be maintained and preserved. In this regard, one of the interviewees[73] stressed that supporting periodic cycles of refreshment and corrections, not limited to scholarship, should be planned when online resources are created.

Contradicting the above-cited authors, online exhibitions are not necessarily correlated to permanence. For museum professionals creating an online resource based on a temporary exhibition is a difficult enterprise. The time frame imposed by the exhibition opening (which makes it difficult to gather all materials on time together with the big investment needed to produce such a resource) prevents some museums from developing online resources for temporary exhibitions.[74] As museum practitioner number eight argues "It's a great effort for an ephemeral result. It's very complicated so it's better to focus on other things and provide other types of content in other ways and avoid working on a deadline because it's horrible." [75] Instead, institutions develop online resources related to permanent collection pieces, institutional history, and other more stable assets the museum may have.

The way in which the audience perceives temporality in online resources instead reinforces the dichotomy between permanence and dynamism. They value the storing function of online exhibitions, or online resources generated around temporary exhibitions, which they can consult after the exhibition has closed.[76] Documentary media including photographs of the exhibit, videos, essays, and images of the artworks are assets every scholar interprets to make sense of past exhibitions. If an online resource was identified by two of the younger scholars as an online publication, namely a visual blog, it was due to the structuring of the contents in "little installments"[77] that are published online as periodic episodes.

Spatiality

The museum "constitutes a more or less well-defined spatial type"[78]. Galleries that are laid out to shape patterns of visit and narratives. The architecture itself "conveys and embodies meaning"[79] but also other elements of the exhibition display—temporary walls, walls colour, vitrines, plinths, lightning, etc.—condition processes of meaning-making[80]. The architectural spatial configuration of the museum juxtaposes, orders, highlights, and recontextualizes artworks in the gallery space. The ordering and disposition of artworks in walls and galleries create connections between individual artworks. These kinds of connections are intrinsic to the museum's syntax[81].

2)
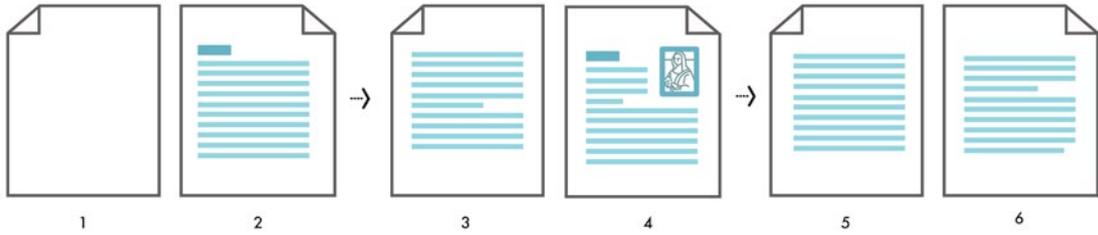
linear
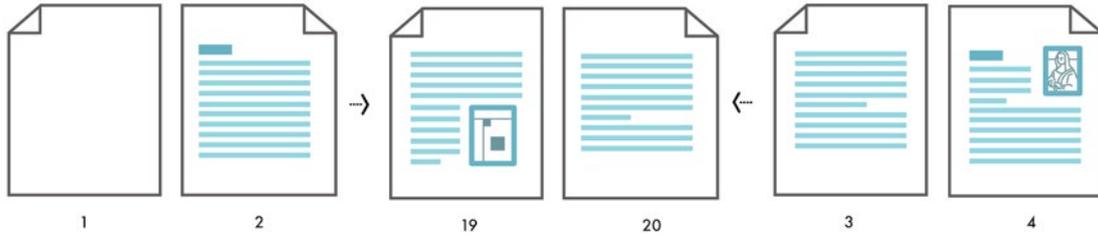
nonlinear

3)
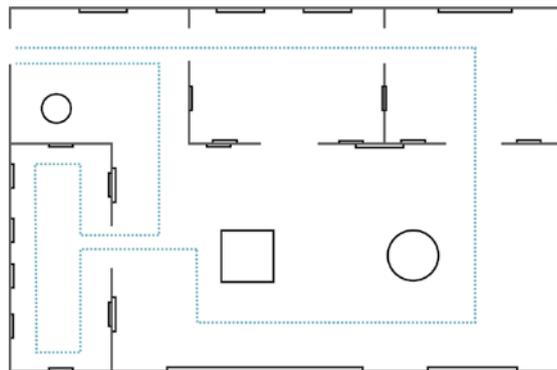
more linear
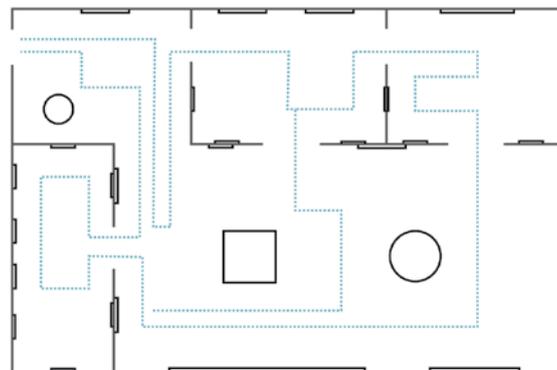
less linear /nonlinear

Figure 2-5. Linearity and nonlinearity are present in print publications and physical exhibitions. Figure 2) and 3) show the linear and nonlinear models of interaction with codex books and exhibition spaces. Museum websites generally have two navigation models: One is a linear parallax scrolling type of navigation (see figure 4), the other follows the more traditional hypertextual navigation model in which multiple web pages are interlinked (see figure 5).

4)
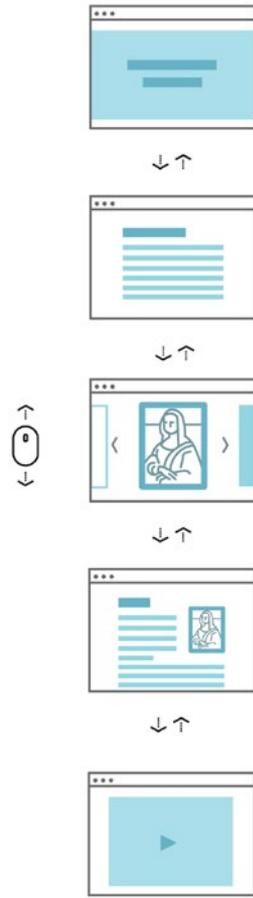
5)
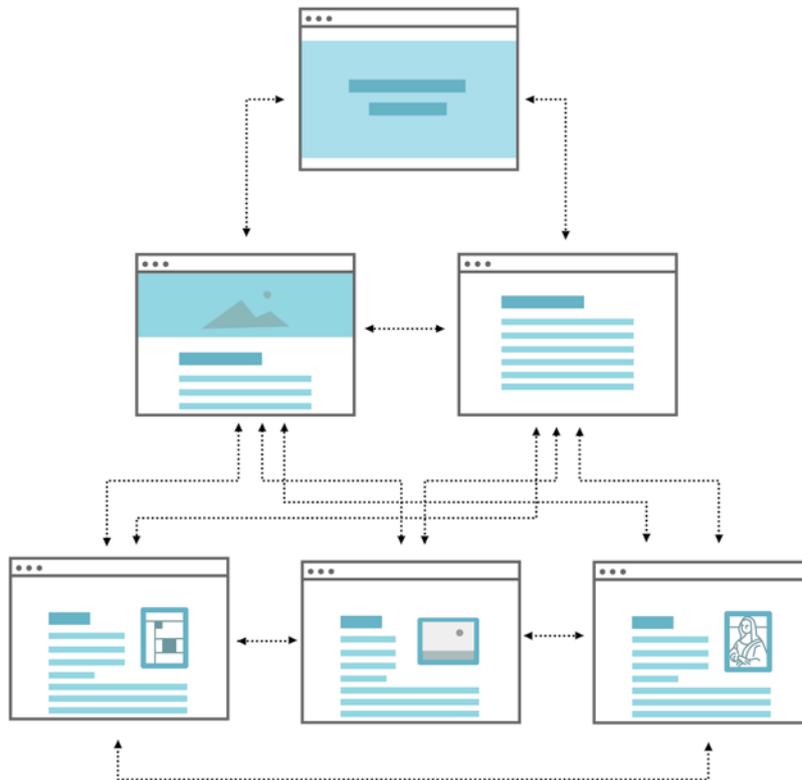
A very popular model of the online exhibition is the one that portrays the archetypical space of the museum's galleries. Skeuomorphic design, in addition to 360-degree images and videos of galleries, has had a broad acceptance among many institutions that seek to create immersive experiences. This sort of replica is termed "virtual gallery"[82], "virtual tours/visits"[83], "capturing the gallery" archetype[84], or "mirror model"[85]. McTavish[86] points out that three-dimensional reproduction of the architectural space is at odds with the modernist aesthetic identified with art museums across their websites, print publications, and even, their buildings and galleries. Perhaps, for this reason, another spatial model of online exhibitions coexist with the three-dimensional replica of the museum. This kind of online exhibition has the appearance of a website in which content is laid out in graphic flat forms[87], labeled also as the "hypermedia model"[88], it arranges images of the artworks, texts, and videos in a two-dimensional space. Interestingly, this spatial model combines the static representation methods that replicate the use of images and text similar to catalogues and books[89] to which dynamic elements such as motion and sound are added[90]. It is precisely this two-dimensional spatial model the one that online publications employ.

The use of hypertexts is common to both spatial models. The hypertext, one of the main constituents of the digital medium, provides a kind of sequentiality that challenges linearity[91]. Hypertexts "control the temporal unfolding of the text" but are also spatial, as they prevent "a linear progression" through the spatial disposition of the text[92] and take users to nonconsecutive areas of a Web page or different pages. The absence of linearity the hypertext imposes to digital media has been compared with literature[93] as well as experimental avant-garde exhibition designs[94] or simply museum's exhibitions. With the aid of the hypertext, the exhibition "choreography", its rhythm and movement, can be also rendered in flat designs.

While none of the six online resources surveyed use the three-dimensional model, some of them offer views of the exhibition space either through still photography or video. Results show that the audience would recognize an online resource as an online exhibition when images or videos of artworks exhibited in the galleries are shown[95] and value the provision of materials that replicate the physical experience[96][97]. However, the two-dimensionality of the interface of an online resource does not lead participants to identify an online resource as a publication.

When spatial parameters related to the hypertext are taken into account, the identification of a typology is troubled. Hypertextual navigation in online resources reminds the audience of the spatial movements performed when visiting an exhibition and reading a publication (Figures 2-5). The same online resource would remind one participant of the gallery space while a different participant would think about the turning of pages. For instance, participant scholars link hypertextual navigation with the experience of making connections between artworks in physical galleries:

I think it's more like an exhibition because (…) you have the freedom to think about things in different ways and to control the content and somehow to be able to walk into the gallery and (…) you can stand in the middle and you can see a photograph on that wall, and see one, maybe around the corner in the other gallery, and you might, then in your brain just be able to make those connections because you're in the space.[98]

If you suddenly want to compare three different artists you have to run between rooms.[99]

Yet, according to scholar number five, the same kind of hypertextual navigation and connections between works of art can be achieved with a publication, though "you have to be flipping back and forth"[100] pages of the book. In both cases, once the idea is clear the hypertext helps to establish connections between artworks, artists, or ideas easier and quicker than it would be in an exhibition or print catalogue.

Mediality: Verbal and visual

Mediality, the medial qualities[101] of museums, often responds to semiotic definitions of media that distinguish three media families "verbal, visual, and aural" and looks at the codes and sensory channels of each medium and how they shape narratives and discourses[102]. All museums are multimedial[103] but generally, operate from verbal and visual semiotic families. Mieke Bal affirms that exhibitions are predominantly a "visual discourse"[104] yet the verbal component of labels and panels is present in them[105]. Likewise, art museums' publications mediality operates within the same semiotic families[106]. The relationship between the verbal and the visual, image and text, places the museum at the center of debates that examine the binary and "are concerned with the study of encounters and tensions, collaborations and hostilities" between both[107]. With the advent of digital media, authors advocate for a conciliatory perspective and focus their efforts in examining the "dynamic interplay" existing between words and images that new media fosters[108]. This shift can be noticed in discussions about the possibilities of digital publishing whereas is absent from literature on online exhibitions. Ballon and Westermann have stressed the relevance of images in art historical publications, and the possibilities for achieving a more fruitful interplay between images and text in digital publications.

	ONLINE EXHIBITION	ONLINE PUBLICATION
readership	general public scholarly both	general public scholarly both
mediality	more visual than verbal	more visual than verbal more verbal than visual
spatiality	3D 2D	3D 2D
temporality	temporary evolving	temporary evolving
content	narrative about the artworks and collection	narrative about the artworks and collection

Table 1. This table summarizes the conclusions derived from the research findings suggesting that online exhibitions and online publications share substantial similarities, and in certain cases, cannot be differentiated.

According to them, in digital publications words and images should become synchronized[109]. Rhyne concludes that in online publications "the traditional dominance of text over image, a long-time impediment for art history, is adjusting to a more productive balance."[110]

The interplay between the visual and the verbal in online publications and exhibitions is one of the principal topics emerging from the research. The prevalence of one over the other would help the audience to determine the resource typology. Generally, an online resource is considered an online exhibition because the visual prevails over the textual. The relevance of images and the overall design of the visual layout would determine this typology. When visuality and images are highlighted[111][112] and the text is secondary and minimal, scholars identified the resource as an online exhibition. An exhibition uses a minimal amount of text compared to an exhibition, limited to object labels and wall texts. Three scholars mentioned this fact, and therefore, if an online resource has a small amount of informational text, it can be regarded as an exhibition. Scholar thirteen[113] describes the experience in the following way: "you can see everything more carefully and I just thought the way in which this is designed (…) it seems like they really want to make you want to look". Nevertheless, if online resources with more visual than verbal elements in them could be also considered publications, they would correspond to a "glossy book"[114].

The amount of text, usually in the form of essays, in addition to specific paratextual elements such as bibliographic references, glossaries, indexes, footnotes, etc., tell the audience whether an online resource is a publication. Most scholars identified online publications as print catalogues, as the experience of browsing them is similar to the one of having a book or several volumes of books in their hands because of the amount of text and the richness of textual content[115][116]. Images in publications would be secondary and subordinate to the text. As scholar number two notes, the function of the image in the publication is illustrative: "the way the work is an illustration because […] rather than driving force they are illustrations of an art historical text." [117] The unequal relationship between image and text in online publications is not without criticism. The same scholar discussed missed opportunities to create online publications that emphasize the artistic object and its visuality:

What this is constantly doing is inviting me to have a relationship with the text rather than inviting me to have a relationship with the work and […] one of the things that are so wonderful about paintings is the luminosity of the colour and that incredibly beautiful and it's that which captivates the audience and the imagination, so this is kind of putting all at distance which is a real shame.[118]

Interestingly, this quotation mirrors the claims of Ballon and Westermann and Rhyne, who highlight the importance of images in art history and advocate for more visual arguments in scholarship. But if online publications become even more visual, what would distinguish them from online exhibitions?

Conclusion: Rethinking typologies

Possible boundaries between online exhibitions and online publications are becoming increasingly blurred. The examination of online exhibitions and online publications here presented, proves the inconsistency of the typologies:

- Both online exhibitions and online publications have a discursive scope. They present ordering and cohesive discourses around a theme as well as narratives.
- In general terms, physical exhibitions are temporary, whereas print publications are permanent. Museum studies literature suggests that online exhibitions challenge temporality and become fixed storying devices, and online publications evolving and dynamic productions. Although in practice, institutions struggle to actualize permanent exhibitions and ever-changing publications online. One cannot conclude whether an online resource is an exhibition or a publication based on temporality.
- The digital medium has erased the spatial idiosyncrasies of the exhibition. Exhibitions are no longer uniquely three-dimensional architectural spaces and they share the use of two-dimensional space with publications. Similarly, the spatial qualities of the hypertext are preceded by experiments in architecture and bookmaking. Online exhibitions and publications can be characterized by the same spatial framework.
- No typology is ill-suited for either a general audience or a scholarly audience. Moreover, general audience-oriented online resources might interest those with above-average knowledge of scholarship, and scholarly online resources sometimes do not meet the expectations of scholars.

- The views regarding the relationship between the visual and the verbal in online resources are perhaps the most homogeneous in the research. Almost everyone seems to validate the idea that exhibitions are more visual than publications, and publications more verbal than exhibitions. However, as art historical digital publishing seeks to strike a balance between image and text, we might as well question if distinguishing a typology based on whether it is more or less visual or verbal is effective.

This research demonstrates that establishing typologies based on dichotomies or antagonistic terms such as publication/exhibition, narrative/non-narrative, temporary/permanent, general audience/scholarly audience, three-dimensional/two-dimensional, and verbal/visual is limiting and inaccurate (Table 1). The focus should be instead on developing a common taxonomy of art museums' online resources which takes into account the many similarities they share.

Possible practical implications of a common typology affect both institutions and audience. In art museums, strengthening the links between the worlds of publishing, exhibition design, and digital media creation could offer insights to professionals working in analogous domains. These might prove useful in tackling challenges arising from practice and could foster innovation and reinvention. The audience, especially the scholarly one, should engage even more critical with the digital transformations we witness. Because the research also shows that conventions from traditional typologies persist, we must be cognizant of them. On the one hand, museums' professionals should be aware of the expectations of the audience and how the reception and interaction with online resources might be rooted in traditional perspectives. On the other hand, the audience is right to either require online resources with which they feel familiar and in which they recognize the traits of previous media. Lastly, it should not be forgotten that online exhibitions and online publications are produced by institutions and individuals other than art museums. Research institutes and art history scholars, among others, build these resources. Questioning and defining typologies of online resources is a matter in which they should also participate.

NOTES

1 This article presents part of a doctoral research in Information Studies at the University of Glasgow. A paper discussing the topic was presented at the 2018 Museums and the Web Conference held in Vancouver, Canada.

2 The concept of remediation is introduced by: Bolter, J. D. & R. Grusin. (2000). *Remediation: Understanding New Media*. Cambridge, MA: MIT Press.

3 Smith Bautista, S. (2013). *Museums in the Digital Age: Changing Meanings of Place, Community, and Culture*. Lanham, MD: AltaMira Press.

4 Mateos-Rusillo, S. M. & A. Gifreu-Castells. (2017). "Museums and online exhibitions: a model for analysing and charting existing types", in *Museum Management And Curatorship*. 32: 1.

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113 Scholar 13, think-aloud session led by author. June 12th, 2016.

114 Scholar 4, think-aloud session led by author. June 2nd, 2016.

115 "Having all this is like having a book." Scholar 16, think-aloud session led by author. July 14th, 2016.

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