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LA LONGUE TRAÎNE DES COLLECTIONS DE MUSÉES : COLLECTIONS ETHNOGRAPHIQUES SUR SITE ET EN LIGNE

Paper

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THE LONG-TAIL OF MUSEUM COLLECTIONS: ETHNOGRAPHIC COLLECTIONS ONSITE AND ONLINE

Résumé

La raison d'être des institutions de mémoire est de collecter, conserver et donner accès aux collections patrimoniales. La limite physique d'un lieu empêche une large visibilité des objets, tandis que l'accès en ligne permet une visibilité des collections 24/7. Nous avons mené une analyse quantitative sur l'accès à la collection d'un musée et avons comparé les résultats entre l'accès aux objets par des expositions et un accès aux objets en ligne sur Wikipédia. L'analyse des différences dans l'accès aux objets a montré l'existence d'une longue traîne dans les deux cas, bien que la traîne soit légèrement plus longue et épaisse pour l'accès en ligne, ainsi 8 % des objets furent exposés sur un site à l'occasion d'une exposition et certains objets ont été exposés jusqu'à 10 fois, tandis que 11 % des objets accessibles en ligne étaient utilisés dans des articles Wikipédia avec un pic de fréquence de 135 (représentant 1 % de l'ensemble de la collection). Les diffusions en ligne des objets constituent donc un complément majeur aux expositions sur site et permettent d'accroître l'accès aux collections. L'accès aux collections en ligne est grandissant dans un marché de réseaux sociaux caractérisés par des communautés d'utilisateurs qui contribuent à sélectionner et classer le contenu afin d'en faciliter la réutilisation. Wikipédia s'avère jouer un rôle important d'intermédiaire dans la consommation du patrimoine en ligne. Ainsi, les résultats de cette recherche ont mis en lumière la possibilité d'accroître la visibilité des collections par leur diffusion en ligne.

Classification JEL : L31, D12, O35, N30, Z11

MOTS-CLÉS : Consommation du patrimoine, musées, patrimoine numérique, accès, histoire de l'exposition, Wikipédia

Abstract

The raison d'être of memory institutions revolves around collecting, preserving and giving access to heritage collections. Physical restriction hinders broad visibility of objects onsite, while access online promises a 24/7 visibility of collections. We performed a quantitative analysis on the access to a museum collection and compared results onsite (exhibitions) and online (on Wikipedia). Analysis of the difference in access showed a long tail in both mediums, though the long tail was slightly longer and thicker online, where 8% of objects were exhibited onsite with a frequency peak at 10 exhibits, while 11% of available objects online were used in Wikipedia articles with a 135 frequency peak (representing 1% of the total collection). Online publication is hence an important complement to onsite exhibitions to increase access to collections. Access to collections online increasingly takes place in social networked markets characterized by communities of users that serve to select and rank content to facilitate reuse. Wikipedia appears to have an important role as intermediary for heritage consumption online. Results shed light on the potential to increase visibility of collections online.

JEL classification: L31, D12, O35, N30, Z11

KEYWORDS: Heritage consumption, Museums, Digital heritage, Access, Exhibition history, Wikipedia

Introduction

Museums, as well as all memory institutions, are charged with the collection and preservation of heritage collections to ensure access to present and future generations. This goal drives much of the decision making when allocating resources for the different organizational activities. The accent on how to ensure such accessibility and the quality of the engagement depend on the policy of the institution. Digitization has proven to be a key activity that supports the management and preservation of collections. It also increases access exponentially, as consumption broadens and deepens[1]. Technological changes have further effects on the quantity, the mix and the variety of culture being accessed, particularly on the preference over type of culture being consumed[2]. Exact measurement on the change in access to collections has been hard to quantify, as metrics for online visits continue to develop and comparable onsite metrics are established. One example can be found in the historic study of museum visitors, which calculates visibility of objects as a function of onsite or online exhibition[3].

The consumption pattern of all cultural content, such as film, books or music, generally present a long tail where few products are largely popular where the majority of the content remain obscure. The mechanics of selection and further popularization of the content has been attributed to quality information signals that help consumers make a choice, including prizes, recommendations and reviews[4]. Information to signal quality, as well as contextual information, is of essence when positioning digital heritage content in the crowded social networked environment online. This is because of the hedonic characteristics of heritage and of information, digital heritage being a mix of the two.

Interest in the understanding of the consumption pattern and consumer preference can help decision making during the allocation of resources, and during the digitization strategy of heritage institutions. Consumer choice is first and foremost defined by the content made available by the producers, in this case the museum institution through exhibitions or through online publication of collections. This paper explores the changes in consumption when collections are published online by analyzing object mobility and visibility in the physical and digital environments.

We find that the long tail that characterises heritage consumption is also found in a digital environment but that preference has a different rationale. Where popular objects in the physical environment are generally 3D, the digital environment prefers 2D objects. This may be explained by the limitations of technology to display and manipulate 3D objects. We further find an online preference for objects that are photographed in context, such as a dagger being worn by a prince. This may suggest objects online serve as illustrative context, or visual metadata. Results contribute to the empirical research on heritage consumption preference and on the discussion on metrics to monitor digital performance.

The remaining of the paper is organized as follows. We first review the literature on the long tail and the role of the intermediaries for consumption of hedonic products in section 2. In section 3 we present the data and describe our method. We end with a discussion of results and conclusions in section 4.

Long tail and hedonic goods

The so-called long tail has been used to refer to the traditional proportion of 20% of the products representing the best sellers and generating 80% of the market, while the rest of the products are found in niche markets. The Internet has led to a lengthening and thickening of the long tail where a larger selection of products are made available to consumers

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1   BAKHSHI, Hasan and David THROSBY (2012).
2   POTTS, Jason (2014).
3   MACKENZIE OWEN, John (2007).
4   CLEMENT, Michel, Dennis PROPPE and Armin ROTT (2007).
     MARTY, Paul (2007).
     NAVARRETE, Trilce and Karol BOROWIECKI (2016).
     ONGENA, Guido, Erik HUIZER and Lidwien VAN DE WIJNGAERT (2012).
     POTTS, Jason (2014).

online (which is not physically possible offline), supported by the availability of product information that facilitates selection of alternative products[5]. "The long tail economy is thus based on sales strategies for niche content (old titles, specific segments, particular version), which previously had been largely ignored due to insufficient distribution level"[6]. The Internet facilitates distribution of niche content.

A study conducted by Peltier and Moreau[7] showed that online sales present 'a lower head and a thicker tail' than offline sales, meaning that the best sellers offline perform less well online while the low-seller books do better online (particularly the bottom 40%). However, the top best sellers offline (99th quantile) present no difference and sales remain stable. The trend, which is first visible in the online market, increasingly can also be found in the offline market, representing a shift of consumer behaviour: purchase decisions shift from best sellers to medium- or low-sellers.

The Internet originated with the ideal of a disintermediation, or giving access to content directly from the source, reducing entry barriers for producers while lowering costs for consumers. In fact, new intermediaries have emerged to satisfy the need for trusted selectors of quality content[8]. While museums function as intermediaries onsite, the online environment may requires more than a museum website for filtering and data prioritization. Wikipedia, ranked in the top 10 most visited websites worldwide, may be a useful information filter for consumers.[9]

Research on the use of the Internet by museums focus on the institutional website[10] or on the use of social media for marketing purposes[11]. However, little attention has been given specifically to the use of the Internet as distribution channel beyond the institutional website. Benghozi and Benhamou[12] stress the role of the distribution channel to present information to facilitate (or hinder) selection and eventual consumption. Distributors need to update the information about the products to best fit the changing environment (what can be refer to as 'editorialization', or 'information curation') as well as to continuously improve the technology to allow selection of products. Selection is the key determinant in the market of information[13] 0. From the supply side, producers select what to make available and how, while on the demand side, consumers select where to search and eventually what to consume. Consumers increasingly expect rich reuse environments, so that distributors that allow engagement are favoured.

Developing and improving rich engaging environments is costly. A research project that focused on audiovisual content identified excessively high costs related to the transcoding, storage, broadband, and legal fees required to provide content on-demand and one-on-one service. The popular content cannot cross subsidize the rest of the long tail so that government financing is required[14]. Ongena[15] characterized the audiovisual long tail based on the type of content and identified the head of the tail to contain live shows, followed by video-on-demand (including content on YouTube and DVD) and cultural heritage at the end of the tail. They state that the audiovisual long tail grows as content ages and becomes part of a nation's cultural heritage.

Additional information remains key to increase use. A study on the selection pattern of information online found that consumers choose to click a query result more often when longer information is provided, whereas single URL results receive less clicks[16]. Digital heritage collections, being cultural information goods, heavily rely on additional information that can take the form of branding, sampling, signalling, and alternative information markets to guide consumer choice[17]. Consumption of products found in the long tail heavily relies on communities of critics and users that serve to

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5   BRYNJOLFSSON, Erik, Yu HU, Duncan SIMESTER (2011).
6   BENGHOZI, Pierre-Jean, and Francoise BENHAMOU (2010)
7   NELSON, Robert, Michael DONIHUE, Donald WALDMAN and William WHEATON (2007).
8   FARCHY, Joelle (2003).
9   Alexa ranking [online].[www.alexa.com/topsites].
10   MARTY, Paul (2007).
11   PADILLA-MELENDEZ, Antonio and Ana Rosa DEL AGUILA-OBRA (2013).
12   BENGHOZI, Pierre-Jean, and Francoise BENHAMOU (2010).
13   GINSBURG, Victor and Jan van OURS (2003).
14   NAVARRETE, Trilce and Karol BOROWIECKI (2016).
15   NAVARRETE, Trilce and Karol BOROWIECKI (2016).
16   POTTS, Jason, Stuart CUNNINGHAM, John HARTLEY, Paul ORMEROD (2008).
17   CLEMENT, Michel, Dennis PROPPE and Armin ROTT (2007).

share and to recommend information, so that as niche content becomes available within a community there is a greater chance of reuse. That is, web communities are influential in the distribution of consumption.

Potts[18] identified the choice of others as determinant for production and consumption in the cultural industries. That is, "individual choices are dominated by information feedback over social networks rather than innate preferences and price signals" (p.170). This is, they argue, because of the novelty of content and technology that carry high uncertainty in the new market. In contrast, consumers with known preferences characterize mature markets. Potts[19] further propose the agent-network-enterprise model of analysis as key to understand the social network markets, their dynamic values and their role as innovation systems.

In economic theory, empirical research has identified quality signals that support consumer choice. Quality indicators are often linked to awards. In the case of books, reviews, prizes, bestseller lists and sample chapter publication have been identified to influence consumer choice[20]. The New York Times bestseller list slightly increased average book sales and book reviews, both positive and negative, in the New York Times increased sales, while receiving the Strega Prize increased book sales[21]. Clement[22] point to the key role of reviews, both positive and negative, and word-of-mouth to provide additional information on the book and thus reduce quality uncertainty. Word-of-mouth online can be influential in books sales at Amazon.com and Barnesandnoble.com[23]. On the contrary, no relation was found between DVD sales of film content and additional information signals (e.g. ranking lists) found in traditional film screenings. Rather, higher sales were directly related to the longevity of distribution[24].

Regarding quality of content, literary prices to signal a highbrow content, which may be considered less attractive by lowbrow consumers[25]. The same may be true online, though this is yet to be documented empirically. As museum websites and such official portals (e.g. Europeana) reflect a highbrow profile, consumers seeking lowbrow content may prefer sites such as Wikipedia.

Though there is a substantial body of empirical research on the popularity, and long tail, of hedonic goods, little has been done on the heritage collections found in libraries, museums and archives. This research aims to fill this void by selecting the ethnographic collections of a Dutch museum as case study to analyse heritage consumption in the market of information found online.

Data

The Tropenmuseum[26] is the ethnographic museum in Amsterdam that has recently joined two other ethnographic museums to form the National Museum of World Cultures (NMWC). Together they hold a collection of 600,000 objects. The NMWC has a joint digital database, The Museum System (TMS), which serves to document activity around the objects, including exhibitions. A query was conducted in TMS to identify the objects that were exhibited more than once since 1927, year when the museum opened in its current location. This resulted in a long tail (see Fig.1) where 51,988 objects were exhibited more than once, while 547,700 were never exhibited.[27]

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18   NELSON, Robert, Michael DONIHUE, Donald WALDMAN and William WHEATON (2007).
19   NELSON, Robert, Michael DONIHUE, Donald WALDMAN and William WHEATON (2007).
20   ASHWORTH, John, Bruno HEYNDELS and Kristien WERCK (2010).
21   PADILLA-MELENDEZ, Antonio and Ana Rosa DEL AGUILA-OBRA (2013).
22   CLEMENT, Michel, Dennis PROPPE and Armin ROTT (2007).
23   CHEVALIER, Judith and Dina MAYZLIN (2006).
24   PELTIER, Stephanie and Francois MOREAU (2012).
25   POTTS, Jason (2014).
26   The Tropenmuseum was the first Dutch museum to collaborate with the Wikimedia Foundation in 2008.
27   The Tropenmuseum has a collection of 369,000 pieces, of which 153,000 are part of the Material Culture (objects including visual collections like drawings, paintings and documents) and 216,000 are photographic material (including photographs, albums, slides and negatives). The Tropenmuseum joined the National Ethnographic Museum and the Africa Museum to form the National Museum for World Cultures in 2014. Together, they house 600,000 pieces, of which 367,000 are Material Culture and 230,000 are photographic material.

FIGURE 1　**The long tail of physical exhibitions at the NMWC**
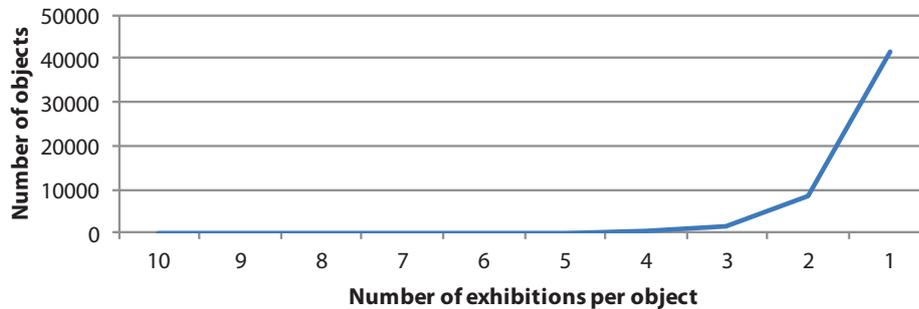
Source: own, database query on April 2015.

Data gives an indication of the object mobility of the collection held at the NMWC since 1900s and until present, yet it is important to remember that we depend on data reported and kept in the institutional database during the last century. Though there has been a lot of work done to document and digitize all information about the objects, the documentation practice has changed throughout the years so that an object that has been in the permanent exhibit can be documented to be in one exhibition lasting 6, 8, 14 or 23 years. The Tropenmuseum holds 27 objects that have been in more than 6 exhibitions, most of which are thus objects part of the permanent exhibit.[28] Figure 2 shows the 10 most exhibited objects onsite.

FIGURE 2　**Most exhibited objects from NMWC**
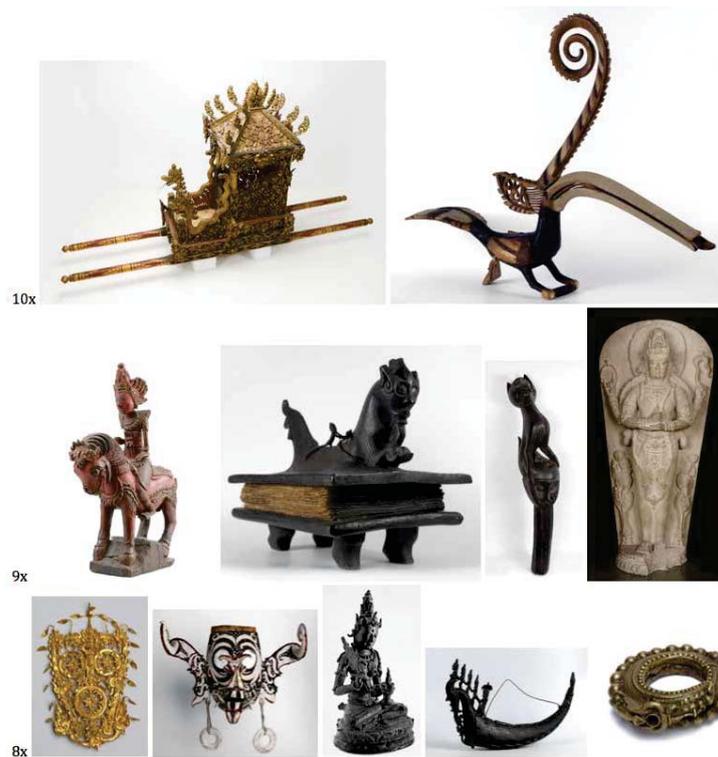
28　Querying the exhibited objects was preferred to objects on loan because of the interest to quantify the audience size. Objects on loan can be exhibited or displayed but can also be part of a research project, can be used as decoration, can be photographed, can be used for communication, can be restored, or can be in storage. Objects on loan to the office of the director do contribute to the increase in object visibility but visits are not quantified. The same is true for all other loan type activities. However, viewing the total loan activity shows a different pattern, where 28,003 objects were on loan more than once.

In order to compare the offline long tail found in exhibitions to an online long tail, we selected an online environment where collections were available for the general public. Because currently the web statistics are not kept per individual object across the NMWC institutions, we selected Wikimedia as an alternative online environment. The Tropenmuseum published a number of objects in Wikimedia.[29] From the close to 50,000 objects available in Wikimedia, 5,815 images are being used in at least one Wikipedia article. Using the GLAMorous tool, we identified the most used objects online. Figure 3 shows the objects most often used in Wikipedia articles.

FIGURE 3 **Most used objects to illustrate Wikipedia articles – NMWC**
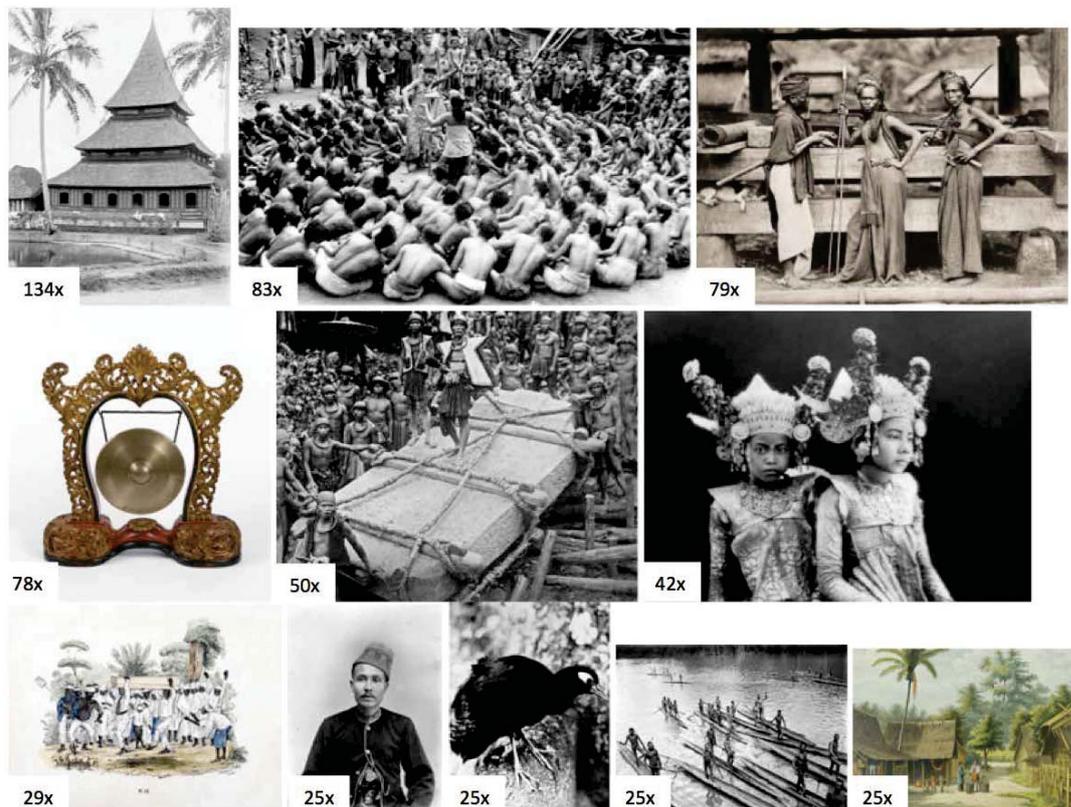
From a dataset kept by the Wikimedia Foundation covering the last 5 years, we identified the frequency of object use in Wikipedia articles resulting in Figure 4, the long tail of object use in Wikipedia.

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29   The Wikimedia Foundation began the GLAM-Wiki initiative (galleries, libraries, archives, museums with Wikipedia) to support the reuse of heritage collections within Wikipedia, the online encyclopaedia written by volunteers. There are currently over 194,000 images from heritage institutions available as open data in the Wikimedia repository [online].[en.wikipedia.org/wiki/Wikipedia:GLAM/About].

FIGURE 4 **The long tail of digital articles in Wikipedia – NMWC**
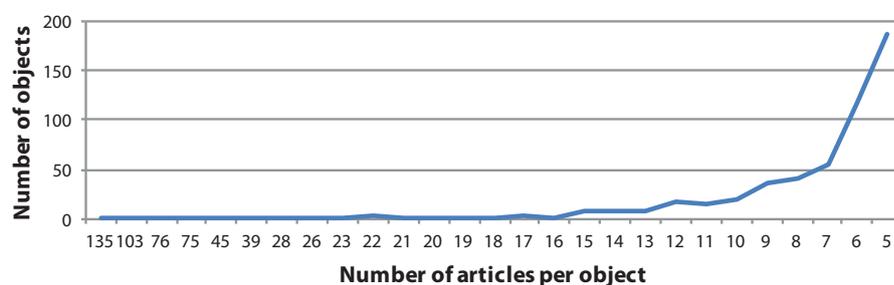
Source: own, GLAMorous tool query on April 2015.

Discussion

The long tail refers to the uneven popularity of goods in a given market. When we analyse the access to the NMWC collection, we find that over 90% of objects have not been exhibited in physical spaces while almost 2% of collections have been exhibited 2 to 10 times. The highest number of exhibitions is 10. The long tail of use of objects in an online environment show that 12% of objects available in Wikimedia are being used in Wikipedia articles, with the highest number of articles recorded at 135. Whereas Brynjolfsson[30] found an offline long tail (where 20% of objects account for 80% of the market) to become longer online, we find a similar trend though with a different relationship. The ethnographic collections offline present a more acute relationship, where 10% of collections account for 100% of offline activity (exhibitions) and 12% of collections are used online. It is important to note that the collection available online accounts for only 1% of the physical collection. The trend for a longer long tail online may be more visible as the entire collection gets published.

From the selection of most *exhibited* objects offline and online (used in Wikipedia articles) we can identify a clear difference in preference of object type: 3D in the offline environment and 2D in the online environment. This may be due to the strong tradition of exhibiting 3D objects in a physical setting (and using images as illustrations) and due to the limitations in the current available online technology to manipulate 3D content. Seven of the most used objects online are black and white historic photographs, two are 3D objects (one colour and one black and white photograph) and one is a colour lithograph. Before 1980, the photographic collection was not a part of the museum collection and photographs were not valued as *real objects* but as illustration of the use or context of the 3D objects. Therefore little is known of their mobility and visibility. Hardly any record exists of photographs being exhibited, published or lent. This has recently changed, as photographs have gained much attention online.

The objects used in Wikipedia articles have generally descriptive metadata, such as the name of people or places. This additional information to accompany the object may serve as guide and facilitate reuse, which echoes the results presented by Zhang and Kamps[31]. For heritage institutions it is to be expected that using such social online networks to disseminate content is less costly than developing their own online environments, this in terms of the resources needed to develop and maintain the technical platform as well as the community of users. Further, the Wikipedia environment offers multilingual layers of access to content where the same object may be used in similar articles in different languages.

In terms of the quality information signals to support consumer selection a striking difference is found between the offline and the online environments. While curators select objects for physical exhibitions it is the community of Wikipedia users that select objects to be included in the Wikipedia articles. This community serves as social recommendation

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30   BRYNJOLFSSON, Erik, Yu HU, Duncan SIMESTER (2011).
31   POTTS, Jason, Stuart CUNNINGHAM, John HARTLEY, Paul ORMEROD (2008).

network that selects objects to be reuse, as argued by Clement[32]. Further research is needed to identify the dynamics in the online use of objects across the various languages.

As Benghozi and Benhamou[33] argue, the role of the platform is key to facilitate (or hinder) distribution of content and therefore change the popularity of objects while developing niche markets. It can be suggested that Wikimedia serves as recommendation platform to reuse heritage content that may otherwise not be consumed by a general public, particularly the public not inclined to search heritage content in a museum website. Whereas the Tropenmuseum had more than 4,000 unique monthly users and 50,000 visits to the collections website during the last two years, the page views of articles in Wikipedia holding NMWC collection have grown in the last 5 years from 264,000 to over 11 million page views per month. This could suggest that Wikipedia, as distribution platform, can support lengthening the long tail consumption of ethnographic collections.

Conclusions

Heritage institutions are trusted with the collections of human memory and are in charge of ensuring its present and future access. Consumption of collections, however, presents an unbalanced pattern of preference where a few objects are often viewed while the majority of collections remain obscure, what has been referred to as the long tail. The Internet has provided a new platform to distribute content that promises to increase equal access to collections.

We compared the preference pattern of the NMWC collection offline, based on the exhibition log since 1927, and online, based on the use of objects in Wikipedia articles in the last 5 years, and found a slight longer tail online. While only 10% of objects were exhibited in the museum, about 12% of collections available online have been used in Wikipedia articles. This is promising since only 1% of the collection has been made available in the Wikimedia repository that feeds the Wikipedia articles. The tail was also thicker, where the most used object onsite was in viewed in 10 exhibitions while the most used object online was found in 135 articles. Offline, preference is given to 3D objects while online, preferences is found in 2D objects. This may change as technology advances to facilitate 3D viewing.

While curators select objects in exhibitions, it is the community of Wikipedia users who select objects to include in Wikipedia articles. Selection of objects online from the Wikimedia repository may serve as a form of quality information signal for other community members to reuse objects when translating or expanding articles. Further, objects including descriptive metadata are more often used online, as metadata serves as contextual information and facilitate object selection.

While the Tropenmuseum collection website receives a monthly average of 50,000 visits, the Wikipedia articles holding NMWC collections receive more than 11 million views. This may indicate that Wikipedia can serve as alternative distribution channel to increase equity of access to collections, or at least increase the length of the long tail.

Acknowledgments

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32   CLEMENT, Michel, Dennis PROPPE and Armin ROTT (2007).
33   BENGHOZI, Pierre-Jean, and Francoise BENHAMOU (2010).

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Ces Actes regroupent les articles rédigés par les chercheurs pour le Colloque sur la mesure des produits culturels numériques, organisé conjointement par l'Institut de statistique de l'UNESCO et l'Observatoire de la culture et des communications de l'Institut de la statistique du Québec, en collaboration avec la Chaire de gestion des arts Carmelle et Rémi-Marcoux, qui s'est tenu en mai 2016. Cet évènement cherchait à examiner les enjeux, méthodes, pratiques et innovations entourant la production de statistiques sur les produits culturels numériques.

Un résumé analytique de l'ensemble des présentations et discussions ayant eu lieu pendant ces trois jours est inclus, dont une section portant sur les pistes d'actions pour l'avenir de la mesure statistique des produits culturels numériques.

Les lecteurs sont conviés à consulter le site Web du colloque afin d'y regarder les diverses présentations des participants et les enregistrements vidéos des conférences **www.colloquemesurenumerique.stat.gouv.qc.ca/session_video**

These Proceedings contain the papers written by researchers for the International Symposium on the Measurement of Digital Cultural Products, which took place in Montreal in May 2016. Jointly organized by the UNESCO Institute for Statistics and the *Observatoire de la culture et des communications* of the *Institut de la statistique du Québec*, and with the collaboration of the Carmelle and Rémi Marcoux Chair in Arts Management, the event aimed to examine the issues, methods, practices and innovations surrounding the production of statistics on digitized cultural products.

An analytical summary of the three days of presentations and discussions is included, addressing avenues for action for the statistical measurement of digital cultural products.

We encourage readers to visit the symposium website to consult the participants' presentations and view the conference videos **www.colloquemesurenumerique.stat.gouv.qc.ca/session_video**

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