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Museum Preparedness in the Digital Age

In 2001, Neil Beagrie coined the term, “digital curation” at the Digital Preservation Coalition sponsored conference in London. This new term launched a field of study which has since been adopted by various disciplines within the sciences and humanities. Cultural heritage organizations like libraries and archives adapted the new field, by refining and formalizing standards and practices of digital curation to cater to their diverse cultural and historical collections. LIS graduate programs have embraced the field of study with rigorous curricula like DigCCurr which trains students in the various aspects of curation and preservation, from metadata standards to selection and appraisal. Meanwhile, museums, often considered nontraditional information organizations, have been slow to adopt digital curation within their museum practice and graduate education. The following review of scholarship on digital curation within museums from 2004 until 2019 reveals that museum professionals and scholars are still struggling with the same challenges of capturing the context, human relationships, and historical significance of their collections with current digital curation practices and standards.

Current Digital Curation Education and Practices for Museums (2016-2019):

Published in 2017, Joyce Ray’s article *Digital Curation in Museums* provides a historical overview of the development of digital curation as a practice and field of study. While digital curation has been around since 2001, Ray argues that little has been done by museum professionals and scholars to formalize and integrate digital curation practices within museums. “While librarians and archivists have been engaged in the development of standards and resources for curating digital assets for a couple of decades now, relatively few museum professionals have been deeply involved in this work, and even fewer have had formal educational preparation themselves prior to their on-the-job experience” (Ray, 2017, 38). This lack of museum preparedness did not result from a lack of need within museums for data management and digital curation. In referencing the increasing accumulation and manifestations of digital collections around the world, Ray emphasizes the increasing urgency for museum and museum programs to have trained digital curators (Ray, 2017, 37).

To resolve this need, Ray reviews how the ongoing curricular framework of the Johns Hopkins University's (JHU) museum studies program attempts to equip emerging museum professionals. The JHU museum studies program, which was created in 2008, addresses the management, preservation and curation of born-digital information, and closely adheres to the DigCCurr framework by DCC for which it was derive. However, Ray argues that JHU's digital curation specialization does not always address the unique roles and needs of museums. In recognizing these gaps in their curriculum, JHU hosted a summit in 2015 which propelled initiatives to build support for digital curation among the museum community to create and refine metadata schemas and formalize curation standards specific to the needs of digital museum collections and their exhibition. Lightweight Information Describing Objects (CDWA-Lite) and Darwin Core schema are two metadata schemas that have since been co-created by museum professionals. However, much more needs to be done. Ray hits on this slightly within the conclusion of her article stating that "Museum professionals need to have a greater understanding of digital curation, its models, and its language in order to address their specific needs and have a credible sustainable digital presence" (39). Ray's overview of the current curricular standards for digital curation within museum studies programs provides a significant perspective in how the museum community has embraced the management of their digital footprint. While steps have been made, there remains a scarcity of prepared museum professionals and well-equipped academic programs to enable museums to rightfully curate their increasing digital collection and data. Ray concludes by pointing to next steps for the academic and professional museum community, specifically indicating that international and national partners need to work collectively to build the education, practice, and research of digital curation in museums.

Tammaro's article, *Heritage Curation in the Digital Age: Professional Challenges and Opportunities* achieves what Ray's article fails to do. Tammaro specifically defines what these next steps are for current and emerging museum professionals, grounding her discussion in current museum theory and practice. Tammaro summarizes the current state of the museum field, specifically how museums are continuing to transform their traditional focus on objects to focus more on community engagement (Tammaro, 2016, 123). "Curation, in this framework, has the role of supporting digitized collections of

heritage materials using current and emerging digital technologies combined together with social role and involving community engagement and feedback, adding meaning to collections, enriching conversations, sharing, and re-using digital collections” (Tammaro, 2016, 123). Tammaro hits on two big concepts: engaging and serving the community and contextualizing objects to elucidate their meaning. Curation must create an ecosystem that “brings people, contents, and technologies together in meaningful strategic relationship through the digital content lifecycle” (Tammaro, 2016, 126). These concepts are integral to a museum’s function and Tammaro argues that it is integral to digital curation. According to Tammaro, the definition of digital curation is about preserving and adding value to a body of digital information for current and future users (Tammaro, 2016, 123). In identifying these integral concepts, Tammaro applies this to cultural heritage management. Because cultural heritage encompasses birthright, history, traditions, and customs, digital curation of cultural heritage collections in museums must also encompass these elements within their digital record and most significantly, the process for developing these digital exhibitions. According to Tammaro, museum and cultural heritage professionals can do this by serving in an active, public role of community mediator and active appraiser rather than passive curator. Tammaro calls for a paradigm shift for digital curators in museums and cultural heritage institutions in which their priorities are not simply about digitization standards and metadata, but community engagement and service.

Mutibwa, Hess, and Jackson provide a critical case-study on how this type of active digital curation can be effectively implemented. Published in 2018, *Strokes of Serendipity: Community co-curation and engagement with digital heritage* discusses the pilot project called *Science Museum: Community-in-Residence*. The Science Museum in London and community heritage groups co-curated a digital heritage collection. This project aimed to understand how communities access collections (Mutibwa et al, 2018, 17) and investigate how community-led digital engagement through social media and smart devices could shape and improve access to digital collections” (Mutibwa et al, 2018, 2). As noted by Ray and Tammaro, museums are grappling with an increasing digital footprint through their own creation of digital collections and online media as well as their users’ digital engagement in sharing

their experience with the collections. Mutibwa, Hess, and Jackson saw this as an opportunity to increase engagement with their local community. In this project, the museum created a digital prototype that allowed community heritage groups the opportunity to lead the curation of and gain access to previously inaccessible spaces, which ultimately generated discussion around the collections and allowed the source communities to contextualize their cultural objects. By utilizing several ubiquitous digital platforms including Facebook, Twitter, Flickr, Historypin and establishing relationships with community groups, the Museum of Science was able to craftly curate a digital collection while adhering to the current methods and ethical obligations of museums. For in the past decade, museums and cultural heritage institutions have been striving to break away from the traditional authoritative interpretation of the curator to create an authentic, pluralistic interpretation authored by multidisciplinary experts and source communities. According to Mutibwa et al, the Museum of Science achieved this and fulfilled “their ‘social obligation to embrace openness, increase accessibility and contribute to broader conversations’” (Mutibwa et al, 2018, 18) through this digital co-curated project.

The Museum of Science’s break from the traditional approach of digital curation would be praised by Dallas who articulates the problematic standardization of digital curation in his article *Digital curation beyond the ‘wild frontier’: a pragmatic approach*. Published in 2016, Dallas discusses the technical and theoretical disconnects of the current custodial approach of digital curation from its museum origins and real-world application. Dallas grounds his argument in the origins of digital and non-digital curation. “The notion of digital curation was originally introduced as a means of transferring the curatorial approaches of the ‘library and museum sector,’ combining it with more recent usage of the term in the biological sciences, to the realm of digital collections” (Dallas, 2016, 425). Dallas also notes that curation, curator, and curatorship originated in the museum field. (Dallas, 2016, 425). Fast forward to today, the diversity of skills and roles of museum curators in the 20th century continue to include the knowledge enrichments of collections (Dallas, 2016, 425). Dallas also examines amateur digital archivists and personal archiving trends revealing how underlying motives behind preservation of digital content and “non-standardized” practices achieve better quality, more accessible digital collections. In taking

from the origins and the “wild frontier” practices of digital curation, Dallas articulates how the trajectory of standardizing digital curation fails. He argues that current assumptions and practices of digital curation do not align with contemporary approaches in the fields of museums and cultural heritage, “which increasingly problematizes the neutrality, and authority, of professional curators and archivists in the context of subaltern, indigenous and community voices” (Dallas, 2016, 448). To address these concerns, Dallas like Tammaro provides a recipe of next steps. He calls for multidisciplinary, medium-term research which draws from museology, archival sciences, sociotechnical infrastructure studies, and digital heritage (Dallas, 2016, 440). This research should culminate in both an actionable, relevant conceptualization of digital curation as an “epistemic-pragmatic activity” and a methodology that prioritizes human agency, pragmatics, historicity, and sociotechnical contingency. In all, the proposal addresses how digital curation should capture not only the information resources (i.e. digital objects) but also its content and context – provenance, historical function, and significance in the past as well as “their cultural biography and pragmatic efficacy in the present “(Dallas, 2016, 445). Like Ray, Tammaro, and Mutibwa et al, Dallas also argues that the development of digital curation relies on collaborating with other community groups and museums to build a new framework for digital curation. The resulting framework should not proscribe static images with simplistic descriptive metadata, but rather provide means for dynamically capturing the continuum of knowledge, curation practices, and interactions between human actors and the digitized objects (Dallas, 2016, 449).

Static images and simplistic descriptive metadata are also major concerns in Geismar’s *Digital object lessons and their precursors*. Published in 2018, Geismar’s article looks at the visual manifestations of digital collections. Geismar grounds her discussion in the history of museum curation from Franz Boas’ attempts to bring human context into object displays to current exhibit techniques which add context through screens and touchpads. Geismar argues that these attempts to contextualize singular artefacts have inevitably failed, creating a static image of cultures and peoples attached to the objects. “Digital media has the tendency to compress multiple forms of information into a single space, usually apprehended through a screen.” (Geismar, 2018, 23). Rather than simply project images on a

screen, Geismar calls for a more dynamic use of digital media and digitized objects by creating an editable, interactive, open, and distributed digital platform which allow communities to re-imagine museum spaces and redefine social relations of museum and archival property (Geismar, 2018, 23; Geismar, 2018, 26). “By thinking of digitization as a cultural process of interpretation and mean-making, we can open up what has often been radically naturalized in both museums and digital environments” (Geismar, 2018, 26). Along the same vein as Dallas, Geismar believes that there needs to be a revision in current practices of digital curation and exhibitions. Without proper context and community engagement, the experience of the user becomes more about looking at a screen than truly engaging with the objects. In justifying her revisions, Geismar examines the American Museum of Natural History’s Hall of Northwest Coast Indians which historically has present vibrant and evolving indigenous communities as static and extinct. The *Digital Totem*, a digital exhibit, allowed the museum to virtually exhibit more objects and more significantly, brought the voices of the native communities to the space through videos and interviews. Curating images of objects alongside videos, sounds, and interactives more accurately contextualized the collections and adhered to museums’ ongoing work to engage communities and present a pluralistic interpretation of cultural heritage collections.

Past Scholarship and Curricula Developments for Museum Studies (2008-2012):

The challenges presented in the discussed collection of recently published scholarship on digital curation in museums echo many challenges highlighted in apropos articles from over six years ago when digital curation and preservation were but nascent fields of study. Beaudoin’s *Context and Its Role in the Digital Preservation of Cultural Objects* provides a comprehensive summary of how digital curation had been applied and discussed in museums and cultural heritage institutions up until 2012. In a compelling comparison to Ray’s examination of the Johns Hopkins’s digital curation curriculum, Tibbo and Duff’s *Toward a Digital Curation Curriculum for Museum Studies: A North American Perspective* provides an inside look at digital curation curriculum developments for museum studies programs in 2008.

Within her article, Beaudoin examines and revises the contextual information included in the preservation of cultural objects. As Beaudoin notes, context is integral to our interaction and

understanding of cultural materials. However, up until 2012, very little discussion concerning contextual metadata had been published in digital preservation literature. Therefore, Beaudoin suggests eight major preservation topic areas for contextual digital collections based on her review of digital preservation literature. Her first suggestions include the technological and utilization aspects of metadata which pertain to the audience that the collection aims to serve and the accessibility of the file formats. Physical aspect, which is often lost when an object is digitized, should be included to describe the original setting and physicality of the object (Beaudoin, 2012, 10-12). The intangible aspects which explain the indistinct object boundaries and linkages between other digital materials should be captured and so, too should curatorial aspects which explains why the digital object exists and the curatorial decisions made to preserve it (Beaudoin, 2012, 12-13). Often already included in standard metadata practices are the authentication metadata and authorization metadata which maintain the integrity and IP rights (Beaudoin, 2012, 13-14). The eighth aspect which Beaudoin argues is devastatingly missing or lacking in standard metadata schemas is the intellectual aspect. Intellectual information includes information on the significance of the object including meaning, function, technique, historical importance as well as the narratives and communication of ideas intimately tied to the objects (Beaudoin, 2012, 15). Intellectual information significantly contextualizes cultural objects and thus, Beaudoin argues should be an integral component to curating digital collections. “Cultural materials, like text-based documents, acquire rich intellectual substance over time. Unfortunately, unlike text-based conversations which can be traced through citation records, connections between the various intellectual exchanges surrounding cultural materials are more tenuous” (Beaudoin, 2012, 19). Beaudoin lays out this metadata framework utilizing to address how to capture these tenuous exchanges and correct many of the identified weaknesses in the scholarship. Because “information concerning the historical context, or broader contextual information” is integral but often missing entirely in current digital curation practices, Beaudoin warns fellow museum and cultural heritage professionals and calls them to actively shape and cultivate better metadata schemas for their digital cultural objects (Beaudoin, 2012, 22).

Prior to Beaudoin's article, the University of North Carolina attempted to create a curriculum which would better prepare museum and cultural heritage professionals in managing digital content. Tibbo and Duff's *Toward a Digital Curation Curriculum for Museum Studies*, explores the development of the digital curation curricular framework for the museum studies program at UNC. In 2008, even fewer museums and museum studies programs embraced digital curation, a term coined seven years before at the Digital Preservation Coalition Conference. Tibbo and Duff clearly paint the academic landscape of 2008: "Museum Studies Programs currently offer even less in the way of curation of digital objects than do archival, library, and information science programs. A search on the web on the terms 'museum studies' and 'digital curation' or 'museum studies' and 'digital preservation' provides no hits related to educational programs although the MSP at the University of Athens does list a 'Museums and New Technology' course" (Tibbo and Duff, 2008, 4). Tibbo and Duff examine one of two museum studies programs that cover digital curation: the University of Toronto Museum Studies program. The authors sent out surveys to all students and recent graduates of the University of Toronto. The feedback exposed a major gap in the curriculum: knowledge of curatorial practice. Tibbo and Duff present gaps in current museum studies program and foremost, the increasing need for education and training of digital curation professionals. Through identifying these gaps, they developed a graduate-level curricular framework for the museum studies program at UNC, which aims to cover six identified dimensions of digital curation knowledge and competencies. The curriculum includes several units, each focusing on topics such as digital preservation, preservation of video, images and text; description, organization, and intellectual control; and analysis and characterization of digital object/packages As Tibbo and Duff summarize, "Curation of digital assets, whether cultural, educational, scientific, or economic, is one of the central challenges of the early 21st century" (Tibbo and Duff, 2008, 2). Programs like UNC Museum studies program aim to address this growing need through changes and advancements in their educational framework.

Advancements and Challenges:

While reviewing the decades of scholarship on digital curation within the museum field, it became evident that the museum field remains ill-prepared to manage the onslaught of digital interactions and content created by, for, or of their collections. There are two notable challenges that run through the course of literature: implementing metadata schema which captures critical cultural and historical contextual information and breaking past a static manifestation of an object to a community interpreted and interactive digital exhibition.

Beaudoin's 2012 article focuses on the gaps in metadata schemas and standards developed and practiced over the course of the past decade. Within this conversation, she ultimately concludes that museum and cultural heritage professionals need to develop a metadata schema which captures the intellectual information of an object. This includes the meaning, historical significance, narratives, and functions and stories attached to the object. While she lays out a general proposition for including this data, the nascent development of digital curation restricts her from proposing finer details and next steps. Ray indicates in her 2018 review of digital curation in the museum that strides have been taken to resolve these gaps in contextualization. Specifically, she indicates that the Conceptual Reference Model (CRM) which describes how people, places, events, and concepts have certain relationships can be linked, has become an influential model for enabling museums to properly contextualize their objects. Furthermore, she mentions two metadata schemas which museum professionals were involved in creating. These two schemas are Lightweight Information Describing Objects and Darwin Core schema. Despite these advancements in metadata and standards for museum practice, Ray and Dallas both argue that more needs to be done. Only aspects of the challenge outlined in Beaudoin's 2012 article have been resolved over the past six years. Ray stipulates that different standards are still need for museum objects and practices and this can only be done if museum take a more serious and more collaborative effort in modifying current models like CRM and metadata schemas to address their specific needs. Dallas more radically argues that modifications of developed standards is not enough, but that there needs to be a break away from custodial curation to an active curation modeled after personal archiving and amateur digital curators.

This includes “social tagging, annotation, remix, co-curation, etc., processes that are performative, unstable, and impossible to address with standard approaches” (Dallas, 2016, 439).

Another challenge, or rather a goal, which remains to be resolved is exactly what Dallas calls “co-curation” and “performative” processes. Tibbo and Duff as well as Beaudoin only briefly focus on this element of digital curation. Their articles both focus more intently on the technical aspects of digital curation including metadata, appraisal, organization, and preservation. However, Tibbo and Duff’s survey reveals a more fundamental challenge for museum digital curators: community-involvement. In the feedback received from University of Toronto museum studies alumni, the respondents indicated that public education and communication skills were most critical to their jobs. In another question which students were asked what topic what they be interested in learning more about, the majority indicated new media and project management. With public education clearly indicated as integral part of their jobs, students seemed to want a better understanding of utilizing new media to serve these purposes. Fast forward eight years, this desire to learn how to implement new media has become an urgent need within the museum field. Tammaro indicates in her 2016 article that as cultural institutions undergo a cultural transformation from authoritative interpretation—meaning curator alone interprets—to a pluralistic, community-engaged interpretation there is a critical need for museum professionals to have the skills and knowledge to develop new relationships and engagement with communities through digital objects and semantic content (Tammaro, 2016, 123). “Digital heritage context and the push to a participatory culture stimulate disruptive and sometimes conflicting discourse within the traditional profession” (Tammaro, 2016, 126). This disruption at first only existed as minor comments in a feedback survey and now exists as a fundamental challenge in digital curation within museums. In fact, museums like the Museum of Science have begun experimenting with new media and curation practices to bridge the gap between static digital curation to active digital co-curation. Mutibwa et al summarize this experience in their 2018 article detailing how Museum of Science worked with community groups to digital exhibitions of stored collections through social media. The project culminated in a prototype that which may very well pave the way for other museums to curate digital collections in conjunction with communities.

The overarching issue hidden among the reviewed scholarship is the lack of formal training for museum professionals. Digital curation which has existed as a fundamental course in traditional information professional education has not been fully embraced by traditional museum studies programs. In 2008, Tibbo and Duff published their plans for initiating a museum studies program at UNC which would embrace digital curation and preservation. At this time, only two other museum studies programs hit on the topic of new media and digitization. In 2017, Ray reviewed the John Hopkins University museum studies program and the current educational landscape for digital curation in museums. Her findings indicated that not much progress had been made since 2008. Ray summarizes, “While librarians and archivists have been engaged in the development of standards and resources for curating digital assets for a couple of decades now, relatively few museum professionals have been deeply involved in this work, and even fewer have had formal educational preparation themselves prior to their on-the-job experience” (Ray, 2017, 38).

The articles which stretch over the past two decades indicate subtle changes in the scholarship and research on digital curation and its application in museums. While early articles tend to focus on the technical details of digital preservation and digital collections, the later articles articulate broader philosophical issues with the trajectory of digital curation standards which fail to capture the contextual information and community-involvement which museums have traditionally stewarded. In all, these articles share key fundamental issues including: the need for cultural and historical contextual information, the ability to include community and public outreach within the digital platform, and the need for more research. These issues can only be achieved when the museum profession and its academic partners begin to incorporate digital curation within their studies. As museum professional, I have intentionally chosen to pursue a master’s in Library and Information Science so that I may acquire the skills so urgently needed in the museum fields. Clearly, Museums need to heed the warnings of Ray, Dallas, Tammaro, and Geismar in order to properly prepared for the digital age.

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