What's Emerging in the Field?

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Essays from the MCN 2020 VIRTUAL Scholarship Program Recipients

MUSEUM COMPUTER NETWORK, NEW YORK

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MCN would like to thank the Kress Foundation for making the MCN 2020 Scholarship Program possible. Additional thanks to Elizabeth Bollwerk and Andrea Ledesma for their support in reviewing the papers, Donna Linden for editing the essays, and Greg Albers for guiding us through the publication process.

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Foreword

Museum Computer Network (MCN) was founded in 1967 to support professionals working to transform the way cultural organizations reach, engage, and educate audiences using digital technologies and new media. For well over fifteen years now, MCN's Scholarship Program has awarded scholarships to emerging professionals from across the cultural heritage sector. These scholarships have traditionally supported scholars in attending the MCN annual conference and presenting at the conference as part of a series of 5-minute lightning talks, highlighting research and work emerging in the field. Hundreds of former MCN Scholarship recipients have experienced the benefits of the program, contributing to MCN's mission to build digital capacity across the museum sector by growing a digitally savvy workforce that can navigate and harness the latest innovations. Now, more than ever, this program must continue to expand to reach new talent, sharing their wisdom with the museum sector at large.

In 2020, as a result of the COVID-19 pandemic, MCN was forced to cancel its planned annual conference, scheduled to take place in-person in Baltimore that November, and to redesign the conference into a virtual experience that allowed the community to (virtually) come together. The scholarship program also needed to be redesigned. As part of this move, the MCN 2020 Scholarship Program, made possible by the generous support of the Kress Foundation, was still able to award scholarships to 10 qualified emerging professionals from the cultural sector, representing an international scope and varied interests/specialties. These scholarships supported museum professionals in conducting research, working with the MCN Special Interest Groups, and ultimately creating

a peer-reviewed paper of their findings centered around the prompt “What’s Emerging in the Field?” and aligned with the sustainability theme.

The MCN 2020 VIRTUAL conference, “Sustainability: Preserve/Progress,” explored how museums and museum professionals work with the tension of transformation and longevity. Throughout the conference, sessions explored the varied facets of sustainability including technological, financial, environmental, cultural, social, and even personal. As sessions and presenters looked to highlight and amplify the increasingly fraught nature of sustainability currently rippling throughout the global health, labor, racial, and social crises, scholars similarly turned toward these topics in their writings.

The MCN 2020 Scholarship Committee is honored to present this publication, “What’s Emerging in the Field?: Essays from the MCN 2020 VIRTUAL Scholarship Program Recipients.” This volume contains 10 conference-inspired responses to the state of museum technology and sustainability in 2020, including essays, reflections, case studies, and conversations. The topics explore areas as diverse as digital literacy in museum studies programs, GLAM educators adaption to virtual content, museums and open source, sustainability of digital tools, applying citizen science to digital museums, Indigenous materials and authority, film conservation, storytelling traditions, informal online learning spaces, and the ART | library deco, an online African American digital library.

It is the hope of the MCN Scholarship Committee that this volume will help continue to amplify the importance of the MCN Scholarship Program in fulfilling the mission of highlighting emerging professionals within the sector as a key to enriching and enhancing the MCN community and the field of practice. The committee strives to create a diverse cohort of scholars who represent a wide array of institutions, expertise, backgrounds, and projects; and this publication is a reflection of this goal.

It is also worth noting that our editorial process reflected the MCN community values and mission of connecting people to ideas and to each other. Each of the essays included in this volume were reviewed by a panel of volunteers, including the MCN Scholarship committee. We also extend particular gratitude to Elizabeth Bollwerk and Andrea Ledesma for their support reviewing the papers, to Donna Linden for editing them, and to Greg Albers for guiding us through the publishing process.

The Committee also heartily acknowledges and thanks the 2020 Scholarship cohort for their efforts, iterations, and continued support of this project during a particularly challenging year. We acknowledge them here: Maria Arias, Emma Cantrell, Dillon Connelly, Emily Crum, Alexis Garretson, kYmberly Keeton,

Houghton Kinsman, Dana Reijerkerk, Paulina Reizi, Julia Sager, and Lucia Taeubler.

We hope this series of essays and insights from the promising emerging professionals of the 2020 MCN Scholarship cohort will inspire and inform; and we look forward to seeing how this work is carried out by the field in the future.

MCN 2020 Scholarship Committee
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Isabel Sanz

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Eric Longo

Teaching Digital Literacy in UK Museum Studies Programmes

Maria Paula Arias

When the call for proposals for the MCN20 conference was published earlier this year, I was merely four weeks into a government mandated lockdown due to the COVID-19 pandemic. As I was growing increasingly anxious about my own academic progress as a PhD candidate, I was also growing increasingly concerned about the impact the pandemic was having on the museum sector and academia alike. Job prospects were not looking good. At this time however, I also had a privileged position at the University of Manchester, where I was teaching Arts Gallery and Museum Studies MA students to think critically about "digital" as part of an optional module titled Digital Heritage.

To cope with my anxieties I decided to focus on my role as student and teacher as a way to assess the pedagogy of post-graduate museum studies programmes. Specifically, I was concerned with the way the pandemic obligated museums and galleries to prioritize their digital spaces, relationships, and operations. I questioned whether the current academic curricula provided students the digital skills and confidence to become future-forward practitioners. I confided in my friend and colleague Dr. Sarah Feinstein (Teaching Fellow at the University of Leeds) who shared similar anxieties; together we decided to take this line of inquiry forward, which resulted in the article you're reading now and a Deep Dive[1] session at the MCN2020 Conference.

Although this article and Deep Dive session share the same "origin story," both outcomes have a different emphasis. The session aimed to provide a space to reexamine the existing relationship between academia and GLAM[2] institutions for a more sustainable practice-led partnership. The article, however, aims to explore the responsibilities of UK museum studies courses in defining and teaching digital literacy to emerging GLAM professionals. As digital skills are becoming more embedded in day-to-day practice, and as cultural institutions continue to require post-secondary degrees for entry level staff members—I question whether the current museum studies curricula are meeting these demands.

To meet these aims I decided to collect two types of data: (1) a list of current museum studies programs in the United Kingdom and (2) two semi-structured interviews with faculty members at the University of Leicester and the University of Manchester. This data enabled me to understand what these programs offer students (as advertised online) and how particular universities make decisions about the structure of them. My hypothesis is that digital literacy is not clearly identified in academic courses and skills that are taught are difficult to translate in practice, thereby creating a learning gap that needs to be filled either on the job or by other means.

Although it is out of scope for this article, I argue that this research could be used to provide context in discussions about the value of museum studies programs and their role as advocates for the need to have digital literacy across cultural organisations (from volunteers to management). In this sense, this article follows previous studies that explored the development of museum studies as a discipline and its interdependence with the redefinitions of the museum (see for example Teather 1991; Lorente 2012; Welsh 2013).[3] Particularly, it follows the calls for an interrelated community of practice that "moves beyond definitions based on specific tasks carried out within the museum walls" (Macleod 2011, p. 54),[4] and instead advocates for a more transparent relationship between museum studies programs, museum practice, and digital literacy.

DIGITAL LITERACY AS CONCEPT AND CONTEXT

In 2017, the One by One[5] project launched in the United Kingdom with the aim to "build digitally confident museums" by helping these cultural institutions "define, improve, measure, and embed" digital literacy among their staff and volunteers (One by One n.d.).[6] In their first phase of the project, the authors found that "digital" is becoming professionalized and institutionalized within the UK museum sector, which creates a demand for new digital skills among all roles throughout these cultural institutions (Barnes et al. 2018).[7]

In this sense, "digital" is becoming more strategic, organizationally distributed, and part of decision-making processes, as a result of museums' symbiotic relationships with their audiences' needs, technological developments, and economic frameworks. Despite the increasing demand for specific digital skills and broader digital literacy in the museum sector, the authors found that these "skills are not in ready supply throughout the workforce" (Barnes et al. 2018, p. 22) and that training and skill development "tends to be on an ad hoc basis" (Barnes et al. 2018, p. 26). These results highlight museums' needs to build and maintain a workforce that is digitally literate.

The *Character Matters* report points to another corresponding gap in the development and supply of tools for learning digital skills and competencies through surveying museum advertisements to understand what qualities and qualifications such institutions require (BOP Consulting 2016).[8] The report found that the majority (79%) of these advertisements listed a higher education degree (from undergraduate to graduate) as a "basic requirement" for new recruits (BOP Consulting 2016, p. 19). Although this report did not disaggregate the types or titles of degrees listed, it can be assumed that these degrees include museum studies and other related programs.

The trends described by ObO and *Character Matters* reports, suggest that post-graduate degrees such as museum studies programs, as well as digital skills and competencies, are valued highly in museum recruitment processes. These trends, therefore, raise a question about the role (and responsibility) of these post-graduate programs in supplying and developing the digital skills, literacy, and confidence that museums are increasingly demanding from their staff. In other words, these reports raise a question about the value of museum studies programs to their communities of practice (Macleod 2011). To this end, this article aims to explore the relationships between museum studies curricula and the museum sector regarding the supply and demand of digital literacy.

Jisc defines digital literacy as "capabilities which fit an individual for living, learning, and working in a digital society. Digital literacy looks beyond functional IT skills to describe a richer set of digital behaviours, practices, and identities" (2018, online).[9] In this definition, digital literacies are supported by changing technologies, as such they are part of a developmental process that adapts not only to newly purposeful tools but also to organizational structures and needs. To this end, a skills ecosystem operates to contextualize the development and maintenance of digital skills which impact the deployment, demand, and supply within a specific setting—such as an institution, a sector or discipline, or a national economy (Barnes et al. 2018, p. 8). The use of the skills ecosystem model to map and understand how digital skills are deployed, demanded, supplied, and developed in the museum sector in examples such as ObO, demonstrate the value for both the wider cultural sector and higher education.

Here I focus on the supply and development aspects of the skills ecosystem to explore the potential role of post-graduate programs (such as MA courses in museum studies) for emerging museum practitioners. Although these programs do not help fix museums' systemic digital challenges (such as resource allocation, division of labor, or organizational structuring) nor alleviate issues of accessibility and equity, they can help students approach these institutions in a critical manner so as to help them "recognize the opportunities digital offers" (Barnes et al. 2018, p. 37). To examine this, I used a mixed-method approach to collect and analyze data, including information collected from university websites and through semi-structured interviews. In the first instance, I created an archive of UK museum studies programs and searched their online descriptions for any mentions of how they supply their students with "digital literacy" or "digital skills." The second type of data includes interviews with two faculty members in different institutions. These individuals were selected because of their listed positions within their universities, which led me to assume that they are in decision-making roles and therefore, have the capacity to influence how their programs approach digital literacy (if at all).

DIGITAL LITERACY PROVISION IN UK HIGHER EDUCATION

The focus of my desktop research into UK museum studies programs includes 37 unique ones, primarily taught in England. The majority of these are MA degree programs (see Figure 1), and their titles vary in specificity. For example, some included variations of "Museum Studies" (such as "Museum and Artifact Studies"); whereas others were more nuanced, such as "Visual, Material, and Museum Anthropology."

I then searched each program website for the following relevant keywords: "digital" and "technology/ies." This search yielded a subset of the overall dataset (64.86%), where 24 program websites featured one of these keywords. I wanted to understand better how these keywords were used, for example to describe the overall aims of the program, or whether they were used in the title or descriptions of particular courses. From this subset, 6 programs had a course that used a keyword in its title (which varied from "Curating Science & Technology" to "Digital Heritage"), and 18 used composites of these keywords within their descriptions of the overall program or specific courses (such as "digital media," "digital research methods," "digital resources"). Interestingly, all of the courses that used these keywords (either in the title and/or the description) were listed as optional courses to complete the degree. For example, the University of Leicester and the University of Manchester each offer an optional module where the emphasis is on digital media within museum

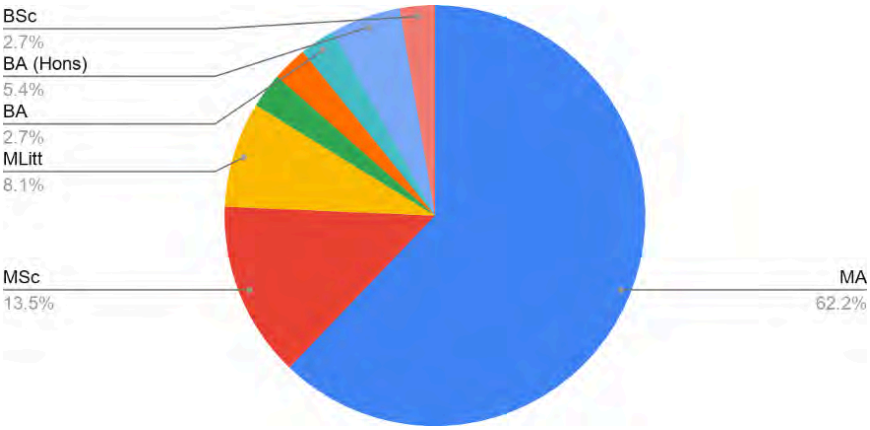

Figure 1

Types of Degree [n=37]

contexts. Whereas Leicester's module is titled "Digital," Manchester's module is titled "Digital Heritage."

Analyzing program and course descriptions, and whether or not they include relevant keywords, offers a limited perspective on how these academic degrees teach digital literacy (if at all). It is more challenging to understand how these programs go beyond functional skills to enable "a richer set of digital behaviours, practices, and identities" (Jisc 2018). To this end, I invited two academics to participate in semi-structured interviews.[10] Their perspective provides an opportunity to understand how museum studies programs define and teach digital literacy, how these decisions are made, and how the decisions translate to their programs' online presence.

Dr. Bergevin is the Programme Director for Socially Engaged Practice at the University of Leicester's Department of Museum Studies. She is also a Teaching Fellow in Flexible Learning, which means that she is responsible for developing all distance learning programs for the department. Dr. Arvanitis is a Senior Lecturer at the Centre for Museology at University of Manchester and leader of the MA in Art Gallery and Museum Studies (AGMS).[11] He is also the principal lecturer in the program's optional module Digital Heritage.

For Dr. Bergevin, digital literacy is not just the ability to use digital platforms and tools, but also "feeling confident in it" and being able to discern what tools to use for different kinds of tasks. Importantly, she also mentions that being digitally literate also means "knowing when you don't need a digital solution." She notes that in the flexible learning Museum Studies program, they offer an

optional module called Digital that provides students with an overview of the way that technologies have been used in the museum sector. The module is also "imbued with design thinking and universal design theory" that culminates in a final assignment where students propose a "solution" to a set list of issues she collected from museum practitioners. Other than this optional module, Dr. Bergevin mentions that digital literacy is embedded in other modules such as Collections Care, where students are asked to "unpick" the platforms used to store collection information. Ultimately, for her, digital literacy is about "thinking through what are the implications when we use technology in certain ways."

When Dr. Bergevin develops the Museum Studies MA, MSc in the flexible learning format (in a virtual learning environment), she collaborates with a range of academics to ensure that it provides the same curriculum as the on-campus program. She also collaborates with 'sector-facing professionals' (such as Museum Detox[12] speakers) to ensure that the "sector is feeding" into the curriculum. This consultation process results in setting what "is core" for the program and therefore, what knowledge or competencies are prioritised. Although "digital literacy as a phrase" does not come up in these decision-making processes, Dr. Bergevin mentions how "digital" has been embedded throughout the program, across modules and ways of thinking, due to the heavy championing by Dr. Ross Parry (a leader on the ObO project as well as faculty in the Museology Department at Leicester).

Although digital literacy is "core but not explicit," Dr. Bergevin described a module where sector professionals (ten museum activists) had a direct influence on the curriculum, by advocating for a more explicit link and learning outcome based on digital literacy. In this example, the professional panel helped develop a module titled Museums and Contemporary Issues with an emphasis on social media and its role in cultural institutions from activism to contemporary collecting practices. In the end, the module was created taking these recommendations into account, resulting in a curriculum that had not previously included an explicit link to digital literacy.

At the University of Manchester, Dr. Arvanitis defines digital literacy as "a set of knowledge [and] experiences around the use of digital technologies to solve problems in daily life." Expanding on this definition, he makes a distinction between digital literacies that are "general" and those that are "contextualized within the cultural sector." He mentions that in the AGMS program there is a history of teaching both types, however, more recently, he has placed an emphasis on "digital skills" in relation to the "topics and questions in AGMS as a museology course." These "contextual" digital skills are primarily taught in an optional module titled Digital Heritage, which combines "knowledge areas that link to professional practice." He describes how he has been building this module on a "triangular" framework of "knowledge, experience, and skills" in a

way that aligns within the overall aims of the AGMS program to provide practice-based learning.

Dr. Arvanitis mentions that he also updates the Digital Heritage module for each new cohort by tracking "current discussions and debates and practices in the sector." He considers the following question in this process: What is happening right now in the sector that the students who will graduate will most probably face as a topic of discussion in their future museum workplace? Lastly, he considers the practicalities of teaching this module such as guest speakers' availabilities, access to existing labs or similar resources, and students' existing skills and knowledge. In this sense, he is continuously developing this module on a framework that improves the digital competencies of students, while acknowledging the sector's needs. Interestingly, he also notes how this module provides him an opportunity to learn alongside (as well as from) students on topics and on skills that he did not previously have.

The AGMS curriculum has a number of learning outcomes and, although digital literacy "is not used as a phrase," Dr. Arvanitis describes how digital literacy is embedded in a number of these outcomes (for example under the headings of "knowledge" and "employability"). Despite this effort to add digital literacy throughout the program, Dr. Arvanitis adds that "in practice, digital literacy" needs to be structured more strategically across AGMS and within a range of core and optional modules. Part of this strategic approach would also address an issue that Dr. Arvanitis noted about the existing assumptions of small faculty teams, wherein specific topics are only going to be addressed by specific individuals. In this sense, Dr. Arvanitis feels that they are missing a more "subtle and sustained" approach to digital literacy than what is listed as part of the program specification (including its learning outcomes). Instead, a more transparent approach with "an increased baseline" for digital literacy throughout the program, would let students know they are gaining digital skills and knowledge at an equal level despite the modules they choose to take.

Although Dr. Arvanitis mentions that they strive to create links between core and optional modules, these links are not articulated in the way that the program is described or advertised online. So students seeking to learn more about how AGMS approaches digital literacy by visiting the University of Manchester website would not necessarily understand how the modules interrelate. In this sense, the department is "missing a trick," as Dr. Arvanitis describes, where they need to create and publicize a thematic narrative that links different areas of practice and theory throughout their different modules.

FUTUREPROOFING

My conversations with Dr. Bergevin and Dr. Arvanitis show that there are significant similarities between the two programs and their approaches to digital literacy. For example, both described how their programs are developed within an acknowledgment of the needs of the sectors, as well as with an aim to improve students' digital competencies. Similarly, despite recognizing the importance of having a strategic and embedded approach to digital literacy throughout the programs, both admitted that this provision is concentrated in optional modules (Digital in Leicester and Digital Heritage in Manchester). These comments correlate to my earlier observation based on the descriptions provided by museum studies programs' websites. These results suggest that it is not just the University of Manchester that is "missing a trick." instead most museum studies academic programs seem to have a communication gap between their ideal approaches to digital literacy (embedded throughout) and the publicized curriculum (based on single optional modules).

Despite using different descriptions to define digital literacy, both participants allude to the definition used by the ObO project. On one hand, Dr. Bergevin aligns her definition to having confidence to make decisions, whereas Dr. Arvanitis aligns his definition to the ability to solve problems. Both definitions can be interpreted as "capabilities which fit an individual for living, learning, and working in a digital society" (Jisc, 2018). It could be said, therefore, that both participants have a clear understanding of what digital literacies are and how these are supplied and developed as part of the skills ecosystem to which their academic institutions belong. Furthermore, by making efforts to reflect the sectors' needs—for example by collaborating with professionals and inviting guest speakers to fill knowledge gaps—both programs seem to be making headway to meet the "digital" needs of museums and their practitioners. What is unclear, however, is whether Dr. Bergevin and Dr. Arvanitis' colleagues share their definitions and therefore their approaches to digital literacy within their own modules (outside of the digital-specific and optional ones). I argue that their next program-development meetings need to include an internal audit to explore the potential different definitions among colleagues who inevitably influence their approaches to teaching digital literacy across modules.

What this data suggests is that on one hand digital literacy is clearly identified by my participants, thereby giving the illusion that their colleagues may share their definitions. On the other hand, digital literacy is not articulated outside specific modules, so efforts to translate these competencies elsewhere are muddled. How digital literacies are introduced throughout the programs is not clearly identified, therefore creating a perspective that the efforts to teach digital literacy are stunted within optional modules. I argue that this lack of clarity is

also responsible for a lack of publicized information on university websites, therefore further problematizing how these competencies are translated to the wider public (let alone prospective students or potential institutional partners).

Another potential fallout from this lack of transparency, is the inability to describe digital literacies as a recent graduate when applying for professional posts. This last point, however, is difficult to justify given the scope of this article. I propose, however, that one area of future research could be an audit of recent museum studies graduates to understand their definitions of digital literacy and whether or not they were able to gain these competencies through their academic degrees.

Because of the interrelated nature of museum studies programs, museum practice, and digital literacy—I argue that another area for further research is to audit how digital literacy is defined within museum practice and, specifically, how it is advertised in job postings. A gap of understanding within museum studies programs could have relational effect within the community of practice (Macleod 2011) at institutional levels (for example, how to advertise for and hire digitally literate recent grads), as well as in the perceived value (and responsibility) of these higher education programs in supplying and developing the digital skills, literacy, and confidence that museums are increasingly demanding from their staff.

Identifying these areas of future research follows my earlier argument to suggest that the research I present here could be used as an entry point to discussions around the value of museum studies programs—particularly, about their role to advocate and provide digital literacy to upcoming (as well as existing) museum practitioners. Although this paper does not aim to qualify this value, nor to be used as a personal opinion piece, one last area of future work would be a public forum where academics and practitioners may reflect on their experiences and perceptions of the value of museum studies programs. For me, this would be a welcome opportunity to reflect on my privilege as a museum studies student, and to turn a critical eye on my pedagogy as an aspiring museum studies academic.

APPENDIX: INTERVIEW QUESTIONS

- How do you define digital literacy?
- How does the museum studies program teach digital literacy?
- How are priorities set for teaching digital literacy in this program? If a program does focus on digital literacy, is that due to a larger university mandate to improve the

digital competencies of students, or does it arise out of a program's acknowledgment of the sector's needs.

- To what extent does your program reflect the sector's needs for digital literacy in their hiring pools?
- What is a sector need, in relation to digital literacy, that your program does not currently address?
- What is the process like from deciding what the curriculum will look like, to what is shared online on the program's website?

NOTES

1. The session was titled and it aimed to be a transparent discussion about the successes and failures of museum studies curricula in relation to the digital literacy needs within the sector.
2. Galleries, libraries, archives, and museums
3. Lorente, J-P. 2012. "The Development of Museum Studies in Universities: From Technical Training to Critical Museology." *Museum Management and Curatorship 27*(3): 237–52.

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5. Hereafter ObO.
6. One by One. n.d. "About." One by One. https://one-by-one.uk/whats-it-about/
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9. Jisc. 2018. "Developing Digital Literacies." https://one-by-one.uk/2018/03/23/phase-1-findings/
10. See the Appendix for interview questions.

11. Hereafter, AGMS

12. See museumdetox.org

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The Art of Gathering Online: Glam Educators' Self-Efficacy in the Age of Coronavirus

Emma C. Cantrell

While we will not know the full impact of the COVID-19 pandemic on galleries, libraries, archives, and museums (GLAM) for years to come, we did witness some of the effects within weeks. Leading up to the March 11, 2020 pandemic declaration by the World Health Organization and shortly afterward, organizations across the world canceled events, shut their doors to the public, and laid-off or furloughed staff. Within the United States in particular, these measures disproportionately impacted education staff at many institutions. For educators who were still employed, it was immediately clear that if programming were to reach audiences who were increasingly sheltering in place, working and schooling remotely, and social-distancing in public, GLAM education would need to change.

To carry out educational missions amid closures and staffing changes during the COVID-19 pandemic, GLAM educators have rapidly adapted to delivering virtual educational content in many forms. This article describes empirical research conducted in August 2020 on the scope of those adaptations on a sample of 43 participating educators employed at GLAM institutions in the United States and Canada, as well as the impact of this period on these educator's self-efficacy beliefs toward delivering virtual educational experience and content. This research is guided by three research questions.

1. To what extent did GLAM educators adapt to delivering virtual educational content and experiences in the period of March to August 2020?

2. How do educators perceive the impact of these changes on their professional self-efficacy as it relates to delivering virtual educational content and experiences?

3. What factors contribute to GLAM educators professional self-efficacy in that work?

LITERATURE REVIEW

According to the "National Impact of COVID-19 Survey on United States Museums" conducted in June 2020 by the American Alliance of Museums (AAM), "75% of museums stepped into their pivotal role as educators providing virtual educational programs, experiences, and curricula to students, parents, and teachers."[1] The evidence of a field-wide increase in virtual educational experiences and content can be found on many museum websites, across social media, and in the vast collection housed in the Museum Repository of Distance Learning, a project of AAM's Ed Comm.[2] After debuting in April 2020, the repository has grown to over 1,000 resources (as of October 1, 2020) "representing sites across the United States and in Canada and Mexico, including eight languages and American Sign Language."[3] But even just a few months into the pandemic, that pivot in programming did not translate into program funding or job security for educators. The AAM survey notes that "two-thirds (64%) of directors predicted cuts in education, programming or other public services due to significant budget cuts." An October 2020 update to the AAM survey confirmed these grim predictions with 67% of respondents reporting cutting back on "education, programming, and other public service due to budget shortfalls and/or staff reductions" and 53% of responding museums indicating "they have had to furlough or lay off staff.... Positions most impacted by staffing reductions included frontline (68%), education (40%), security/maintenance (29%), and collections (26%) staff."[4]

Given that GLAM educators have recently experienced an unprecedented shift toward working with digital tools to design and implement virtual educational programs, it becomes valuable to understand what impact that shift has had on their cognitive, social, emotional, and behavioral development as professionals. Socio-cognitive theory presents self-efficacy as a promising measure of this type of complex growth. Self-efficacy was first described by Albert Bandura[5] and is most easily understood as context-specific self-confidence or an individual's own beliefs about their ability to accomplish a certain task. While Bandura broadly

describes self-efficacy as a type of cognition, a review of the literature shows that both theory and research support the notion that self-efficacy contributes to social, emotional, and behavioral development.

Rather than measuring an individual's personal psychological or physical qualities, self-efficacy measures focus on an individual's performance capabilities on given tasks.[6] Self-efficacy is multidimensional and task specific, and cannot be generalized to the nature of an individual. For example, in a study of athletic self-efficacy, participants may be asked to judge if they are capable of throwing a baseball to a teammate, or if they believe they can successfully run a five kilometer race, but measures of self-efficacy would not ask participants to judge themselves as athletic. Similarly, self-efficacy is domain specific. In our example, this means that self-efficacy beliefs for baseball throwing ability may differ from beliefs about running ability. Bandura theorized that self-efficacy is influenced by four types of experiences: enactive attainment, vicarious experiences, verbal persuasion, and physiological states.[7] To continue with with the baseball player analogy, imagine that one's self-efficacy beliefs might be influenced by previous experience successfully throwing a baseball, vicarious experiences of peers successfully throwing a baseball, by a coaches' encouraging words of support during practices, and one's own judgments of the physical experience of playing.

Across the literature, there exists a standard methodology for quantitative measurement of task-based self-efficacy beliefs. Researchers provide participants items describing domain specific tasks of varying challenge and ask participants to rate their degree of confidence in their own ability to complete each task on a unipolar 0–100 point scale with 10-unit intervals. In these scales, a score of 0 indicates the belief "Cannot do at all," a score of 50 indicates "Moderately certain can do," and a score of 100 indicates "Highly certain can do." Researchers also commonly collect qualitative data in accompanying questionnaires, interviews, observations, etc.

Tsang, Hui and Law[8] describe self-efficacy as "the most important construct of social cognitive theory" because of the vast body of research that shows people's self-efficacy beliefs are predictive of affect, motivation, and actual behavior, including academic performance and vocational choices. Self-efficacy is used by researchers as a measure of socio-cognitive development in youth and adults, frequently in educational contexts, including educator professional development and use of technologies.

Understanding how and why GLAM educators' self-efficacy beliefs around virtual education practices have changed this year may support field-wide understanding about the ongoing needs of these educators in the virtual environment, specifically during the COVID-19 pandemic, but also during any time of profound change. Because self-efficacy is both measurable and

understood to be influenced by a variety of experiences, self-efficacy measures are compelling assessment tools for GLAM workers and students working toward careers in the field, provided that the tools are appropriately designed to reflect the nuances of desired skills and tasks as well as the factors contributing to those self-efficacy beliefs. For the purposes of this study, understanding change in self-efficacy beliefs related to creating and implementing virtual educational content and experiences from February to August 2020 will give insight into the growth that occurred during this tumultuous period.

METHODOLOGY

This study is a descriptive, mixed-methods survey. The sole instrument in this study was an online questionnaire, including both quantitative and qualitative questions. The quantitative questions utilized Bandura's self-efficacy scale with measurements of "February 2020" and "Today" (August 2020) on tasks associated with accessing, conceptualizing, implementing, and evaluating virtual educational content and experiences. Additionally, the questionnaire asked participants to identify themselves and their employing institutions in various ways to support a description of the sample.

SAMPLE

I distributed the call for participants and the questionnaire through several electronic mailing lists associated with GLAM professions, including talk-museumed and MCN. Additionally, I shared the call for participants through my public LinkedIn and Twitter profiles, including hashtags associated with the field. The sample consisted of 43 professionals who identified as having "worked as educators in the gallery, library, archive, and museum sector at any point to date in the year 2020." A variety of questions about their role and the institutions they work for reveal the diversity of experiences within the sample, and Appendix A further describes the participants.

ANALYSIS

Quantitative data from the questionnaire were analyzed using descriptive statistics. For the self-efficacy scale, I compared "February 2020" and "Today" scores using a two-tailed, paired samples T-test. I analyzed the qualitative data using emergent coding to identify trends and patterns within and across participant responses. Because of the relatively small sample size, responses

were analyzed holistically, rather than within and between the demographic groups identified within the sample.

LIMITATIONS OF THIS RESEARCH

A limitation of this study is that the scaled items on the questionnaire required participants to recall their self-efficacy beliefs at a time in the past. In an ideal scenario, the study would circumvent the unreliability of recollection by collecting data from participants in real time (in February and August 2020). However, due to the research timeline, such practices were not feasible, and the study asked participants instead to reflect on and rate how they might have felt prior to this field-wide shift.

As a museum educator in the United States, my participation in professional virtual communities including industry email lists, LinkedIn, and Twitter enabled the distribution of the call for participants. These distribution methods, as well as the survey being offered only in English, may have skewed the sample toward U.S. and Canadian museums, rather than showcasing the full international diversity of educators working in galleries, libraries, archives, and museums.

RESULTS

RQ i: To what extent did GLAM educators adapt to delivering virtual educational content and experiences in the period of March to August 2020?

Across the sample, participants reported experimentation with alternate forms of virtual educational content and experiences (see Figure 1), with the greatest increases in live video experiences, both live video gatherings (which were defined as fully interactive experiences such as Zoom meetings) and live video productions (which were defined as those with limited interaction, such as Zoom webinars, Facebook Live, etc.). Other forms of content and experiences included online exhibits, digital interactive activities, social media presence, and more.

RQ ii: How do educators perceive the impact of these changes on their professional self-efficacy?

In the self-efficacy rating portion of the questionnaire, there were statistically significant increases for all 11 general tasks and activities associated with virtual GLAM education, including conceptualizing, collaborating, budgeting, assessing, and more. The greatest mean changes from “February 2020” to “Today” were in implementation, advocacy, and ability to support direct reports in developing

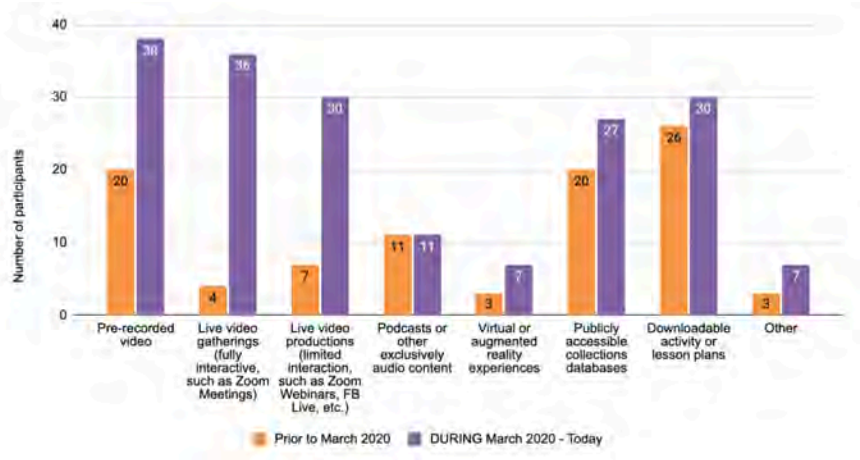


Figure 1

How did the forms of virtual education content and experiences change from March to August 2020?

virtual educational content and experiences, with mean increases of over 30 points. This data is further described in Table A.

For the 11 tasks and activities directly associated with virtual GLAM education technology (described in Table B), 10 showed statistically significant increases in the period of "February 2020" to "Today." These included accessing high-speed Internet from home, selecting appropriate hardware and software, obtaining appropriate hardware and software, obtaining content resources and analog tools, and understanding the capabilities of hardware and software. The task that showed no statistically significant change was "Access high-speed Internet to deliver virtual educational content or experiences from work." This lack of statistical significance on this questionnaire item alone suggests that participant self-efficacy toward accessing high-speed Internet at work cannot be attributed to changes occurring in the 6-month study period.

Table A Self-Efficacy in GLAM Education General Tasks

General tasks and activities associated with virtual GLAM education	(n=)	"February 2020" Mean	"Today" Mean	Statistical Significance ($p<0.05$)
Participate in virtual educational content or experiences from other institutions for your own learning (personal or professional)	43	85.3	98.1	0.000
Conceptualize virtual educational content or experiences to advance your institution's mission, vision, and/or values	43	58.6	88.6	0.000
Implement virtual educational content or experiences to advance your institution's mission, vision, and/or values	43	50.0	97.9	0.000
Advocate for virtual educational content or experiences to advance your institution's mission, vision, and/or values	43	53.0	90.5	0.000
Collaborate with other departments at your institution to design virtual educational content or experiences	43	51.2	82.8	0.000
Collaborate with partners external to your institution to design virtual educational content or experiences	43	43.0	74.7	0.000
Access professional development to improve your ability to offer virtual educational content or experiences	43	61.4	88.1	0.000
Adjust your departmental budget to reflect the costs of delivering virtual educational content or experiences	43	40.5	67.2	0.000
Assess or evaluate the impact of virtual educational content or experiences	43	40.9	67.9	0.000
Communicate the impact of virtual educational content or experiences to stakeholders	42	40.5	75.7	0.000
Support your direct reports in developing virtual educational content or experiences	41	38.0	74.6	0.000

Table B Self-Efficacy in GLAM Education Technology

Tasks and activities associated with virtual GLAM education technology	(n=)	"February 2020" Mean	"Today" Mean	Statistical Significance (p<0.05)
Access high-speed internet to deliver virtual educational content or experiences from home	43	74.4	87.2	0.000
Access high-speed internet to deliver virtual educational content or experiences from work	43	75.6	79.3	0.248
Research and select the most appropriate software (programs, apps, etc.) to deliver virtual educational content or experiences	43	46.0	77.0	0.000
Research and select the most appropriate hardware (computers, tablets, cameras, etc.) to deliver virtual educational content or experiences	43	40.0	71.2	0.000
Research and select the best online communities or spaces to engage your desired audiences in virtual educational content or experiences.	42	39.3	66.7	0.000
Obtain the most appropriate software (programs, apps, etc.) to deliver virtual educational content or experiences	43	38.6	62.6	0.000
Obtain the most appropriate hardware (computers, tablets, cameras, etc.) to deliver virtual educational content or experiences	43	42.1	61.9	0.000
Obtain necessary content-related resources (such as images, text, video, etc.) to develop virtual educational content or experiences	42	56.0	76.0	0.000
Obtain necessary analog tools (such as art or office supplies) to develop in virtual educational content or experiences	43	70.9	78.6	0.044
Understand the capabilities of the software (programs, apps, etc.) you have access to, to deliver virtual educational content or experiences	43	45.3	77.4	0.000
Understand the capabilities of the hardware (computers, tablets, cameras, etc.) you have access to, to deliver virtual educational content or experiences	43	48.6	77.7	0.000

RQ iii: What factors contribute to GLAM Educators professional self-efficacy in working virtually?

Overwhelmingly participants in this study identified the shift in institutional priorities that allowed them to delve into virtual educational content and experiences as the primary factor contributing to increases in their self-efficacy. The perception of moving education experiences and content into virtual space as a "necessity" from leadership allowed for novel opportunities for experimentation and engagement. One participant noted, "The change in prioritization related to virtual content delivery (increased my confidence). I have taught virtually in other contexts in the past but it was never an institutional priority to deliver this type of content before February 2020." The permission from leadership to delve into this area of GLAM education and to learn along the way allowed educators to develop self-efficacy through *enactive attainment*. This process was concisely described by one participant who said that they increased their confidence:

> Just [from] experience doing it! Plenty of trial and error—we've been doing virtual programs since March and we've learned so much about the technology, format, planning along the way. Another respondent noted, "Having been forced into developing virtual programming due to COVID-19 and the flexibility to try new things has increased my confidence in executing all the aspects described above.

Several participants noted the impact of learning opportunities, both formal and informal on increases in their self-efficacy beliefs. When asked specifically about what educational experiences contributed to generalized confidence (see Figure 2) in offering education content or experiences, participants most commonly selected self-study (through articles, books, video tutorials, etc.), followed by webinars or other training from GLAM professional organizations. Participants also noted the importance of direct instruction and support form colleagues, some within their institution and others accessed through their professional networks. Others gained confidence from previous educational experiences in degree or certificate programs.

Despite the mean changes appearing as increases in the aggregate data, individuals within the study did report decreases in confidence on a variety of tasks. Participants could then further elaborate upon their ratings in an open-ended response section, which when examined holistically revealed several patterns of circumstances participants attributed to the decreases they experienced in their self-efficacy beliefs. Foremost among these were several variations on the theme of institutional uncertainty. From limited budget, to unstable staffing, to lack of verbal support from leadership, the lack of clarity presented a considerable challenge.

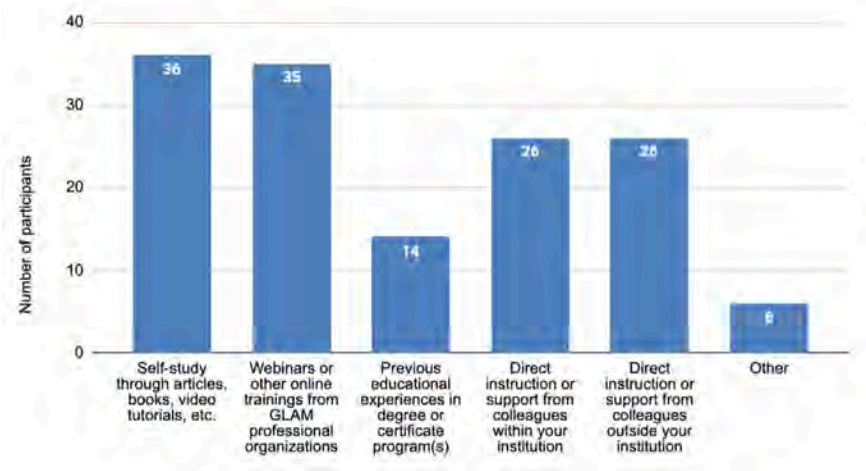


Figure 2

What educational opportunities contributed to GLAM educator confidence in offering virtual education content or experiences?

Others in the study described access to people and technology as a factor contributing to decreased confidence. While educators were largely using the same tools and infrastructure in February and in August, the increased reliance of these tools for everyday work brought attention to their shortcomings. Social distancing public health protocols, as well as furloughs, presented changes in connecting with collaborators and audiences. As one participant wrote, "Having all the staff be separated from each other and from our offices and equipment … makes planning anything just a little more cumbersome."

Finally, several participants described a process coming to know how much more there was to learn, around use of specific software, accessibility, image rights, evaluation, and more. As one participant noted, "I do realize now what I don't know—the more I have learned, the more I have understood that there is a whole world out there of virtual museum programs and also platforms I am not fully familiar with." "In February," commented another participant, "I probably thought certain things would be easy to convert to the virtual space, that ended up being difficult or had a lot of 'red tape' around it, such as image and video rights." In some cases, this gap between what participants estimated their self-efficacy level to be in February and their reported level in August, stayed the same. One respondent described this lack of change of score, noting it did not necessarily represent a lack of change in their situation: "While there's been an increase in *support* for virtual programming, budgetary constraints *still limit* what

tools I can get access to." The presence of many concurrent changes in GLAM institutions during the study period may figure into the complexity of interpreting this data.

DISCUSSION AND CONCLUSION

The data from this study suggested that the first 6 months of the COVID-19 pandemic served as a period of significant growth for participants' self-efficacy beliefs related to virtual educational practices. While tightened institutional spending, furloughs, layoffs, and the need to adapt to an increasingly online audience presented an extremely stressful challenge for these educators, those who remained in their roles and were able to self-study, experiment, and receive support from existing networks increased their professional self-efficacy as it relates to work in the virtual space.

Analysis of the data also suggests that there are several areas where GLAM educators could benefit from support from others in the field, notably: budgeting to adapt to virtual programs; researching/selecting the most appropriate software, hardware, and online communities; and evaluating virtual engagement, all had median scores in the 60s, while all other areas averaged at 70 or above. For educators forced out of the field due to layoffs and hoping to return, expertise and experience in these areas may increase their competitiveness in what will likely be a crowded job market.

This study contributes to a growing body of documentation about changes to the GLAM and education fields during the COVID-19 pandemic, as well as pre-existing research on self-efficacy of educators. Further opportunities to expand on these findings could include a longitudinal study of educators relationship with virtual education practices over years-long careers, a study of collective self-efficacy among interdepartmental or cross disciplinary teams of GLAM educators, and investigations into the success of specific interventions to support GLAM educator's work with virtual experiences and content.

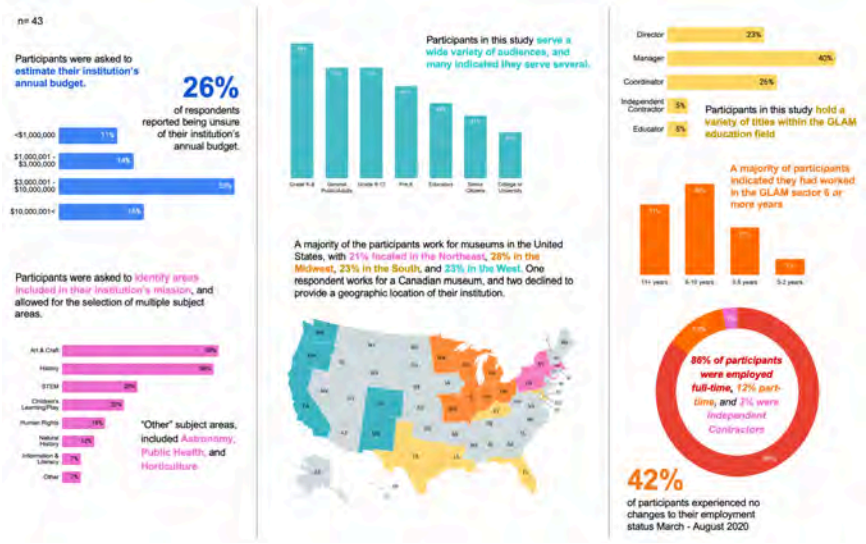
IMPLICATIONS FOR GLAM INSTITUTIONS

While summer 2020 reports from AAM indicated that funding and staffing cuts to education was widespread across American museums, this small empirical study suggests that for the educators who were allowed to continue working, the period of March to August 2020 was one of significant growth toward self-efficacy in delivering virtual experiences and content. What is more, the results suggest that institutions can support educators' self-efficacy during times of change by providing access to appropriate tools, freedom to pursue relevant

professional learning opportunities, and clarity around institutional goals in times of change.

Previous studies suggest that self-efficacy beliefs influence not only affect and motivation, but ultimately can play a role in performance. Educators who were given the opportunity to experiment and adapt to changing institutional priorities and community needs this year are now better equipped than they ever have been to create learning experiences that can be accessed virtually. As the pandemic continues to affect both GLAM operations and daily life, it remains to be seen what the lasting impact of this shift toward increased virtual educational engagement will be. However, the educators who were able to adapt their practice and continue their own learning may go on to see this time as one of profound professional growth, potentially impacting their work for years to come.

APPENDIX A: DESCRIPTION OF THE SAMPLE



View online at https://publications.mcn.edu/2020-scholars/gathering-online/#appendix-a-description-of-the-sample

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The Modernization of Museum Tools: Designing Technology with Sustainability in Mind

Emily Crum

INTRODUCTION

In January 2019, the *Daily American* "Question of the Week" asked: "Are museums still relevant with the digital age?"[1] The author discussed a visit to the Smithsonian Museum to see the *Hope Diamond*, affirming: "I feel museums are extremely relevant even though we live in an age of technology. Virtual tours of museums or pictures of artifacts cannot replace the real objects seen in person."[2,3] The world grappled with this first hand when the COVID-19 pandemic forced the mass shutdown of cultural institutions around the globe. I want to acknowledge this mass transformation, but also the widespread adaptation of virtual engagement for museums. As an emerging museum professional, I—and others—were forced to dive headfirst into the deep end of digital and try to reconcile the field's reality versus my skills and investments as an educator. Not only do virtual tours not replace seeing objects, but after remote working for 40 hours—not to mention if children were attending virtual school, too—logging back onto a computer is the last thing someone wanted to do. The twenty-first century's digital age complicates the struggle of art museums[4] faced with remaining relevant as society struggles with Zoom fatigue and becomes more engaged with social media, digital platforms, and forgets reality—or museum objects—in their immediate presence.

When viewed strategically as versatile museum learning tools, digital technologies[5]—such as social media, blogs, podcasts, virtual exhibition tours, virtual lectures, in-gallery screens, and storytelling interactives—allow museums to deepen the physical experience with art and modernize the traditional informal modes of learning in the gallery space. This modernization includes designing content, programs, and curating virtual happenings. Although simple in theory, the reality is that many museums are slow to adopt these modern tools. Museum boards and executives do not see the investment as something sustainable[6] within their means, capabilities, and budgets. The general, average museum worker would not argue against modernizing their department's offerings with digital tools. Still, met with much difficulty—budgets, capacities, and the digital literacies of staff and museum leadership—the discussion is stopped before the project gets off the ground. As Dr. Vera L. Zolberg eloquently stated: "The survival of museums as institutions depends upon their ability to adapt to their changing social and intellectual environment." [7] In the digital age and struggling with the long-term changes due to COVID-19, now is the time to adapt and address the changing landscape.

The significant pushback for digital technologies is that they are unsustainable investments of precious resources. How do you design digital technology when today's technologies are always modernizing? With so much at stake—money, time, outcomes, and more—how do you design digital technology with sustainability in mind? Where do you start, and how do you think about digital technologies as such tools? Also, not all art museums or institutions can afford to have a dedicated digital team or staff, which is amplified by the financial hardships associated with the COVID-19 pandemic. A hurdle of adopting digital technology is the number of resources it takes to create, design, manage, and continuously update programming. There are more possibilities for large institutions, such as the establishment of a digital experience department or large grants to test a new program. The reality is that not all museums have access to these resources.

Smaller institutions are not absent from the cultural sphere, and while they may not be as nationally prominent, these institutions usually address more specific communities or subject matters. Small institutions with limited staff and lack of resources have more pressing issues to ensure the institution's longevity. These institutions must take into consideration the payoffs, and if the outcomes are worth the commitment of resources. While these are things to be considered, museums of the twenty-first century must adopt new tools of engagement, even small institutions. While these museums will not adopt the most cutting-edge—virtual reality or sensory—technology, these are not the only types of technologies to invest in or create.

This paper serves as a theoretical foundation for museums and museum professionals new to digital and as a resource during COVID-19 times and beyond. I seek to investigate if designed successfully and with a purpose whether digital technologies are sustainable investments of money, resources, and time. The paper also serves as a guide to start the conversation around integrating digital technologies into museums' virtual and physical spaces. How do you do this as a smart investment beyond COVID-19? Where do you begin and how do you get to the finish line?

SUSTAINABILITY IN THE DIGITAL AGE: OUTTHINKING THE EVOLUTION OF NEW TECHNOLOGY

There are many reasons why art museums are slow to adapt to the modern tools of society. If 2020 has taught the museum world anything, it is that digital technology is now more valuable than ever before. Still, people—such as myself and the broader MCN community—exist to lead the modernization of art museums into multisensory spaces of art interpretation, learning, and engagement.

While I see the optimistic outcomes of digital technology, I acknowledge the perceived sustainability issue when integrating tools that will become outdated in a mere year or two. The most common statement I encounter as a museum digital strategist is: "digital technology advances too quickly, so it is not a sustainable investment of museum resources." I agree, to an extent. However, there are specific ways museum professionals can think strategically about investing in digital technology. Specifically, I see three ways: viewing technology as a long-term investment, museum staffing practices, and following my *Designing Digital with Sustainability in Mind: A Guidebook* to aid in the process.

When viewed merely as hardware—a single investment in digital technology—the interest or desire to take the digital plunge may seem daunting. To combat the rapid evolution of technology, museum professionals can advocate for the investment of designing virtual programming—not the physical hardware, but the programs that run the software and get projected onto the screen.[8] I am especially interested in the idea of compiling a database that can be always and instantly updated as new works are added or deaccessioned. As physical hardware becomes outdated, the database or software will remain effective. While this does not eliminate the need to adapt or update, it does justify the investment of the resources and time. This is because it will assist multiple departments. For example, education will access collection information quickly,

curatorial will be able to track objects easily, and marketing will choose images for their social profiles.

Another aspect of sustainability is staffing. Traditionally museums have isolated digital departments, treating them as internal "consultants." Even though digital departments are integral to every part of the museum, their specialty is the technology, not the content. Thus, museum roles such as digital and media specialist manager, digital media manager, digital content manager, or even basic database management attract some familiar with museum work and draw professionals who are technology experts. A part of changing the model to be sustainable is creating roles to toggle between the two. Using myself as an example, I struggled to find positions—it was the middle of a global pandemic when I graduated with my Master's—suited to me as a museum educator by trade, but acutely a digital strategist focused on digital learning in the museum environment. Despite digital being a vital portion of the museum's inner workings, staffing practices and open positions have not aligned with the field's growth in general.

We are no longer merely using digital to measure online engagement or statistics. Still, these tools need to be adapted to modernize the in-museum experience and the virtual offerings outside the museum walls. To do this, I believe museums must have individuals working to communicate between specific departments and moderate or manage projects related to their expertise. With specified individuals in these positions to create strategic digital solutions, thinking strategically about integrating these tools is simpler. By understanding one department's intentions and how to design them in digital manifestations, developing digital tools to go beyond "technology for technology's sake" and transform into sustainable, suitable investments of money, time, and museum resources.

Finally, how do you go about designing these tools with sustainability in mind? It is easy to state that things can be done, but we are about deliverables as museum workers. The next section—and the remainder of this article—is dedicated to examining the processes of how I would strategically design sustainable technology for institutions new to it.

DESIGNING DIGITAL WITH SUSTAINABILITY IN MIND: A GUIDEBOOK

As explained, there are ways to strategically think through how to design digital with sustainability in mind. Understanding *how* to tackle the process in this way is easier said than done. There are procedures to follow to identify the desired outcomes, learning strategies, and desire to invest in digital technology.

Your institution decided to invest in technology; where do you start? When I was completing my Master's thesis, I began to theorize and create *Designing Digital with Sustainability in Mind: A Guidebook*, a helpful guide to mediate how to think strategically about designing digital for sustainable futures, not technology for technology's sake. First, identify the who, what, where, when, and why of creating sustainability in mind.

This subsection will assist with determining your expectations and outcomes when beginning the process. Second, what questions are vital when tackling this undertaking? By thinking through these questions now, you bring in internal stakeholders, identify the audience, desired learning outcomes, and more to ensure you are thinking strategically about the investment. Finally, understanding the steps and procedures to pilot the process of designing an intentional digital tool to satisfy your institution's desires and mission. No two institutions are identical, meaning each technological tool will be unique.

The Who, What, Where, When, and Why of Designing with Sustainability in Mind

First, it is vital to identify your expectations and outcomes. Although you can look at other museum institutions, the digital technology you will develop is unique to your institution. As with any project and its management within 501(c)3 institutions, it is imperative—especially for funding and approval purposes—to determine the essential reasons, objectives, return on investment, and goals to create new tools.[9] This is especially integral when you are a mission-driven institution, such as art museums and other nonprofits. A few ideas can assist in parsing out the essential functions of the technology.

The "Why" Statement: The Mission Statement

At the beginning of the process, determine the technology's mission as it will remain central to the project. "Why" is intertwined with "who." Who your audience is will inform how you intend the technology to interact with them? As public-serving institutions, the "who"—your audience—typically matters more than the "why." Also, knowing the metaphorical "field" within the museum world will inform the idea of "who" is watching and what the stakes are. Museums are always looking at one another to inform their best practices, whether it is a new, controversial, or trailblazing initiative. To ensure your technology is living up to the expected standards—especially when considering the size of the institution and collection—knowing "why" you are doing it will help inform the "who," "what," "where," and "when." "Why" is also intertwined with purpose, specifically the purpose the technology will fulfill. For example, if you received a

grant from a foundation to put on an exhibition with a technological tool, you must follow through.

The "Who" Identification: The Audience

Knowing and identifying "who" the audience is for the technology can better serve the intended purpose. Understanding how they currently interact—or do not interact—with the museum can greatly inform how digital will be used and characterize their interaction with the tool. By understanding and identifying how technology has infiltrated the broader educational system and society at large, art museums can better characterize themselves as learning environments. More broadly, identifying individual learning types and styles, and recognizing visitor identities allows art museums to make programs—both digital and not—to satisfy these expectations. By considering these and specific audience research, digital technologies take learning in the art museum setting one step further into the future.

The "What" Distinction: Platform or Hardware

Determining "what" your technology is is the key to moving forward with the project. What is going to serve your institution and audience best? Is it a web-based platform or an in-gallery kiosk? When discussing sustainability and digital technology, this is the step when you must think most strategically. How can your museum/team utilize your resources to the best of your ability? This means looking beyond the technology the program will exist on, but what underlying program will exist. For example, you can invest in a database or underlying digital layer[10] that will—or can—exist on multiple platforms now and in the future. The digital layer is the backbone of digital technology. While the hardware may change, the foundational software remains and is vital when the digital interaction is essential to the museum experience. The digital layer relates to educational technology and the broad, general concept of digital technology. This includes, but is not limited to, websites, applications, databases, and general museum operations. The digital layer and its repercussions follow the visitors throughout their various plans of maneuvering the museum's digital experience.

The "When" Report: The "Realistic" Timeline

For example, if you received a grant from a foundation to put on an exhibition with a technological tool, you will have grant reporting obligations or a final deadline. Do you have a grant deadline? Is this release coinciding with an exhibition, program, or anniversary celebration?

The "Where" Position: Placement Within the Museum

Organizing with other departments in the museum will address three points: (1) the physical limitations of your potential technology, (2) strategically think through placement in the museum to maximize visitor engagement, and (3) determining if other departments have *strong opinions* about where the technology cannot go. Being able to visualize where the digital technology will live allows you to be smart about how you design the technology.

The Practical "How": Staff Team and Software Development

Determining and understanding "how" you can and will design the technology is imperative to the process. Are you going to do this in-house or put it out for bid? Is there a company you can partner with to create your digital technology?[11]

Questions to Ask

Second, it is of utmost importance to ask questions with your project team as with any process. At the Art Institute of Chicago, their JourneyMaker technology was designed by asking visitor-centered questions.[12] JourneyMaker was created to be a "family-focused digital engagement."[13] The JourneyMaker system considers central, driving research questions, including: Could it use imaginative storytelling and participatory activities to connect families with fine art? Could they use these devices to integrate learning about context, culture, and creativity? Finally, could it be fun and playful?

Following this example, here are some questions to consider when in the planning phase of integrating digital technology:

- What is the underlying desire to invest in technology?
- "Who" is watching? What are the stakes?
- What are the intended outcomes? Grants? Investors? Visitors?
- How will you fund this project? Are you attracting grants, or do you have these systems in place? Are there foundations you have a relationship with that would fund this?
- What do you want out of the experience?
- Based on each institution's development and mission, what will the technology look like and do?
- "Who" is watching? What are the stakes?

- What is the ideal outcome of technology at your particular institution?
- Does it have to be cutting edge or just aid in the experience as a tool? Form versus function?
- What level of interaction with the technology[14] do we want to take place instead of looking at the work?
- What are your specific learning outcomes[15] with this technology?

Procedures

Finally, how do you go about actually implementing the technology you worked so tirelessly on? This is where the "When" Report: The "Realistic" Timeline becomes integral in understanding the expectations of the process. Do you have a grant deadline? Is this release coinciding with an exhibition, program, or anniversary celebration? These procedures do not have to be in this exact order and be based on the institution's process. These are just guidelines for how to begin thinking through the process of developing technology. It takes time, money, and resources, and seems daunting, whether for a big or small team. Large institutions will have red tape, bureaucracy, and departments that do not talk to or respect each other but have more stake in contributing to the field. Smaller institutions will not have the staff to dedicate as much time to develop but can rely on external companies to assist in designing, planning, or completely overseeing the project.

- **Determine a staff taskforce/team**. Which departments should and can influence the tool? Who on your staff needs to be—and should be—involved?
- **Develop goals, outcomes, and expectations**.[16]
- **Funding? Budget?** Address where the money will come from and how much you have to invest.
- **Identify how to develop?** In-house, out-of-house? Both?
- **Re-identify the timeline.** As the different facets of the project come together, it is important to re-evaluate your timeline and expectations.
- **Survey your audience**. Knowing your audience is vital to understanding how the museum interacts with the public(s). Knowing your audience and who they are can give you the best insights into how your technology can best serve your audience.

- **Use focus groups to better understand fragments of these audience demographics.** By using a variety of focus groups and demographics, these inputs can ensure that your technology is fully user-friendly. Is your technology addressing your audiences' needs versus your expectations/ predictions?
- **Content development.** What stories do you want to tell? What are your learning outcomes, and how does that translate to your collection?
- **Process developments.** Manufacture, test, and evaluate the technology's processes.
- **Develop a framework of analysis.** What is most important thing to evaluate? What data are you attempting to capture?
- **Run processes by other focus groups with special emphasis on the intended audience(s).** Once you have the technology in a "draft" form, run it by your focus groups. Use their input to ensure the technology is great and serving its purpose.
- **Develop technology.** Finally, develop the technology in its totality.
- **Implement the technology.** Set it up, and open it to the public!
- **Set parameters for evaluation.** What data were you attempting to capture? How do you do that? Are you meeting your goals, outcomes, and expectations?
- **Test the program with randomized focus groups and revisit the intended audience(s).** Use this process to evaluate (as noted earlier).
- **Write about your process and evaluations to add to the field.**
- **Evaluate and adapt, as needed.** Are you meeting your goals, outcomes, and expectations? If not, adapt!
- **Continue to write and document evaluations to add to the field.**

CONCLUSION

In closing, art museums must adopt a version of a technology that promotes access to information and serves as a tool for its visitors' experience. The possibilities of digital technology—such as the ability to reconstruct context, reenact the process of creating pottery, and create custom tours—fill in gaps of

missing information museums cannot include.[17] By considering these possibilities and specific audience research, digital technologies take learning in an art museum setting one step further into the future. But, these digital technologies are unsustainable. The rapid evolution of technology can be minimized by investing in the programming (software and content), not just the physical tools. This means as the hardware becomes outdated, the foundational program will remain in use. By understanding how to view digital technology strategically, this eliminates extraneous costs and risks even further. While sustainability and digital technology may seem like paradoxical phrases, this paper sought to prove that there are ways to approach the subject to maximize the investment in the digital and the processes on how to do so.

NOTES

1. Weaver, O. et al. 2019. "Question of the Week: Are Museums Still Relevant with the Digital Age?" *Daily American.* https://www.dailyamerican.com/entertainment/highschoolhighlights/question-of-the-week-are-museums-still-relevant-with-the-digital-age/article_7fdc570b-1541-5cc7-ac47-47b22380c00e.html

2. Ibid.

3. As I wrote this paper, I was amid COVID-19 shutdown, quarantine, the widespread closure of multiple industries, and the transformation of the world as we knew it.

4. I want to clarify that my background with this topic is solely within art museums, so I am hesitant to assume all museums are the same. I will continually reference art museums, simply because that is my museum expertise. Though there may be overlap or a broader theme connected to other museum types, I focus on art museums over galleries, science and history museums, or libraries because those are the institutions I can speak to specifically. On the same note, I am a United States citizen, working exclusively in American cultural institutions, so this is the only system I can speak to with authority.

5. Digital technology is the breakdown of messages, signals, or forms of communication between the creating device and the receiving device through the use of a string of information known as the binary code. In the twenty-first century, digital technology includes smartphones, computers, laptops, iPods, eBooks, social media, and high-speed Internet.

6. "Sustainable" is an adjective for something that can sustain, that is, something that is "bearable" and "capable of being continued at a certain level." "Sustainability—What Is It? Definition, Principles, and Examples." *Youmatter*. https://youmatter.world/en/definition/definitions-sustainability-definition-examples-principles/

7. Zolberg, V. L. 1994. "'An Elite Experience For Everyone': Art Museums, The Public, And Cultural Literacy." In Sherman, D. J. and Rogoff , I. (eds.), *Museum Culture: Histories, Discourses, Spectacles*, 49–65. Minneapolis: University of Minnesota Press.

8. An example of this is a complete and composite database of all collection objects or a program that requires images and 360º scans of artworks.

9. *Project Management for Non-Profits*. (November 2014). Pudget Sound Cares. www.501commons.org/resources/tools-and-best-practices/technology-knowledge-center/ProjectManagementExecutiveOverview.pdf

10. Devine, C. and Tarr, M. 2019. "The Digital Layer in the Museum Experience." *Museums and Digital Culture: New Perspectives and Research*. Springer Series on Cultural Computing. Cham: Springer International Publishing. The "digital layer" is a term used by Catherine Devine (Global Business Strategy Leader, Libraries and Museums at Microsoft) to define a digital experience that both sits independent of the physical experience and will work along with the physical experience. The digital layer goes beyond seen technology, but includes the unseen and adds to the visitor experience in a way that physical exhibits cannot. Technology tells a story, connects themes across the museum, lets visitors see what they could not otherwise see, all in service of a more impactful museum experience that contributes to the institutional mission.

11. As software engineers realize there is a need for these customizable applications in cultural institutions, companies developed to serve this need. The platform is designed based on the institution's specific needs, wants, and desires.

12. Through a hybrid of human-centered design, experience design, and museum pedagogy, the JourneyMaker system came from a series of simple prototypes and idea pitches on developing this interactive, without developing technological archetypes. Belle & Wissell, Co. http://www.bwco.info/work/journeymaker/

13. JourneyMaker–*MW17: Museums and the Web 2017*. https://mw17.mwconf.org/glami/journeymaker/.

14. Do you wish the technology to have? Do you wish the technology to be the entire experience or a hybrid experience? A virtual tour will exist solely on the digital hardware, while an in-gallery screen can have underlying processes that can be duplicated.

15. There is a wide range of learning types and activities that satisfy diverse audience types. By identifying the specific learning outcomes that your museum's education and interpretation team deem as a necessity, then knowing them prior is vital when you begin the process of developing the programming. This may involve a prototype phase as you determine your expected outcomes and how your general audience receives them.

16. Reference the Questions to Ask section.

17. A label can only be so long!

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Citizen Science Can Improve Visitor Experiences and Research Outcomes in Museums and Cultural Institutions

Alexis Garretson

Applying citizen science protocols to imaged museum specimens can help lessen the digitization burden on research staff members and address research gaps in existing citizen science datasets while providing meaningful visitor engagement opportunities. Citizen science is still a relatively young field, but because museum collections are often substantially older, pairing the two can allow us to ask questions on a much broader time scale. Applying consistent protocols to citizen science observations and museum specimens enables high-quality derived data that can be quickly combined without uncertainty in definitions or differences in approaches. Citizen science protocols can be well suited to use with image data because they are often developed for visual-only information (e.g., presence of flowers on a plant, the number of seeds on a page, the number of clouds in the sky). Because many collection objects are imaged as part of the digitization process, the visual information is often already available and searchable as an input.

Utilizing pre-existing citizen science protocols also allows museums to tap into a broader community of existing participants who are already familiar with the protocol. For example, the National Phenology Network has more than 15,000 citizen science observers who are already trained in applying their protocols to living specimens. Citizen scientists from active collection projects can easily transition to the digital interface and vice versa, allowing for mutually beneficial collaborations. Also, during times when citizen scientists cannot make traditional onsite or in-person observations (e.g., global pandemic, short-term disability, long-term disability), digitization and digital engagement opportunities allow for continued engagement with the observer community through citizen science opportunities. It also enables museums to continually digitally interact with users who may not view collection items in person or engage traditionally with museum infrastructure. Finally, citizen science projects and protocols often emphasize education and engagement, which means there are often pre-existing tools that can be modified for use in formal educational settings such as schools and universities and informal educational settings such as museums, libraries, and botanical gardens.[1]

CHALLENGES AND OPPORTUNITIES OF COLLECTIONS-BASED RESEARCH

Museums and other cultural institutions are rich storehouses of historical information, mainly through objects, documents, and physical specimens.[2] Access to museum collections enables research in diverse fields, including anthropology,[3] paleontology,[4] art history,[5] and women's studies. Collections-based research is of high and increasing importance to researchers.[6] In particular, natural history specimens, which include preserved insects and pressed plants, are of growing research interest within ecology and environmental sciences because they provide a historical snapshot of biodiversity, species interactions, and even genetics.[7] Yet, researchers often need physical access to specimens or objects, which is a barrier to making collections-research more inclusive to international researchers, disabled researchers, and researchers at smaller institutions.[8] Natural disasters, including the coronavirus pandemic, have also limited and complicated research access to museum collections and have left many collection items vulnerable to threats, including pests and environmentally driven degradation.[9] One way collections are working to make collections more accessible is through digitization, but digitization can be time-consuming and expensive and does not directly equate to accessibility, particularly if digitized collections are not findable, accessible, interoperable, and reusable.[10]

Presently, the best practices for digitization include the database of information about specimens and the imaging and georeferencing of collection items.[11] Databasing involves the standardization of text-based metadata about an item like what it is (e.g., the taxonomic identification or categorization of the item), the date of item collection or creation, the identities of the collector or creator, where it was created, and other details like the preservation methods.[12] There are multiple standardized metadata profiles in the museum setting, including Dublin Core,[13] Darwin Core,[14] Ecological Metadata Language,[15] and the Federal Agencies Digital Guidelines Initiative.[16] Often, the databasing step of digitization includes the assignment of a unique identifier, which may be a collection-specific barcode or a standardized persistent identifier for the object controlled by a domain-specific authority.[17] While databases may provide information about the specimen's location, georeferencing provides a specific mapped GPS point.[18] Georeferencing is the process of converting a text-based description of a locality to a geospatial coordinate, which allows for rapid, computer-based analyses of geospatial patterns.[19] Finally, imaging typically includes capturing, processing, and archiving a high-quality 2-D image of the specimen, often with a color scale or ruler.[20] As the technological tools available to museums continue to grow, best practices in digitization across fields are expanding to include 3-D scans, microscope images, x-rays, genetic information, or other experimentally derived quantities.[21]

As the scope of digitization expands, fully digitizing museum collections becomes an increasingly challenging process, both in terms of the physical costs of the technological tools and in the hours required to preserve details of their collections for future research use. Digitization can be a significant challenge, particularly at smaller institutions,[22] and can lead to the absence of critical collections in research datasets.[23]

CITIZEN SCIENCE AS A TOOL FOR RESEARCH AND EDUCATION

Citizen science is a research method that fosters collaboration between professional and informal scientists.[24] Citizen scientists can include students, museum visitors, civic educators, retired scientists or educators, volunteers, or any individuals interested in scientific work. As research becomes increasingly high-dimensional and data-driven, citizen science provides research datasets that can reach previously unachievable sample sizes, geographic extent, and temporal coverage.[25] Simultaneously, citizen science enables meaningful engagement in the scientific process to individuals often excluded from academic research. Citizen science is quickly proliferating in the physical and natural sciences, and a growing number of projects address research questions

in the social and cultural sciences. In the natural sciences, citizen science datasets have enabled broad research investigations into wide-ranging topics such as the spatial differences in dragonfly colors,[26] water quality in local watersheds,[27] bird population trends, and plant responses to climate change.[28]

Beyond the research benefits, citizen science in natural science fields can encourage political actions such as environmental and conservation activities, while improving scientific literacy, public understanding of science, and scientific engagement amongst citizen scientists.[29] Most citizen scientists are motivated to participate by a desire to contribute to scientific discovery.[30] Participation in citizen science projects enables individuals to join a community of other citizen scientists involved in their project, learn more about the science they are involved with, and meaningfully contribute to scientific inquiry.[31]

Many citizen science projects within ecology and environmental sciences are observation-based, with participants observing natural features (e.g., cloud cover, species presence, water conditions) in a specific area. For example, iNaturalist crowdsources photos of organisms and identifications as documentation of species presence and ecology;[32] the OPAL air quality survey used counts and identifications of lichen on tree bark and counts of fungal infections on sycamore to better understand air quality in Great Britain;[33] and Nature's Notebook, a project of the USA National Phenology Network, leverages more than 15,000 volunteers to document the seasonal phenology (the timing of life stages) in plant and animal species.[34] These projects continue to develop and proliferate across a variety of fields and research topics and provide new opportunities for research and educational partnerships.

Although citizen science projects can provide high-quality data at a regional, continental, or even global scale,[35] many projects are limited in their temporal scope. While biological and environmental studies, particularly those of birds, have greater longevity relative to other disciplines,[36] most citizen science projects are fewer than 15 years old. New projects are frequently under development as the availability of technology and platforms continues to advance.[37] One way to improve this temporal coverage is to encourage participation in citizen science projects into the future, but another opportunity is to supplement citizen science data with historically collected data, including data stored in museums and libraries.[38]

CASE STUDY ONE: COLLECTIONS-BASED CITIZEN SCIENCE IN UNDERGRADUATE RESEARCH

Digitized herbarium specimens are increasingly used as a source of information on the timing of plant and animal life stages such as flowering, reproduction,

and the fall color change—a collection of phenomena known as plant phenology.[39] However, classifying herbarium specimens for phenology is hugely time-consuming, leading to low sample sizes across most studies, especially compared to the enormous volume of available data.[40] Citizen science is well suited to process large volumes of visual data that would otherwise be time-consuming to classify. There are many current phenology citizen science projects, but Nature's Notebook is the largest, and its protocols provide species-specific, standardized definitions of the life stages of more than 1,000 species.[41] Data contributed to Nature's Notebook is freely available and can be visualized, aggregated, and queried from their data portal.

Over the past few years, we applied the Nature's Notebook protocols to more than 3,000 specimens of red and sugar maples housed in more than 50 museums and herbaria across the Eastern United States.[42] This project involved a small number of individuals, with three undergraduate interns and a graduate student leading the process. In the initial project, we did not use a public platform to conduct the classification, though we envision expanding the project to include broad digital participation in the future. Because the specimens used in this project were all digitized and imaged, we could easily integrate data from museum collections we could not have visited during the project, allowing for virtual student engagement with collections across the country.

Our work generated an integrated phenology dataset spanning more than 120 years, with details on various phenological states, including flowering times, fall coloration, and new leaf growth. This dataset allowed us to investigate the impacts of anthropogenic environmental changes such as climate change and land-use change on these important tree species. Comparatively, just using Nature's Notebook data provided fewer than 10 years of robust data. While significant, these data became much more impactful when paired with the herbarium data. Because of these paired data, we can investigate previously impossible questions about the changes in maple tree phenology, particularly the fall color change, over the past 120 years and into the present.[43]

We discovered changes in maple leaf production, maple reproduction, and maple interactions with other species, including insects and pathogens. Pairing these historical data with ongoing citizen science observations by Nature's Notebook allows us to continue building our understanding of how climate change impacts the natural world and better understand our ecological and environmental past. Because these data involve protocols developed for citizen scientists and already digitized herbarium resources, this project could be operationalized on a larger scale, across the billions of herbarium specimens worldwide and those that have yet to be collected.

Digital collections offer an unparalleled opportunity for educational and classroom engagement. By supporting students in developing digital collections research projects, students build digital literacy skills while allowing them to engage in integrative and active topical exploration.[44] Freely available lesson plans for integrating natural history collections data into classroom and independent research activities are becoming increasingly common, lowering the barrier to including these modules in digital and in-person educational experiences.[45] Projects such as AIM-UP! (Advancing Integration of Museums into Undergraduate Programs) continue to support the development and implementation of these types of materials,[46] but museums can directly partner with organizations to improve these resources. Developing classroom curriculum and independent research experiences for collections-driven investigations can harness existing museum and citizen science educational materials to enhance student exposure to citizen science and museum research opportunities.

CASE STUDY TWO: DIGITAL CITIZEN SCIENCE AND DIGITIZATION AT THE MOHONK PRESERVE

The Mohonk Preserve is a nature preserve and land trust located in the Hudson Valley region of New York. In addition to their land protection activities, the Mohonk Preserve maintains an archive, library, and physical object collection that includes more than 60,000 physical items, 14,000 notecards with natural history observations, and 9,000 photographs.[47] These data have been used to document plant and animal phenology changes, assess impacts of acid rain on fish communities,[48] and predict potential climate change effects in the region.[49] While the data are valuable and expansive, the preserve has a relatively small number of conservation staff members, and few are devoted exclusively to the digital preservation of the preserve's collections.

In addition to the archives, the Mohonk Preserve supports a robust suite of citizen science programs, including tracking the phenology of local species using iNaturalist, ongoing weather monitoring and tracking, volunteer-driven testing of stream water quality, and a variety of other projects.[50] These data are collected by local individuals, requiring onsite and in-person activities, but provide significantly more data than staff members alone could provide. Volunteers in these programs receive dedicated instruction in using specialized tools, expanded access to preserve lands and archives, and are credited collectively and (as applicable, individually) for their contributions to the resulting datasets.[51]

Beyond the ongoing environmental data collection, citizen scientists and volunteers have played a critical role in the digitization process of the preserve's

many physical objects and card files.[52] For example, at the Mohonk Preserve, volunteers have been instrumental in scanning notecards with wildlife observations, notebooks of weather observations, and written ecological and geological reports.[53] In this case, the scanned cards are the source material for an ongoing Notes from Nature project on Zooniverse.org, where volunteers transcribe the data from the notecards.[54] As of December 2020, more than 1,700 volunteers have provided more than 30,000 classifications of the data preserved on the notecards, allowing staff to provide the associated data more quickly to interested researchers.

Digitization is ongoing in museums, but research staff members are often involved in many other aspects of collection management, in addition to the expectation to rapidly transcribe, describe, and categorize objects resulting from the digitization process. Citizen scientists can often perform these tasks, even without subject matter expertise, while learning and engaging with the collection.[55] Citizen science is not passing work off to the public; it is a collaborative process that allows the public to do genuine work within the museum while giving users unprecedented access to collections and a whole new form of engagement.

A growing number of platforms provide institutions to host and build these types of projects. The largest is Zooniverse.org, the platform we used for Notes from Nature, a collection of online citizen science projects that have enabled over two million online volunteers to contribute to over 250 research projects spanning disciplines from astronomy to zoology. Using these tools for digital engagement in tandem with volunteer- or staff-driven digitization can allow for significant opportunities for continued research, education, and visitor engagement.

DISCUSSION AND CONCLUSIONS

Mohonk Preserve Citizen Science activities primarily use citizen science as a tool to engage with visitors and improve overall institutional research outcomes (e.g., digitize collections and collect data on preserve property). In contrast, in the herbaria, citizen science protocols were applied to collections in an educational setting to address a particular research question. In both cases, the citizen science monitoring and observing protocols improved the research use of museum collections and holdings, enhanced user engagement with museum collections, and supported crucial environmental research.

Cultural institutions focusing on natural history often have much more extensive and diverse collections than universities and government institutions.[56] These trends may also be present in other types of research collections such as ethnographic and art collections. Using emerging tools like citizen science,

particularly on platforms like Zooniverse.org, can improve digital public access to museum collections and their associated data. Particularly in the unprecedented times of the coronavirus pandemic of 2020, cultural institutions are increasingly dependent on robust digital engagement and education opportunities. These types of opportunities can enable meaningful visitor engagement with cultural institutions and their collections while supporting research goals, even when in-person work is not possible.

Citizen science is a very flexible research tool. While I have focused on applications of citizen science in the museum setting to environmental research, there are growing opportunities to apply citizen science, particularly digital citizen science, to other natural, physical, and social science fields. Digital tools are becoming increasingly available to citizen scientists, and more field-specific tools are allowing for more variety in citizen science projects. As these tools continue to evolve and proliferate, the opportunities for engagement, research, and education are rapidly growing. As museums continue to expand their digital presence, citizen science is a tool that can improve and expand both institutional research and visitor educational opportunities.

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Perspective: In the Time of COVID-19 | Still Black See

kYmberly Keeton

"Each body has its own art."

—Gwendolyn Brooks

The African American body is a symbol of art, curiosity, and degradation in one breath in these United States based on history. A quick review: African American people have had to endure a plethora of pandemics beginning with the institution of slavery and being forced upon the waters of the Atlantic Ocean to enter the United States in 1619 by way of the Middle Passage. It took years before Emancipation happened because Black folks had to use their bodies as tools of art for 400 years to prove that they were human enough for a moment.

Painting slowly, let's use the colors red, white, and blue on the canvas and spell out these movements including Reconstruction, The Great Migration, Jim Crow, The Civil Rights Movement and now Black Lives Matter. Noted author Ta-Nehisi Coates in his scholarship *Between the World and Me*, (2015) unapologetically exerts that African Americans have continued to be viewed by their bodies and how much they can withstand as outcasts in society. I was taught to teach those who do not know regardless of their race, because if they do not know the truth about these United States then who is to blame. As a Black writer, librarian, archivist, and gallerist my professional role in society revolves around a global creative kaleidoscope encompassing art, books, literature, and technology.

Everything about my being has dealt with studying history, publishing, collecting, and archiving and preserving African American history using digital technology as a resource and tool for lifelong learning.

History repeats itself and many have come before me who documented the lives of Black people during national pandemics. To name a few: Allen LeRoy Locke, Arturo Schomburg, W.E.B. Dubois, Charles S. Johnson, and Augusta Savage. The majority of the scholars mentioned were practitioners of creativity as well as being social advocates for change. This article looks at different eras where African American voices and bodies were uplifted through the arts, publishing, and archives using technology as its platform for communication during calamity in the United States and why it is important that this tradition continues during COVID-19 and in the new decade.

The human condition from a global standpoint will never be the same as of March 2020. According to American Public Media, "1 in 920 Black Americans has died (or 108.4 deaths per 100,000)."[1] Most importantly, 44,000 African Americans have lost their lives, making up 20% of the population who have contracted COVID-19, and are only 12.4% of the American population. These numbers are updated monthly via their website. Not to mention, African Americans have been murdered on a daily basis in these streets by police officers. Additionally, there is a major digital divide going on in the United States as mentioned by the Pew Foundation's new analysis of Pew Research Center data collected in early April. "Roughly six-in-ten parents with lower incomes said it's likely their homebound children would face at least one digital obstacle to doing their schoolwork."[2] Meanwhile, systematic racism puts pressure on Black bodies, and when we, they, she, him, over there resists, our body and voices are dismantled by any means necessary. Even still in the midst of darkness there is light.

This is what African American documentarians, archivists, collectors, and bibliophiles have set to accomplish since the beginning of time, defining and creating a legacy through archives of Black history. During these times, galleries, libraries, archives, and museums (GLAM) need to create innovative modes of information to share using digital technology as their medium for communication with the global community. There are two entities that will be introduced in this perspective including ART | library deco and Data for Black Lives that are making a difference through creativity, data, history, and technology in the 21st century. Given these points, about documentation, let's go back briefly and look at the early 20th century examples of how technology was utilized by some of the scholars in this article.

During the beginnings of the Great Depression in the late 1920s, African Americans in the southern region of the United States participated in the largest movement in American history: The Great Migration. Black people left the south

in droves after being subjected to Reconstruction and the birth of Jim Crow. These visionaries wanted a new way of life for themselves and their families and trekked to Chicago, New York, and even Philadelphia. By the same token, African Americans in Harlem, New York, were creating a flow of artistic valor through the Harlem Renaissance which trickled over into like-minded communities in the Midwest, East, and West and back down South.

Alain LeRoy Locke was a philosophical architect, promoter of African American artists and a major publishing and curating figure during the Harlem Renaissance and created an art archive about African American art history. W.E.B. Du Bois, another prominent African American scholar, founded *The Crisis*, the official publication of the National Association for the Advancement of Colored People (NAACP). Charles S. Johnson followed in the footsteps of his mentor and used his entrepreneurial genius to found *Opportunity: Journal of Negro Life*, the literary and political voice of the National Urban League. Both of these publications in my humble opinion paved the way for unknown emerging Black authors, writers, artists, and social advocates in a time of uncertainty, comprising the vocations of Langston Hughes, Augusta Savage, Romare Bearden, Gwendolyn Bennett, and Aaron Douglas. Their art defined the signs of the times and they figured out a way most of all regarding how to share it with the public.

The most significant body of work that set the tone for the 20th century is W.E.B. Du Bois' *Data Portraits: Visualizing Black America*. It is the first complete body of work featuring data portraits of groundbreaking charts, graphs, and maps presented at the "The Exhibit of American Negroes"[3] at the Exposition Universelle of 1900 documenting the educational, historical, social, and cultural and population growth in the state of Georgia 37 years after the end of slavery in the United States. According to the scholar:

> *"Thus all art is propaganda and ever must be, despite the wailing of the purists. I stand in utter shamelessness and say that whatever art I have for writing has been used always for propaganda for gaining the right of black folk to love and enjoy. I do not care a damn for any art that is not used for propaganda. But I do care when propaganda is confined to one side while the other is stripped and silent."*
>
> *—W. E. B. Du Bois (1987)*

From a historical perspective, the Civil Rights Movement emerged in the early 1900s in the United States and from an artistic point of view, the body of work of Arturo Alfonso Schomburg, an African American intellectual, emerged into a forever collection of Blackness archived in the New York Public Library's Schomburg for African American Research and Culture in Harlem, New York.

On another block, sculptor, and Director of the Harlem Arts Community Center, Augusta Savage developed a haven for students, emerging artists, and writers through the Federal Art Project, a branch of the Works Progress Administration (WPA), specifically tailored to the visual arts and artists who were unemployed during the Great Depression. W.E.B. Du Bois' body of work included how African Americans fared post slavery and lives on through this era and why this work and its place in history as a guide to learn how to document a community's narrative using data technology through imagery is valid. Not to mention, African Americans have been collecting and archiving their personal heirlooms and memorabilia for centuries. However, they have not had the space to archive and preserve their artifacts due to social, cultural, and economic issues. In like manner, these documents have not been readily available to the public until the 1960s in GLAM spaces. For what reason? Again, systematic racism and cultural, organizational, and social ideologies have been the precursor to deem what is archival worthy, as well as the narrative about Black history is typically told through the guise of a White archivist or librarian. Nonetheless, this shows how African Americans specifically and anyone else willing to pick up the torch in pursuit of Black excellence and create and advocate for change using digital technologies as the vehicle for communication.

"We've got to tell the unvarnished truth"

—John Hope Franklin

Can I ask you a question? What year were you born? If I told you five years ago that the new decade would begin with the death of Kobe Bryant and his daughter and others tragically losing their lives in a helicopter crash and from that point on a global pandemic (COVID-19) would take over the world; what would your response have been as an information professional? We are right back where we started. It's all about documentation and capturing the moment and how librarians, archivists, creatives, and social influencers, curators, and publishers are able to think outside the box and visualize the future. This is what African American innovators of the 20th century did in order to get the word out about the unvarnished truth regarding the plight of Black people during times of calamity in the United States. To recapitulate, have you answered the question that started this paragraph, because if such a thing should happen, and it did (COVID-19), and here we are; the instrument in the 21st century once again is technology. By extension, there are outlets in the 21st century that have taken the torch passed down through the heartbeats of innovators mentioned earlier to tell the narratives of Black people through print matter, virtual, podcasts, and satellite radio. What a time it is to be alive as a creative and to be able to tap into digital technology, virtual reality, and social media platforms that advocate for change in galleries, libraries, archives, and museums.

ART | library deco, "sweet as the moment when art went pop," was created during my graduate school practicum fellowship at the Museum of Fine Arts Houston, Hirsch Art library and the Houston African American Museum of Culture (HMAAC) in Houston, Texas. The online African American digital art library archives the visual experience of art, literature, and history through the eyes of artists and institutions in the United States and abroad. Using digital technology to create archives, exhibitions, collections, events, and curate art news for patrons to access daily. The digital library features an online African American art lib-guide, a digital art repository, and a virtual exhibition space.

As the chief curator, I felt compelled to develop an archive of stories of African Americans who have something to say about their experience during COVID-19. Selected data, stories, images, audio, and videos will be published online in our digital journal and all submissions will be archived in our public access repository in 2021. Equally important, as a librarian and archivist, I believe that it is ever so important in this moment that you take an oath as a creative to become a lifelong learner and advocate for change for all communities. Through my own journey, I have had to ask myself the same questions that I posed to you earlier. Personally, I took some time this year to check out Data 4 Black Lives, another organization using digital technology and making a difference during COVID-19 and going into the future regarding archiving African American history using digital technology as its platform.

As Founder and Executive Director, Yeshimabeit Milner is the chief architect, strategist, and visionary of the Data for Black Lives Movement: Data as protest. Data as accountability. Data as collective action. Data 4 Black Lives, "...is a movement of activists, organizers, and mathematicians committed to the mission of using data science to create concrete and measurable change in the lives of Black people. Since the advent of computing, big data, and algorithms have penetrated virtually every aspect of our social and economic lives. These new data systems have tremendous potential to empower communities of color. Tools such as statistical modeling, data visualization, and crowd-sourcing, in the right hands, are powerful instruments for fighting bias, building progressive movements, and promoting civic engagement."[4]

The organization during the time of COVID-19 has been an avid social influencer on Twitter, Instagram, and Facebook about their mission and how they want to help and are doing so by example in real time. As an organization that is solely online, they host an array of events online, host data courses via social media, and the organization features a call to action that emphasizes specific unmet needs in the Black community across the United States. Currently, Data 4 Black Lives is working on an action plan to make every state release information about race data, that is, deaths by race, and states that have yet to publicize this data.

Anyone who is interested in learning more about COVID-19 statistics regarding the African American community will also have access to the organization's research reports and pandemic data. In a time of uncertainty, these are two entities from a digital perspective that are paving the way for the future regarding archiving the arts and African American cultural history and documenting interactive data to preserve the narratives of African Americans in the United States.

Technology looks different each time a new version is released in any medium. In the case of scholarly creatives and their use of technology and communicating with their audiences, the present moment is a pivotal one. The intent of this article is to make those who are unaware aware of the use of digital technologies in the 20th century from an African American perspective through publishing and archiving, as well as community art spaces.

At this moment, in the same pursuit of excellence there are creative scholars, researchers, etc., who are making a difference by providing information through the arts and data to show in real time what is taking place in Black communities using digital technology as their mode of communication. Theaster Gates, social practitioner of installation art and Professor in the Department of Visual Arts at the University of Chicago firmly asserts, "Sometimes the creating that we do is creating a platform that allows other creative people to pitch in." Anyone at this time in history can be innovative, collaborative, and create new ways of communicating with the world using digital technology all the while developing agendas to produce solutions and outcomes that bring about change. And, this should be our mission as creative information professionals. Sometimes, it takes going back to the past to understand the future.

Still Black See.

Holla Black @ kYmizsofly via Instagram

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A Theoretical Proposition for Art + Wellness in the Virtual Realm

Houghton Kinsman

COVID-19 has radically altered the future for the GLAM (galleries, libraries, archives, and museums) sector in the United States. Numerous recent articles have captured, in detail, the closures, layoffs, and dire financial situations at fine arts museums such as the Guggenheim, SFMoMA, the New Museum, and the Getty Museum.[1] Other articles have speculated on the lasting effect of the pandemic on the art museum world.[2] What is evident is that art museums are at a crucial crossroads in their history and are being forced to rethink how they operate.[3]

The Crocker Art Museum in Sacramento, California—where I oversee various Art + Wellness initiative—was forced to close in early March 2020. The Museum's short-term, direct response to shelter-in-place orders was to craft programming that addressed pandemic-driven social isolation. The strategic goal for these virtual programs was centered on designing content rooted in social interaction and a collective sense of togetherness among staff, audiences, and the wider, Sacramento community. The qualitative response was overwhelming. Email comments, increased program attendance, and audience interactions all delivered measurable indicators of the positive impact of this new public programs philosophy.

As concern grows around mental health—with many people continuing to socially isolate and refrain from in-person socialization—art museums are hastening their efforts to help improve collective mental health.[4] The Crocker's new approach demonstrated how Zoom, YouTube and Facebook Live, and even the Museum's Google Arts and Culture page allow institutions to *meet people* in their homes and deliver *compassionate* virtual offerings that ground and center audiences and those who deliver them. Consequently, this convergence of new possibilities for engagement, technology, and the need for more wellness-orientated programming presents a unique context in which to explore a theoretical structure for an art museum based, virtual art and wellness portal.

ART + WELLNESS AT THE CROCKER ONLINE

Pre-COVID-19, the Crocker offered various Art + Wellness initiatives for nearly ten years. The Museum's suite includes marquee offerings such as Art Rx, Artful Meditation, and Art on the Spectrum. Art Rx is a slow-looking program centered on socialization and open to audiences who self identify as suffering from chronic pain (as well as their caregivers). Artful Meditation invites audiences to relax and experience the museum in a calming manner through a meditation anchored by a work of art. And Art on the Spectrum is a program designed for children on the autism spectrum and their parents/guardians. When the pandemic forced the suspension of these programs in-person the Education Department—which develops these initiatives—transitioned a number of them online.

Art museums, like the Crocker, have historically struggled to remain abreast of, and evolve with, technological advances.[5] The reasoning varies: Small staffing units, limited budget, lack of funding, uncertainty around how to monetize digital content, and/or limited access to tech expertise.[6] When forced to pivot digitally, art museums took up the challenge to enhance what existing content they may (or may not) have already had. Much of the early content offered by art museums was simply a re-presentation of what already existed on their digital platforms or was an attempt to replicate the in-person experience. As a result engagement quality was poor.[7] As art museums and their staff began thinking more consciously about designing content *for* the virtual space more innovative programs were developed.[8]

This shift from re-presentation to working within the virtual vernacular informed how the Education Department reimagined the Crocker's Art + Wellness suite from in-person programs to digital content on Crocker from Home. Instead of designing with the in-person experience and audience in mind, the department focused on building programs that would attract a *digital audience*. The institution started thinking more like a media company and we focused on

translating the "soul" rather than re-presenting our most successful, empathetic in-person programs. As a result, these Art + Wellness programs became hybrid versions of themselves—part replication of the in-person experience, part exploration of new forms in the virtual space.

For example, Art Rx was stripped to its elements: slow-looking, visual exploration, and social interaction. It was then rebuilt into a pre-recorded, YouTube-based virtual exhibition tour that concluded with a guided, slow-looking activity. These elements also morphed into an interactive, scavenger hunt styled exploration of works of art on the Crocker's Google Arts and Culture page. Participants were encouraged to take their time engaging, in unimaginable detail, with a work of art of their choice while sharing their experiences through our social media handles. Art Rx eventually became a Zoom program, open to audiences across the nation that more closely resembled parts of the in-person experience. Artful Meditation also took on a new guise, ultimately becoming a thematic, pre-recorded audio meditation connected to self-care during the pandemic before morphing into a Zoom program. Quickly, both virtual Art Rx and Artful Mediation became wholly independent experiences and unique in comparison to their physical, in-person equivalents. These programs were museum experiences regular attendees had never encountered before.

One measure of success—in terms of quantitative data—is that both Art Rx and Artful Meditation, in Zoom format, have seen an increase in average attendance. For Art Rx, the average attendance has increased from between 8–10 visitors in-person, to between 12–15 virtually. Artful Meditation, has seen a similar uptick. Average attendance in-person ranges between 18–20, while, virtually, average attendance is upward of 25. The age demographic has also noticeably trended younger—both Artful Meditation and Art Rx tend to skew older. The variables for why this trend exists are numerable, but I argue it is because access is made easier for our participant demographic through the Internet[9] and the programs offer an experience the in-person program cannot. They have their own *experiential* value.

I consider this value system as a key component for a meaningful Art + Wellness portal. It's a system predicated on use-value—a principle that references how useful public programs are as products in satisfying the needs and wants of visitors. High use-value allows the digital museum experience to stake its claim as a worthwhile "visit" in its own right. An effective Art + Wellness portal must be able to provide products that cannot be found elsewhere. Thus, creating this system, means moving from a state where the in-person experience is simply replicated in the virtual realm to a situation of programmatic hybridity. This would be a shift in process from where "the real is volatized" through reproduction in another medium,[10] as described by Jean Baudrillard, toward a scenario where art museum staff are creating within what Homi Bhabha terms

the "interstitial passage between fixed identity."[11] The two fixed identities here are in-person programming and traditional modes of digital engagement within art museums.

Put more simply, trying to replicate the in-person experience does not work for a *digital audience*. The in-person experience has its own use-value—any attempt to reproduce it will be inferior. Treating the digital museum experience as having its *own use-value and possibilities* within the totality of an art museum experience made the Crocker's digital Art + Wellness content more engaging.

This concept of the "digital" or "virtual" art museum is not a new phenomenon. Nor is the art museum as media company. The Walker Art Museum's Walker Reader exemplified the former and The Los Angeles Museum of Contemporary Art's MoCA TV was an interesting example of the latter. Furthermore, the work of Net artists, Post-Internet artists[12] and organizations like Rhizome have helped develop and enhance the discourse surrounding digital art, art after the Internet, and the virtual art experience. What is intriguing though about success of virtual Art + Wellness is that without in-person programs the "virtual visit"—through the Crocker from Home—has proven it has much to offer as an *experience of its own* and this "Museum from Home" concept provides a second crucial component to building a virtual art museum wellness portal: a malleable architectural framework.

A MORE CONSIDERED MUSEUM FROM HOME

The realization of the benefits of designing public programs and content for digital audiences occurred alongside the development, and proliferation, of the "Museum from Home" concept. This concept was a direct response to the need for art museums to stay connected to audiences while galleries were closed. Until art museums began reopening recently, "Museum from Home" was the *only* way to "visit" these institutions.

The concept is simple: Upon visiting the websites of institutions such as the Crocker, a visitor is greeted by a "Museum from Home" landing page. This landing page *collates* highlights of the respective art museum's virtual offerings and helps visitors easily navigate through a wide variety of content through a number of different "galleries"—each grouped by content type (Read, Watch, Listen, etc.). Visitors then have the option to browse or streamline their interaction by either clicking through the galleries or heading directly to their desired content. This architecture closely mimics the familiar act of moving through an art museum's building: wander through the physical gallery spaces or beeline to a certain artwork/public program. Admittedly, it is a totally different mode of interaction, yet it remains an individually controlled/directed

experience. In this manner, the "Museum from Home" by design is not an extension of the museum visit, *it is the museum visit*.

However, as its primary role is to collate and manage content, presently, "Museum from Home" is simply an effective tool to manage web traffic and enhance the flow of a visitor's browsing. It is an experience by nature; not an experience by design. Here, The Walker Reader offers a valuable example of the potential impact of the designed experience. Run by an editor, The Walker Reader brought together thought-provoking articles, videos, online film festivals, and talks—all of which were *built* around key social/artistic ideas explored in creative practice. This approach created its reputation as a highly valued publication in the art world and made it rich in cultural capital.[13] "Museum from Home" lacks this type of consciously applied or curated dimension.

In thinking through how to best utilize the "Museum from Home" architecture for an Art + Wellness portal, retooling is evidentially necessary. This structure has yet to be explored as a framework for a very considered, or curated, type of virtual experience. The Art + Wellness portal must therefore draw on The Walker Reader's philosophy and push the "Museum from Home" concept to a point where it combines its user friendly nature with a greater use-value that *entices* visitors. In this regard there is an argument to be made for activating this space by introducing a critical curatorial component. Each element must be carefully created and curated to function thematically or narratively to explore an essential question or idea. Owing to the fact that this portal would host digital content and virtual public programs, as opposed to paintings, sculpture and mixed/new media, traditional curatorial approaches are not appropriate. Rather, the Art + Wellness portal should be theorized through what Paul O'Neill calls the paracuratorial or the concept of "event-exhibitions."[14]

Describing the modus operandi of a group of curators, such as Maria Lind, and Ute Meta Bauer who operating during the mid to late 2000s, and primarily in Europe, O'Neill notes how in many of their curatorial and exhibition making practices, "discursive events formed the very foundation of the [exhibition] project."[15] O'Neill posits that "conversations, panel discussions, roundtables, symposia etc." or "event-exhibitions" require curating in their own right and exist as alternative exhibitions formats.[16] As Simon Sheikh writes:

> *"the curatorial is here then, an analytical tool and a philosophical proposition, and by indication, a separate form of knowledge production that may actually not involve the curating of exhibitions, but rather the process of producing knowledge and making curatorial constellations."*[17]

Much as The Walker Reader has its own, unique use-value, distinct from the Walker Art Museum itself, designing the Art + Wellness portal as a virtual event-

exhibition[18] would thoughtfully enliven a passive digital landing page and create greater *experiential* value. In this mode, the Art + Wellness portal could be very consciously programmed to explore specific social/civic ideas or issues and components like meditation, yoga, slow-looking, etc., could function as building blocks within a larger exhibition-like presentation.

For example, a group of these types of programs could be curated (and then created) to explore the topic of creative aging over the course of several weeks. Through the lens of the paracuratorial, the "Museum from Home" has the potential to become a platform, within a larger website infrastructure, that can provide its *own knowledge producing experience*—rather than simply organize existing content or knowledge; an experience by design. Much like the shift with designing content to speak to digital audiences—through curation and considered creation this architecture can be shaped as a more independent entity with its own unique use-value. This consciously thought out, wholly unique, crafted experience is what sets the portal apart from other digital platforms that an art museum typically provides such as the website, Instagram, or a blog. Each of these platforms would support this portal through marketing, content sharing, page views, write ups, etc.

ART + WELLNESS FOR THE FUTURE

When the Crocker "Museum from Home" page began being conceptualized, the topic of a having Wellness subsection was discussed. It was to be a space dedicated to programming that directly addressed self-care, social isolation, and social cohesion. We did not pursue this aspect, instead settling on subsections Virtual Programs, The Oculus blog, and Exhibitions. If a similar discussion arose today, a number of subsequent insights would be valuable to consider.

Firstly, building and then populating this "Museum from Home" space has demonstrated how quickly the Crocker can adapt, improve existing digital content, and use technology to stay in touch with our audiences—despite a lack of funds, and during a tumultuous period for art museums defined by industry-wide layoffs and power shifts. Secondly, working to attract digital audiences was a valuable lesson in helping create more engaging content for audiences. Both Art Rx and Artful Meditation provided resources to develop other unique digital offerings that in turn had their own niche value. Thirdly, digital content offers a certain type of convenience to a visitor—they can access prerecorded mediations and slow-looking experiences whenever and wherever they desire. The live scheduled programs that they cannot attend can also be recorded and provided to them at a later date. Moreover, Zoom has helped alleviate transport and physical access issues typically associated with Art Rx and Artful Meditation. Lastly, meaningful social interaction *is possible* despite the mediation of

technology—it's difficult to overlook the joy of visitors on Zoom seeing new and/or familiar faces, connecting with other visitors from different parts of the country and hearing their individual stories.

A digital Art + Wellness portal may not arrive at the Crocker soon, but thinking about how to build it in tandem with designing projects for the Crocker "Museum from Home" has helped create a theoretical structure predicated on three key components: digital content/programs must be designed for a digital audience.[19] The portal must operate independently of the in-person experience. And, most importantly, it must be a consciously designed holistic experience that is a high use-value commodity for visitors.

With a little more thought and experimentation these elements of an Art + Wellness portal designed through the framework of the paracuratorial and built within the architecture of the "Museum from Home," with content and programs created for a digital audience, could offer a unique spin on what progressive tech apps like Calm, Headspace, and Breathguru have monetized—through subscription—so successfully: access to self-care offerings wherever one is and whenever one needs them.[20]

Fundamentally, the traditional in-person art museum experience looks very different today and faces an uncertain future. Reduced visitation, restrictions on public programming event size, and reduced budgets have imposed a new set of conditions that art museum professionals must *urgently* address. Thus, new modes and methods of mediating visitor interaction with the art museum are needed. With art museums at this crossroads, forced to rethink the museum going experience, perhaps an Art + Wellness portal and the ability for visitors to *take the Crocker with them* wherever they go is a future worth seriously considering.

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in various forms examples of paracuratorial conventions. Their formats challenge traditional expectations of exhibitions and purposefully play with entrenched notions of engagement within specific art historical spaces or templates. These are relevant examples that would influence the Art + Wellness portal as a virtual "event exhibition."

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Open Access Mandates and Indigenous Materials: Ways to Ethically Collaborate

Dana Reijerkerk

INTRODUCTION

Most galleries, libraries, archives, and museums (GLAM) collections worldwide are in some way shaped and connected to the colonial collecting project. Colonial collecting refers to the historical, physical, and conceptual transformation across the nineteenth and twentieth centuries of visual material culture, objects, bodies, and knowledge from Indigenous communities to holdings in GLAM collections worldwide.[1] Historically, Indigenous peoples' lives and cultural practices were documented and recorded as "subjects" under the auspices of the colonial collecting endeavor.[2]

Through my formal education in American Indian Studies and experience working in Indigenous community GLAMs, I learned that colonization is not just about physical items. Colonial thinking reinforces ideas that ownership is *physical*. Often in GLAM discussions worldwide, the most agreed upon decolonization (decol) action is the actual and literal return of artifacts and visual material culture to Indigenous communities. In discussions of physical repatriation, however, the holding institutions often continue to maintain a virtual reproduction for study and display. Framing decol as solely physical completely misses the point that decol means *returning full autonomy* to

Indigenous peoples, which includes a spectrum of power from defining relationship boundaries to having the final say in how to display images in an online catalog record. Returning objects will never be enough. GLAMs across the world will not truly be decolonized until we actively dismantle the oppressive colonial systems that GLAMs are fundamentally built upon.

In this paper I describe how GLAMs, particularly archives and libraries, often perpetuate colonial hegemonic power imbalances when presenting Indigenous content online under the guise of open access, and potential solutions to mitigate those issues. Worldwide GLAM open access practices—that involve providing free-of-charge high-resolution downloadable images online and to adopt less-restrictive image reproduction policies—highlight the loss of control of intellectual property that many Indigenous communities experience. Open access, while not the inherent problem, highlights the underlying issue of ongoing exclusion and erasure of Indigenous sovereignty and authority of their voices, representations, and narratives in GLAMs. I provide technical and logistical solutions for GLAM practitioners that represent practical changes to redistribute inherent power imbalances to authoring/authority over Indigenous objects and stories.

When known, I point out my sources' self-identified Indigenous ancestry. This is to provide transparency as an ethical research methodology and also to recognize and respect Indigenous sovereignty. As a librarian and scholar of Indigenous community archives and record issues, I focus on the practical and ethical practices in GLAMs rather than abstract ideological changes that aim to decolonize GLAMs worldwide. I write from a non-Indigenous perspective and I do not claim to speak on behalf of Indigenous populations. This research is an attempt to present current issues with digital collection projects in GLAMs worldwide and to provide practical techniques to foster community discussions and plans for purposeful community action.

OPEN ACCESS MANDATES AND INDIGENEITY

Initially, the term "open access" referred to unrestricted online access to scholarly research then seen primarily to mean scholarly journal articles.[3] Beginning in the early 2000s, various initiatives and groups such as Open Archive Initiative (OAI) (http://www.openarchives.org/) and OpenGLAM (https://openglam.org/) began extending open access principles to cultural heritage materials. Today, open access in GLAMs refers to efforts made by cultural heritage institutions to provide free-of-charge high-resolution downloadable images online and to adopt less-restrictive image reproduction

policies. Open access policies highlight the loss of control of intellectual property that many Indigenous communities experience.[4]

There are positive aspects to GLAM open access practices. In GLAMs worldwide, analog collections are selected for digitization or to be included in digital collections for a number of reasons, but often for accessibility or preservation purposes. As more attention is being paid to the marginal status of Indigenous peoples around the world, the way in which GLAMs select, create, and curate digital collections and digital projects with, or more often of, Indigenous communities (often under the auspices of decolonization) is an increasingly contested issue.

The exponential growth of digital copies of all analog materials (both Indigenous and non-Indigenous) held by GLAMs is paralleled by a global movement by Indigenous peoples to redress historical erasures in terms of power, representation, and classification.[5] In many digital collections and digital projects the line between concealing and disclosing (Indigenous) secrets blurs. Open access of digitized Indigenous cultural heritage materials too often fixates on its advantages without thoughtful consideration of what impact it may have on Indigenous communities. Open access is not inherently the issue; rather it is the white Western control exerted over Indigenous peoples, objects, representations, and narratives that were stripped, taken, stolen, and interpreted away from their source communities.

Most pressing is that open access mandates and policies in the United States, Canadian, Australian, and New Zealand institutions continue to perpetuate the colonial idea that GLAMs serve the public good in the sense of the public trust.[6] The assumption that cultural heritage should be available as a public good usually does not agree with *social factors* that govern the circulation of knowledge within many Indigenous communities.[7] Libraries and archives worldwide, for example, operate under the assumption that their collections should be accessible to researchers and have research value. Many North American GLAMs frame the benefit to access and research value as superior to ethical and cultural protocols that might literally prohibit anyone but those initiated from viewing or interacting with material. For example, *gah:goh:sah* (Haudenosaunee word for medicine masks), which are associated with the Haudenosaunee False Face society, are a known sacred visual material.[8] The Penn Museum, in Philadelphia, Pennsylvania, displays images with multiple views of False Face Masks in their public online catalog.[9]

Issues with adhering to various Indigenous cultural and communal protocols are further complicated by the legal mandates surrounding Indigenous status and copyright law. Because Indigenous peoples were often framed as subjects of the work rather than authors or creators, they have no legal rights to determine how

and when this documentary material is accessed or displayed.[10] A commonly misunderstood idea by all parties is that copyright or other legal frameworks might help preserve and protect Indigenous cultural materials as they circulate outside Indigenous communities.[11] On the contrary, according to Jane Anderson and Kimberly Christen, the layered legal scaffolding that copyright and Creative Commons' licenses form, only "provide [for Indigenous communities] limited sets of rights to and over Indigenous cultural materials that constitute copyright subject matter—namely photographs, sound recordings, films, and manuscripts that document Indigenous cultural heritage."[12]

Despite the exponential interest in decolonization work in GLAMs, little headway has been made for Indigenous peoples to self-represent their interests and agendas in digital collections/projects. From a practical standpoint, the institution creating the open access image needs to assert title and ownership over the image. However, this action works to both publicly oppress and assert intellectual property rights *over* Indigenous materials and knowledge. Many GLAMs worldwide fail to consider that for many Indigenous peoples, collections in memory institutions continue to symbolize historic, ongoing trauma and theft.[13] To see the free, online display of an image showing disrespectful, inappropriate, or otherwise secret information is traumatizing.

DECOLONIZING INSTITUTIONAL ERASURE

What we accept in our collections, what we display, and who we choose to collaborate with all emphasize our institutional values. Waziyatawin Angela Wilson (Wahpetunwan Dakota) and Michael Yellow Bird (Mandan, Hidatsa, and Arikara) define decolonization as "the intelligent, calculated, and active resistance to the forces of colonialism that perpetuate the subjugation and/or exploitation of our minds, bodies, and lands, and it is engaged for the ultimate purpose of overturning the colonial structure and realizing Indigenous liberation."[14] Waziyatawin Angela Wilson and Michael Yellow Bird's decol definition succinctly reminds readers that decolonization is active work. Decol requires mindfulness and for those of us, like myself, who are non-Indigenous, to realize that we cannot be an expert in what is best for a community we are a guest in.

GLAMs might not be the best fit spaces to engage in decol work despite the fact that GLAMs worldwide position themselves as experts in preserving and presenting cultural heritage. How can one deconstruct oppressive existing power structures while working inside the system? Julie Blair and Desmond Wong remind us that it is important to perceive GLAMS as they are: settler colonial institutions.[15] In 2020, GLAMs worldwide are still actively colonizing Indigenous people simply because memory institutions exist within settler states and settler

state-based knowledge standards. By framing GLAM institutions as extensions of continuing colonization on Indigenous peoples, we as practitioners in GLAMs can both better serve Indigenous communities and better represent Indigenous peoples within our collections.[16] Further, there are many small technical and logistical changes GLAM practitioners can make to better represent Indigenous perspectives. I describe these changes in detail in the next section.

As a librarian, I approach my universities' digital projects with the intent to decenter its implicit hierarchies. By framing our professional local contexts as settler colonial constructs, we open possibilities for imagining futurities beyond the settler state. Only by rethinking the politics of exhibiting materials can we actively dismantle colonial hegemonic structures of power. A good example of rethinking the logics of display is decolonizing descriptive cataloging of digital projects. In academic and public libraries in the United States, Canada, and New Zealand, for example, contemporary librarians are challenging and rewriting their subject headings in catalog records to be more inclusive and culturally appropriate.[17] Necessary and legitimate new catalog record subject vocabularies emerged from decolonizing cataloging information projects at public, private, and academic research libraries, such as the Mashantucket Pequot Thesaurus of American Indian Terminology,[18] Brian Deer Classification Schema,[19] and Ngā Ūpoko Tukutuku (Māori Subject Headings).[20] These aforementioned examples were all collaborative projects that directly consulted with the respective Indigenous communities.

DECOLONIZING OUR MINDS: WHERE DO WE GO FROM HERE?

The following five recommendations are potential ways in which GLAM practitioners worldwide can implement solidarity and relationship building with local and international Indigenous communities. Each strategy provides logistical and technical examples that are based on my work with/in Indigenous communities and also a literature review on Indigenous-led decolonization work.

1. Engage in work that meaningfully benefits Indigenous communities.

- Build systems *with* Indigenous peoples, not *for* them. If communities do not benefit from the project, it is not deconstructing oppressive systems.
- Digital projects can become another form of settler appropriation if power structures are not dismantled.[21] This means that even a good faith effort

becomes another form of knowledge extraction from Indigenous communities.[22]

- Example: Change the display subject headings in your Integrated Library System or Digital Asset Management System of offensive words to locally accepted terms. For example, display the word "Indigenous" and not "Native American."

- Example: Dr. Leilani Sabzalian (Alutiiq), explains that before entering into research or projects she tries to, "gauge folks' investment in community (not just their project) … the groundwork they've laid, the relationships they've formed, the research they've done, how the project would benefit the community, and whether the project aligns with my expertise/interests…."[23]

2. Be mindful of how much space allies take up in consultations and discussions with Indigenous peoples.

- Reserve space for Indigenous collaborators to express their needs and give power to exert control over their heritage.[24]

- Create space for community feedback; for example, clearly indicate contact information.[25]

- Be mindful of the work we ask communities to do: Is it "a demand that indigenous people escalate their efforts for 'the greater good'"?[26]

3. Contextualize Indigenous peoples materials and knowledge as objects rooted in historical biases that do not accurately represent Indigenous peoples.

- This helps educate non-Indigenous patrons about contemporary Indigenous peoples while understanding that problematic materials exist and why they are inaccurate[27]

- Example: include digital images of card catalog records or museum registers.[28]

- Example: Add stories to catalog records about how a community member's ancestor used an object.[29] This strategy helps recover knowledge and add back into the knowledge pool.[30]

4. Create space for Indigenous epistemologies in library collections.[31]

- This could be physical (e.g., section of the stacks) or intellectual (e.g., adopt an Indigenous-based subject vocabulary).
- Example: incorporate Indigenous language and knowledge representation in metadata aggregators as seen in The Great Lakes Research Alliance for the Study of Aboriginal Art and Culture Knowledge Sharing (GKS) Database.[32]
- Example: *Technically* enforce access and use protocols on catalog records by integrating one factor authentication to listen to sensitive/secret audio files or images rather than only adding notice in the form of text. Warnings and temporary displays that only acknowledge protocols are empty gestures if the design structures of catalog records, including cataloging rules and the user interface, work around implemented ethical systems.

5. In decolonizing description projects, be mindful of whose voice is privileged.

- Example: extend respect via naming—verbally and officially refer to communities, items, and visual materials by community-defined terms.[33]
- Example: Make batch changes to descriptive standards, such as LCSH, so the display tag is more culturally appropriate.[34]

CONCLUSION

Open access practices, while not directly the issue, highlight the continued exclusion and erasure of Indigenous voice and authority in GLAMs. In digital projects and digital collection building involving Indigenous materials, Indigenous perspectives deserve further consideration by GLAMs worldwide before engaging in digital curation work. GLAM open access practices can and do have a meaningful impact on GLAM Indigenous/non-Indigenous analog materials. Specifically, open access practices help to further preserve and provide international access to GLAM collections. This is particularly enriching for analog materials that are separated by geopolitical boundaries or that are too fragile to physically handle/research.

Despite these benefits, Indigenous visual materials require special consideration before digitizing or otherwise publicly displaying high-resolution, freely-

downloaded image versions. Many Indigenous communities have access and use protocols that directly conflict with notions of GLAM open access. Memory institutions are ethically and morally obligated to create space for Indigenous self-representation and culturally appropriate access to, control over, and preservation of Indigenous cultural heritage. If the situation calls for it (based on local contexts), this might mean the institution *should* take down images of Indigenous materials from public access. Whether or not this is a permanent removal is up to the Indigenous community to decide.

It is essential to confront the reality that Indigenous peoples continue to be colonized in order to ensure new GLAM initiatives do not inadvertently continue to colonize through ingrained biases thus building new hegemonic power structures.[35] The examples outlined in this paper are one attempt to mitigate power imbalances in digital spaces. Curator Sumaya Kassim argues that we need to "flip the narrative" and ask how memory institutions can facilitate the decolonial process for its majority white audience in a way that is not exploitative of people of color.[36] GLAMs worldwide need to reconfigure the logics of research so that Indigenous perspectives, participation, and authority is *both legitimate and necessary* to all work on and about Indigenous peoples.[37] Kimberly Christen succinctly articulates what decolonization actions can be taken by GLAMs worldwide: "alter museum display practices, question modes of authorings, and/or redefine collecting priorities based on systems of accountability that define an ethical field of visuality based on *not looking.*"[38]

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Reviving the Nineteenth Century 68mm Films with the Latest Digital Technologies

Paulina Reizi

The Mutoscope and Biograph 68mm film collection, held at the Eye Filmmuseum in Amsterdam, The Netherlands, is an inseparable part of the global cinema heritage. These one-minute films from 120 years ago both fascinate film archivists and pose preservation challenges due to their unique content and technical particularity. The rich moving images capture fleeting moments from the turn of the 20th century and in terms of image quality, the information-carrying capacity of these wide-gauge films is estimated to correspond to 8–16K resolution in digital data. However, the best available projection in modern cinema theatres is currently a maximum of 4K quality.[1] Furthermore, contemporary scanners cannot be used for obsolete archival material like the 68mm films, because of the films' vulnerability and odd format (no perforations, unusual width). The Eye Filmmuseum and the British Film Institute (BFI) have been looking for alternative ways to preserve the characteristics of large films in digital format and introduced a new solution to reconnect these films to contemporary audiences.

In this article, I first discuss the significance of this film collection and the efforts in preserving it. I then investigate the questions raised during the first attempts of preserving and presenting these large-format motion pictures within the paradigm shift of digital practice in visual culture. In the wider field of film

Figure 1 Comparing the size of a 68mm positive film frame (hand-colored, without perforation) with an IMAX 70mm film (yellow frame). Credit: Eye Filmmuseum/P. Reizi. The 68mm nitrate film strip used for comparison is from the film *Les Parisiennes* (1897). Watch the film here: https://www.youtube.com/watch?v=kk-pTXzQp4c

heritage practice, this case study of digitally reproducing obsolete analog films highlights relevant issues of sustainable film preservation and of access to our earliest film history.

HISTORICAL CONTEXT AND TECHNOLOGY OF THE COLLECTION

William Kennedy-Laurie Dickson (1860–1935), a Scottish motion-picture pioneer born in France, worked as an inventor, producer, and filmmaker under the employment of Thomas Edison from 1883 to 1895.[2] He is, in particular, notable for directing, producing, and featuring in one of the earliest films, created in 1891, *Dickson Greeting*.[3] After leading the development of the 35mm Kinetoscope for Edison's company, Dickson, together with Elias Koopman, Harry Marvin, and Herman Casler, created in 1895 the American Mutoscope and Biograph Company. This film production company first focused on the development of the Mutoscope, a hand-cranked arcade machine using flipped paper-print cards for individual viewing, but due to new market prospects in cinema viewing and to avoid using Edison's patented 35mm film stock, Dickson and his associates created a new projector, the Biograph. By recreating the same process but using a 68mm film stock, Dickson did not violate Edison's patent rights and, in addition, offered a new technology with larger and sharper images.

This new exceptional product offered a film format of approximately 2.75 inches wide and 2 inches high, also commonly referred to today as 68mm. To give an idea of its size, the image of a 35mm silent film frame would fit more than seven times in a 68mm frame (see the end note and Figure 2 comparing film formats).[4] Unlike other formats, the negative 68mm film has no perforations on the sides of the image but only two perforations between successive frames and the positive copies have no perforations. With the image covering as large an area of the film stock as possible, it is extremely high resolution, providing extraordinarily rich detail. Furthermore, the camera's high speed of filming gave clarity and brightness to the image.[5]

On 14 September 1896, the 68mm Biograph premiered at Alvin Theater in Pittsburgh.[6] Newspaper articles reported on the remarkable novel technology and reception of an applauding audience, with *The Post* stating "The biographe (sic) shows a picture nearly twice as large as the similar machines in the other houses, and the impression is clear-cut and distinct."[7] The *Commercial Gazette* commented "Mr. Jefferson's lips moved so naturally that one could almost imagine he heard the words that he seemed to utter."[8] The Biograph was evidently not the first projector, but its capacity to project such large and sharp moving images on the big screen made a sensation. Right at the fall of the individual viewing machines and the rise of new technologies enabling better optics and reproducible film stock, the Mutoscope and Biograph company focused on theatrical projection of moving pictures and became a rival to Edison's company.

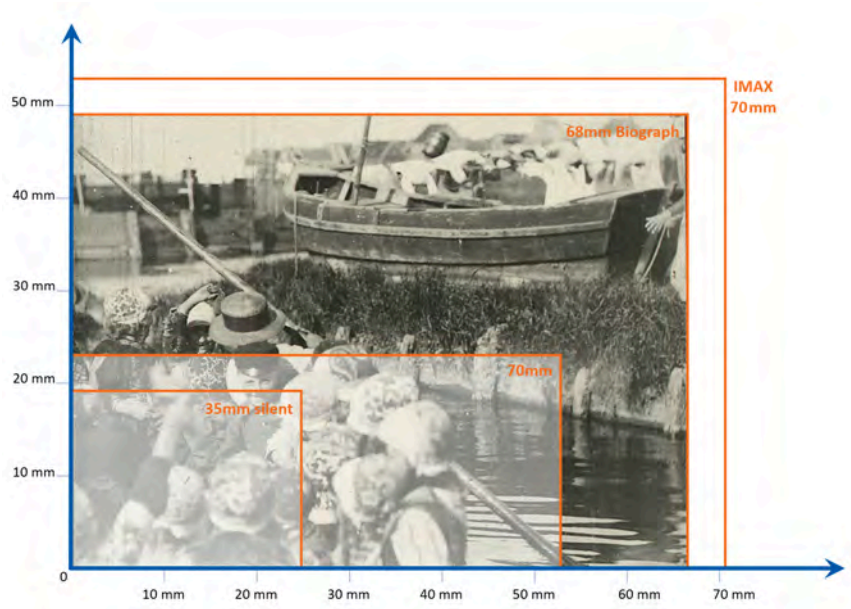

Figure 2 Graph showing standard film formats compared to the Biograph 68mm. Credit: P. Reizi. The frame used for comparison is taken from the film *Een kinderfeest op 't eiland Marken* (1899) [A Children's Party on the Island of Marken]. Watch the film here: https://www.youtube.com/watch?v=4wCc_kzilMk

Since the audiences were receptive to the Biograph, the content development went hand in hand with the technological one and creativity for the production of new material was stimulated. Starting in the United States with significant films, such as the presidential campaign of William McKinley at the end of 1896 (probably the first American political campaign on film), the company expanded across the Atlantic. In 1897, the first European affiliate was established in London and several others followed in places like Paris and Amsterdam. Paul Spehr has argued that this was the most effective film company in the world.[9] These national branches supported local film productions and also served as outlets for regional business deals to circulate the company's offerings internationally.

Biograph camera crews were sent to several countries to capture short clips reporting on news events, such as royal family affairs, the Pope, the Boer War and city fires, as well as beautiful pictures that could captivate audiences, touristic landscapes, exotic animals, and comedies, but also some daily life scenes, dancers, or children playing. The significance was not in having a strong narrative of a feature-length film, but about the experience of enjoying the moving images. One could argue that these were similar to today's YouTube clips.

Mainly because of the complexity of the projection system compared to the 35mm competitors, the production of 68mm Biograph films was discontinued in 1903.[10]

SURVIVING 68MM BIOGRAPH FILMS AND APPARATUS IN THE WORLD

From the estimated 5.000 titles produced in 68mm between 1896–1903,[11] only few are known to survive today. The Museum of Modern Art of New York (MOMA) made an acquisition in 1939 from remnants of the Biograph company and within this material, 36 reels of 68mm as well as correspondence and production documentation tell the history of the company.[12] The original 68mm Biograph films preserved in Europe include five films of the Will Day collection[13] at the Centre national du cinéma et de l'image animée (CNC) in France, nearly 100 titles of the Rolf Schultze collection[14] at the British Film Institute (BFI), and the largest surviving collection of 200 titles belongs to Eye Filmmuseum in Amsterdam.

It is also interesting to note that there is very limited remaining associated equipment that would enable researchers to gain a better understanding of this remarkable technology. Specifically, three 68mm cameras are part of the collections of La Cinémathèque française.[15] Unfortunately, there is no known surviving projector. I have indications that a projector model attributed as 70mm at Smithsonian's National Museum of American History is a 68mm Biograph projector from 1897, but due to COVID-19 the vaults remained inaccessible in 2020 and confirmation (or not) of this hypothesis has to wait.[16]

EYE FILMMUSEUM MUTOSCOPE AND BIOGRAPH COLLECTION

The Mutoscope and Biograph collection contains the oldest films held by Eye Filmmuseum. It includes 225 nitrate film reels representing about 200 unique titles, with two hand-colored copies.[17] The films were (re)discovered in 1948 at the storage of a Dutch newspaper, and Willy Mullens, documentary filmmaker and producer, retained the original 68mm copies.[18] Mullens copied some of the originals to 35mm film stock, created a compilation of these reduced copies, and even filmed a staged recreation of the event to present his findings to the Dutch audience.[19]

In 1959, the film collection was acquired by the Nederlands Filmmuseum (now, Eye Filmmuseum).[20] After years of passive preservation in the museum's vaults,

a complex restoration project in the 1990s brought these films back to the general audience by using contemporary analog technologies.[21] A rostrum camera was used to capture the original 68mm images onto 35mm negative frame by frame, like animation films. In order to improve image stability, the film frames were projected on the wall to define reference points, which were matched frame after frame during capturing. Thanks to the preservation work funded by the European Lumière project, the 35mm copies presented in the 1990s sparked a surge of several publications and in-depth studies on the technology, filmmaking method, and remarkable content.[22]

GOING DIGITAL: FROM 68MM TO 8K MOVING IMAGES

Until 2017, the original 68mm films and the reduction 35mm copies formed the only available preservation materials of the Eye collection. With the advancement in digital film scanning and financial resources thanks to *Unlocking Film Heritage*, the largest film digitization project in the United Kingdom,[23] the British Film Institute (BFI) undertook the digitization of their own smaller collection of 100 films. In the frame of this project, 16 titles from the Eye collection relevant to the British heritage were also selected for a joint digitization project of 68mm films for the first time in 8K. The digitization and restoration of the complete set of 116 films was performed by the renowned Haghefilm laboratory, in The Netherlands. The output of this digitization was aimed to be first screened under the theme of early British cinema, titled *The Great Victorian Moving Picture Show*.[24] The project intended to be across the three major archives that hold the 68mm material—BFI, MoMA and Eye—in a spirit of inter-archive collaboration and there has been considerable interaction and an exchange of knowledge, methodology and material across the three collections. Thanks to this project, these films from the turn of the 20th century became available for projection on an IMAX screen and allowed for research and development of film heritage restoration with recent available digital technology.

This innovative project combined a hybrid analog-digital workflow in order to produce the best possible digital and new reduction 35mm copies for theatrical presentation and preservation purposes.[25] A meticulous workflow has been designed to clean the analog films from leftovers of previous interventions and to capture the images digitally in around 8K resolution.[26] Given the obsolete format, the digital workflow involved a rostrum camera that captured the images, frame by frame. In a similar manner to the analog customized scanning method employed in the 1990s, the camera would move horizontally above the 68mm film strip held down by a glass plate. At the end of each stretch of film, a new section would be repositioned and captured. The main difference was that

Figure 3 The Great Victorian Moving Picture Show restoration premiere at BFI IMAX. Credit: BFI National Archive, London Film Festival Archive Gala (October 18, 2018).

the latest image capture was performed in 8K data instead of on a 35mm negative film. At the time (2018), a digital restoration at 8K was not technically feasible due to hardware and software limitations and the same constraints applied also to theatrical projection. Therefore, the digital restoration that included image stabilization and clean-up was carried out on downscaled 4K files. The restored 4K files became available for public viewing. The 8K copies enabled archivists to see how much can be achieved using new digital technologies and how the resolution/sharpness of our earliest moving images may compare with or even surpass the current digital capabilities.

THE BRILLIANT BIOGRAPH

In 2019–2020, Eye Filmmuseum restored digitally 50 more film titles of its Biograph collection and invested in further research and development in film heritage practice, thanks to funding from the MEDIA program of the European Union.[27] This second digitization project allowed the combination of two different processes for scanning nonstandard archival films in 8K. About half of the films were scanned by Haghefilm Digitaal (Amsterdam) with the rostrum camera method described earlier. The other half were scanned at Cineric (New York and Lisbon) with a custom-made scanner equipped with a so-called "wet

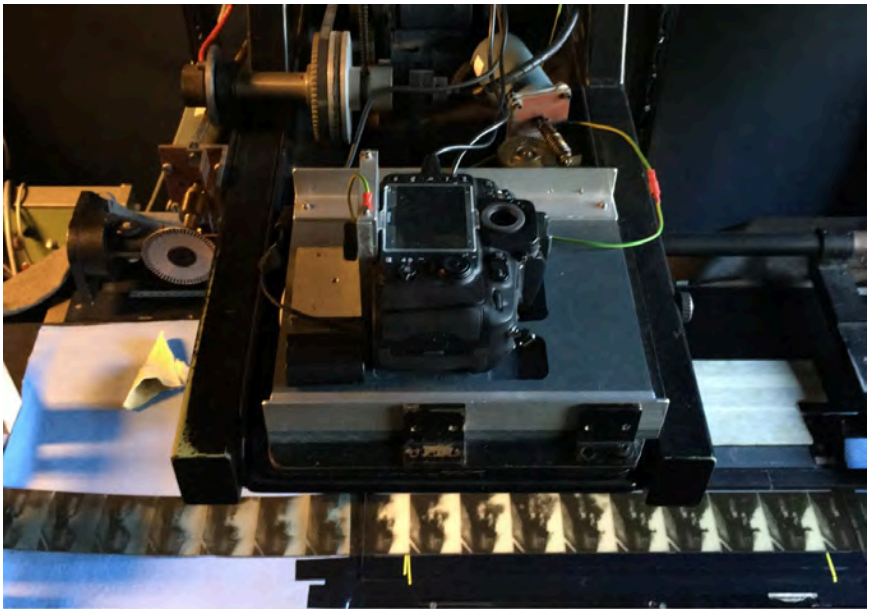

Figure 4 The rostrum camera set-up employed at the Haghefilm laboratory to capture the images of the original 68mm films. Credit: Haghefilm Digitaal.

gate," where the film is submerged into a liquid to reduce the visibility of superficial scratches. The choice of performing this parallel laboratory work was mainly done to gain time as it takes about one week to scan one film with the rostrum method.[28] It also resulted in the creation of one more tool available to film archivists and the possibility of studying alternative restoration workflows to decide what can yield better results.

These successful attempts of digitizing some of the earliest moving images in the latest available technology raised several questions. Is it worth scanning archival films in such high resolution at the beginning of a restoration production chain, since they still cannot be projected unless they are downscaled? Could this process offer a sustainable long-term preservation output in case the original nitrate films deteriorate with time? And can the lessons learned from this work guide us to new effective approaches for preserving, accessing, and appreciating early cinema heritage?

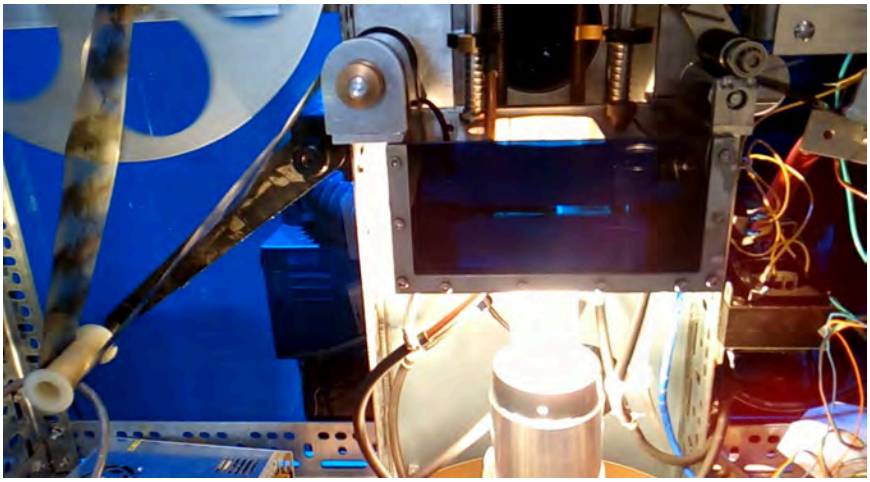

Figure 5 The custom-made 8K scanner equipped with wet gate at Cineric. Credit: Cineric / S. Lund.

PERSPECTIVES, CHALLENGES, AND CONCLUDING REMARKS

A workflow for 8K scan data allows for an optimal safeguarding of these films in the latest technology. This digital format can offer the highest fidelity to the original as a contingency in case the original films decay further. In contrast to fine art restoration in a traditional museological context, film restoration work pertains to basic repairs of the original film (e.g., cleaning, filling of superficial scratches) in an effort to minimize interference with the artifact, which is then duplicated to new copies for exhibition and preservation purposes. Any copy created through a film digitization/restoration project constitutes a new rendition, which is thus distant by at least one generation from the original analog film work. Yet, these digital renditions may serve in case the originals disintegrate completely or for reference purposes for later restoration work.

The high cost and associated computing and storage capacity of an 8K film preservation workflow continue to be a challenge. Compared to the approximate 75MB for a single frame at 4K, the increase to an equivalent 8K image of 300MB or more[29] is still problematic when it comes to computer handling and storage capabilities. For a 1-minute film of the Biograph collection, the storage required for the preservation files (in 8K) rounds up to 2TB.[30] The processing and storage capacity may presumably improve, but the costs can be challenging for smaller institutions.

The distribution of 8K films is currently limited to one TV station (NHK Japan[31]) and some online channels (e.g. YouTube), but new applications are steadily being developed and marketed. Similarly, even if it is not yet possible to project the 8K duplicates in cinema theatres, it is probably a matter of time to have such ultra-high-definition projectors. Looking further ahead, one can only imagine how the fast-evolving media technology might utilize the high-resolution digital moving images to create new experiences for the viewer. Thanks to the recent digitization projects, the newest technologies can be applied to the oldest surviving moving images in the coming years.

The advancements in high-resolution digital technology coincide with the accelerating minimization of screen size. These technologies are commonly used for individual virtual reality applications. The marketing that surrounds these new developments proposes an immersive viewing experience. It is striking to see how such arguments might have been used by Dickson and his associates when they promoted the peep-shows that initially displayed the films created by their new camera.

This case study is a stark reminder that moving image technologies evolve in a nonlinear manner, and not from primitive to progressively advanced. The 68mm case represents the most extreme span between the creation of a moving image object and its restoration with the latest technology. The restorations reintroduce the obsolete 68mm films to current audiences and invigorate new interest in early cinema techniques. This project shows that film archival material can still be revisited and restored more than a century after its creation, and that the preservation of originals can allow future technologies to generate new meanings and information.

Thanks to Giovanna Fossati, Frank Roumen, Anne Gant, Mark Paul Meyer, Annike Kross, Elif Rongen-Kaynakçi, Bryony Dixon, Bin Li, and Simon Lund.

NOTES

1. According to the Digital Cinema Initiative (DCI), a group of motion picture studios that developed the digital cinema resolution standards, “2K” means 2,048 pixels of horizontal resolution and “4K” means 4,096 horizontal pixels. Therefore, “8K” digital cinema would be equivalent to 8,192 pixels of horizontal resolution and “16K” means 16,384 horizontal pixels. Vertical resolution is not stated here, because it can be calculated from the aspect ratio. See https://www.dcimovies.com/

2. For more information on the work of William Kennedy-Laurie Dickson, refer to Hendricks, G. 1964. *Beginnings of the Biograph; The Story of the Invention of the Mutoscope and the Biograph and Their Supplying Camera.* New York: Theodore Gaus' Sons Inc. McKernan, L. and van den Temple, M. (eds.). 2000. *Journal of Film History*

Griffithiana: The Wonders of the Biograph, 66/70 (1999/2000). Sacile: La Cineteca del Friuli. Spehr, P. (2008). *The Man Who Made Movies: W. K. L. Dickson*. Bloomington, Indiana: Indiana University Press.

3. "[Dickson greeting]," Library of Congress. Accessed October 30, 2020. https://www.loc.gov/item/00694118/

4. Specifications of indicative film format dimensions: (a) 35mm full (silent) camera aperture: 0.98" x 0.735"; (b) 35mm Academy aperture: 0.868" x 0.631"; (c) 65/70mm camera aperture: 2,072" x 0,906"; (d) 68mm camera aperture: 2.625" x 1.938"; and (e) IMAX 15-perf/70mm camera aperture: 2.772" x 2.072".

5. Rossell, 105.

6. The first Biograph (test) projection on a screen was in November 1895, according to the testimonies given in support of the patent acquisition. This exhibition took place in a machine shop in Canastota, New York, with the equipment located inside the shop and the lens pointing to a screen outside in order to test the machine capabilities. See Hendricks, 23–24.

7. Quoted in Hendricks, 40.

8. Ibid.

9. Spehr 2007, 147.

10. Spehr 2000, 51.

11. Barry, "The Biograph Collections in Amsterdam and London," 260.

12. Kehr D. "The First Movies," MOMA, May 27, 2019. Accessed September 26, 2020. https://www.moma.org/magazine/articles/70

13. van den Tempel, 235.

14. McKernan, L. "Big." October 18, 2018. Accessed September 26, 2020. https://lukemckernan.com/2018/10/18/big/

15. For a detailed description of the only known remaining 68mm cameras, refer to the online catalogue of La Cinémathèque française. Three cameras survive with only one that seems to be complete, fitted with its original lens. "Catalogue des appareils cinématographiques de la cinémathèque française et du CNC." Accessed September 26, 2020. https://www.cinematheque.fr/fr/catalogues/appareils/collection.html?search=68+mm

16. Email exchanges with David Haberstich and Shannon Perich, curators of the Smithsonian's National Museum of American History, September 28–29 and December 14, 2020.

17. Eye Filmmuseum. "Collection Eye." Accessed September 26, 2020. http://ce.ka.filmmuseum.nl/

18. van den Temple, 225.

19. *Uit de Oude Doos* (NL, 1948). See https://www.eyefilm.nl/en/collection/film-history/film/uit-de-oude-doos

20. Based on a 1959 acquisition list of Nederlands Filmmuseum (NFM) and the 1959 inventory list of material transported from Haghefilm to NFM.

21. Surowiec, 133–134. van den Temple, 227–230.

22. See as an example the publication of Le Giornate del cinema Muto in Pordenone: McKernan and van den Temple, 2000.

23. BFI. "Unlocking Film Heritage." Accessed September 26, 2020. https://www2.bfi.org.uk/britain-on-film/unlocking-film-heritage

24. BFI. "The Great Victorian Moving Picture Show Review." Accessed September 26, 2020. https://www2.bfi.org.uk/news-opinion/sight-sound-magazine/reviews-recommendations/great-victorian-moving-picture-show-silent-bioscope-actualities-wkl-dickson-imax-screen

25. Bin Li, Film Restorer at Haghefilm Digitaal. Email exchange. December 2, 2020.

26. The size of the final image was 7,360 x 4,912 with about 10% overscan. Ibid.

27. Eye Filmmuseum. "The Brilliant Biograph: Earliest Moving Images of Europe (1897-1902)." Accessed September, 26 2020. https://www.eyefilm.nl/en/film/the-brilliant-biograph-earliest-moving-images-of-europe-1897-1902?program_id=478163

28. Frank Roumen, Director of Collections at Eye Filmmuseum. Interview. September 9, 2020.

29. DFT, "Scanity", 12.

30. The preservation deliverables for one Biograph film include the 8K raw scans, the digitally restored files in DPX, DCDM, and DCP in 4K, and the proRes HD files. The preservation files are stored in LTO tapes in duplicate, according to best practices. To give an indication of the high volume, one hour of a 2K film (the resolution of typical current digital films) amounts to 1TB. Annike Kross, Film Restorer. Interview. November 25, 2020.

31. NHK Japan is the first TV channel worldwide that broadcasts in 8K. See NHK, "About 8K." Accessed September 26, 2020. https://www.nhk.or.jp/bs4k8k/eng/about8k/

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Museums as Vehicles for Storytelling: A Survey of Methods and the Potential for Online Collections

Julia Sager

INTRODUCTION

Like the masterpieces hanging in institutions such as the Metropolitan Museum of Art in New York City, the Louvre Museum in Paris, and countless others around the world, visitors to museums on a daily basis are extraordinary. Each person enters the galleries with individual curiosities, hopes, and knowledge built from their memories and lived experiences. As they take in the information presented to them, perhaps they consider an experience they had. Perhaps of everything they see, what sticks out to them is a piece they most relate to and that happens to be from another continent. The ways individuals relate to objects and other humans are derived from experiences stored in their memory, both on an explicit and implicit level. As we continue making connections through storytelling, we are joined as humans on a basic and yet intimate level. This paper investigates the psychology of storytelling and its usefulness in engaging the communities museums serve, specifically considering the use of museum collections websites as a means of expressing narrative.

UNDERSTANDING THE ”WHY”

Storytelling is a popular tactic used in advertising, social media, cultural institutions, schools, and more. In advertising, story is used to create emotional connection and drive a particular message. Storytelling shows up on Facebook, Instagram, and other social media sites through the “story” function, allowing one to share different aspects of their life. In cultural institutions such as museums, storytelling can be seen through exhibitions that share perspectives through various forms of engagement with content matter. By understanding a few psychological basics and analyzing the “why,” institutions may connect more closely to their missions when considering how to incorporate storytelling into online collections websites.

Simon Sinek speaks to this precise principle in his TEDx Talk “Start with Why: How Great Leaders Inspire Action” and introduces the golden circle, which starts with “why” in the center, moves outward to “how,” and then to the last ring, the “what.”[1] He explains that we cannot assume that we know why we do what we do. We need to solidly know. This is what will drive success. This is why cultural institutions, among other nonprofits, form mission statements—which are an anchor to the organization. When creating programming, exhibitions, initiatives, partnerships, etc., an organization will refer to their mission. Therefore, when utilizing the power of storytelling, an organization should know why it works and, thus, why they are using it.

BASIC PSYCHOLOGY OF MEMORY AND STORYTELLING

Understanding the “why” narrative and the idea of story works as a useful tool in genuine connection, enabling one to better understand one’s organization and community. The first thing to understand is that memory can be incredibly subjective due to the astounding individuality of each person’s cognitive function, as well as personal experience. However, generally, the main components to memory function in the brain are the same from person to person. There are two types of memory controlled by different areas of the brain: *explicit memory*, primarily influenced by the function of the hippocampus, and *implicit memory*, influenced by the function of the cerebellum and the prefrontal cortex.[2]

Essentially, the two types of memory are like data collection. Explicit memory is categorized in three ways: episodic, “times, places, associated emotions and other contextual information that make up autobiographical events;” semantic, “general world knowledge we possess and have collected throughout our lives;”

and autobiographical, "a collection of memories specifically related to the self."[3] Implicit memories are obtained and remembered subconsciously. To explain further, episodic memory recalls events in one's life; semantic memory mixes with episodic memory in experiences and is emphasized by cultural differences; and autobiographical memory includes things such as how one looks, meaningful things in one's life, and usually specific things one knows of oneself. Therefore, this idea of our life being made up of stories comes from our explicit memory, which is at the forefront of our consciousness, paired with the emotions we feel as we collect experiences as well as the subconscious implicit memory. Our implicit memories are not necessarily remembered clearly or directly but have a lasting effect on who we are and what we become. As we grow and change, we will accumulate implicit memories unknowingly and we can control those memories that exist in explicit memory to some degree as they are influenced by what we choose to do.

As we talk, communicate, and relate to other human beings we little by little tell our story. Storytelling does not have to mean sitting down to narrate the details of one's life, though this is how it may typically be considered. Patrick Ryan, a scholar based in London, wrote about the place of the storyteller from social and cognitive standpoints. He states that "physical, social, and cultural environments affect cognition—how and what we think—which in turn affects storytelling. In reciprocal fashion, the storytelling we practice and/or experience affects how we think of, view, remember, and experience those three environments and all discourse."[4] In one particular paper, Ryan was speaking literally of the practice of storytelling, however, much about which he writes can easily be translated to other forms of storytelling. One does not need to actively speak about their life to have a story or to communicate it, nor do they have to fully consider their entire life story to relate to someone else's. Consider a visitor's experience with a piece in a museum. What if that piece was a work of art by Degas? The visitor would not need to have led a life like Degas in order to connect with his work. It could simply be something about the color, form, or subject that reminds them of something stored in their memory. The more powerful the emotional connection, the more prominent is the memory.[5]

STORYTELLING IN OUR COMMUNITIES THROUGH MUSEUMS AND CULTURAL INSTITUTIONS

Studies show that museums are places for connection. Everyone visits a museum for different reasons and each visitor comes with their own story, as is known from many different studies assessing visitor behavior.[6] Colleen Dilenschneider of Know Your Own Bone from IMPACTS Experience has numerous blog posts explaining data behind visitation from the effects of executive leadership to

fundraising and membership. In one article, Dilenschneider explains five areas in which human connectivity is directly related to museums: it is the best thing about visiting a cultural organization, it is how we want to experience cultural programming, it is the most effective way to increase satisfaction, it is how we determine reputation and make visitation decisions, and it is a reliable indicator of successful organizations.[7] Essentially, it is not only the connections people feel within museums, but also the connections they have outside the museum that dictate their views on cultural institutions and the experiences they have within museum walls.

In exploring museums, visitors are afforded an opportunity to discover and form connections with the stories of those from different cultures, regions, nations, and continents. Stefano Valtolina, author of "A Storytelling-Driven Framework for Cultural Heritage Dissemination," expresses the use of story particularly in art museums. "In general, a story helps the visitor to interpret an artwork in the context of the life of the artist or the social and political context in which the artwork was created. Visitors can also tell their own stories, making connections between the artwork and their own concerns, knowledge and interests."[8] This is precisely how explicit memory works. One can create connections between any number of topics or objects based on what their brain has stored within their memory. Each new experience builds on top of another, creating a network of memories. Story helps with interpretation because it creates something for viewers to connect to on a personal, psychological level through the relation of the viewer's experience to whatever piece they are considering. When it comes to museums, this can manifest through connection to a collection, exhibition, or program, and frequently in interactions with others.

STORYTELLING DURING A PANDEMIC

During this time, society has shifted into tech-driven high gear, embracing technological possibilities like never before in the effort to maintain connection, which is at risk of being lost in the chaos of this fast-changing world. There is much information being exchanged constantly, which can have both positive and negative effects. Patrick Ryan notes, "we rely on commercial experiences and mass-media images that we retain in our memories, influencing our cognition and our values.... It is necessary to adjust ways of thinking about storytelling so the art form is integrated in all social transactions to form a culture of storytelling."[9] While he wrote this in 2008, it is still very relevant today. By focusing in on stories told, one may see genuine connections forming cross-culturally that are important to cultivate and continue to uphold as society continues to evolve.

In-person exhibitions are one area in which storytelling can be a useful tactic to employ in terms of relaying information, creating experiences, or designing unique spaces. Depending on the type of museum in question, the content could speak to the story behind the pieces in the exhibition. Some institutions may even utilize particular visitor engagement tactics in the exhibitions to get them involved in something hands-on. However, in the wake of a pandemic, museums have had to adjust. All kinds of organizations have reached out to the community in an effort to not only continue business and maintain relevance, but also to support the community and become a resource.

For example, prepandemic museums may have created pamphlets, posters, and various methods of advertising aside from digital or social media means in order to spread word about programming or new exhibitions. However, now more than ever, institutions are looking toward building engaging social media posts, updating websites, and adjusting events in an effort to reach communities who have grown distant due to shutdowns. Many institutions have paired creative community programs with their exhibitions or created special programs to compliment exhibitions or current events. For example, numerous art and history museums have hosted "Ask a Curator" online events in which the public can hear a more detailed account of particular subject matter and get to know the people responsible for much of the information they see in the museum. Creating effective online collections websites is a key resource to add to such experiences and programs that are built on the idea of learning more about a museum collection. In addition, online collections websites are a large part of expressing narrative and building upon the desire for connection between a museum and the community.

STORYTELLING THROUGH ONLINE COLLECTIONS WEBSITES

Online collections websites are key resources, tools of engagement for connecting with the community, and an effective way to be more accessible to curious minds of all ability levels. What good is sharing pieces from a museum's collection on social media when the online collection is difficult to browse or find more information on the topic? Online collections websites are different from just hosting an online catalog. An online catalog may let one search, but it is typically for informational purposes alone and more often used by academics. An online collection website, however, is much more engaging. Such sites often still include a catalog component, as it is built in as a search function. Many institutions have begun improving their online presence by creating these webpages to be more appealing. For example, the Metropolitan Museum of Art in New York City, New York, incorporates a search function, educational

resources, a browsing option, collection highlights, and options for connecting with art through programming. This is a good example of an institution that has taken advantage of discarding the typical catalog search in favor of a more interactive, entertaining, interesting, attention grabbing, and ultimately user friendly model of an online collection website.

Utilizing storytelling in online collections websites does three things: one, it takes the museum experience a step further; two, it becomes a resource or tool for learning that is accessible to a wide audience; and three, it showcases objects and history from all angles—from the individual to national to international experiences. Online collections websites must be not only factual and searchable but also engaging. Depicting collections through the lens of storytelling can be used to build this sense of community and engagement. This is, again, due to the ways humans form connections through sharing experiences. This was a major theme on my mind while working on a project at the Eli and Edythe Broad Art Museum at Michigan State University.

In April, the Eli and Edythe Broad Art Museum at Michigan State University, or the Broad as it is referred to in Lansing, embarked on a project involving improvements to the collections website. My role was to organize works of art as well as define periods of art history in a way that would speak to what the collection had to offer. In doing so, it occurred to me that in order to reach the audiences that the Broad served, I must take myself out of my art historian shoes and consider the diverse experiences of those in the Lansing community.

What makes art history special is that it tells the visual story of history and gives a look into how ancestors lived, what their struggles were, the things they celebrated, and the values they upheld. The beauty of art history is that it is ongoing, as is any study involving humankind. A historical event a hundred years ago can still teach lessons in present day. Societies have all kinds of implicit collective memories that have shaped the movement of nations. Yet, when considering what bonds us, it is the sharing of explicit memories from individual to individual that inspires unexpected connections.

Therefore, when considering the idea of building an online collections website, the best way to connect to communities is by telling the stories behind the items in the collection. As I wrote definitions, I considered the historical context of the periods and the events that could most resonate with various audiences. For example, when defining the Modern period, I did not dive into technical terms but described how it could be defined by artists finding new ways to break old rules and urged readers to consider how our world today might be viewed historically in the future. Unfortunately, due to the nature of the pandemic, I will not be able to see how the collections website improvement project unfolds, but I am eager to see the end results.

CONCLUSION

As we consider storytelling it is essential to recognize the role that power dynamics play in our society, particularly in museums. In considering museums, the question becomes, why is it that they might be deemed powerful or particularly influential? Could it be that in this age knowledge is power? Or perhaps it is the domination of narrative? Society has entrusted museums with valuable objects that hold our collective memory, such as works of art, material culture, artifacts, and specimens, whose assigned values create a story. Therefore, being the holders of such significant objects is powerful because it is the holders that control the narrative. This is precisely why museums have a responsibility to the communities they serve and ultimately society as a whole.

However, one cannot consider museums in a social context without recognizing that historically they have had a role in misrepresentation and the perpetuating of inaccurate information of various cultures, be it from negligence or ignorance. The strides taken by museums in correcting such errors have partially been due to calls for change from the community and experts in various fields of study. In this process, museums must be aware that they should be *vehicles* for storytelling and be wary of falling into the role of fabricators of truth. As museums endeavor to improve, address changes, and celebrate successes, they will ultimately cultivate stronger bonds with communities and within their organizations.

While the discussion around how to best utilize storytelling in museums, and specifically in collections, will differ from institution to institution, it is an important topic that each should embrace. Storytelling can fuel mission-driven efforts to engage with the community because of the "psychological why" explaining human memory and connections. It both drives and is affected by individual and collective expression of identity. By understanding how visitors may psychologically connect through any project a museum undertakes, that museum can utilize storytelling more effectively. Specifically, by improving online collections websites, museums will foster connection between people, drive engagement with the institution, and ultimately become vehicles for storytelling now and in the future.

NOTES

1. Sinek S. 2009. "TEDxPuget Sound," TEDxPuget Sound (September).

2. The hippocampus is involved in creating memories and giving them meaning and connecting them to other bits of information. The cerebellum influences implicit memory and is involved in functions such as procedural memory, conditioned

responses, fine motor movements, and posture and coordination. Lastly, the prefrontal cortex is very task or function oriented. The amygdala, another area involved in memory, is the part of the brain primarily responsible for regulating emotion and plays a role in memory consolidation, the process of transferring new learning into long-term memory.

3. Dumper, K., Jenkins, W., Lacombe, A., Lovett, M., and Perlmutter, M. n.d. "Parts of the Brain Involved in Memory." https://opentext.wsu.edu/psych105/chapter/8-3-parts-of-the-brain-involved-in-memory/

4. Ryan, P. 2008. "The Storyteller in Context: Storyteller Identity and Storytelling Experience." *Storytelling, Self, Society 4*(2): 66–67.

5. Dumper, K. et al state, "The amygdala seems to facilitate encoding memories at a deeper level when the event is emotionally arousing," 6.

6. Regarding visitor behavior, we can see through data, such as in reports by people like Colleen Dilenschneider, that visitors come for experience, education, as enthusiasts, as families, etc.

7. Dilenschneider, C. 2015. "Hubs for Human Connection: The Social Role of Cultural Organizations (DATA)." https://www.colleendilen.com/2015/11/18/hubs-for-human-connection-the-social-role-of-cultural-organizations-data/

8. Valtolina, S. 2016. A Storytelling-Driven Framework for Cultural Heritage Dissemination. *Data Science and Engineering 1*(2): 115.

9. Ryan, "The Storyteller in Context," 83.

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Informal Online Learning Spaces for Children in Vulnerable Communities

Lucia Taeubler

ABSTRACT

This essay focuses on the exploration to create virtual informal learning spaces in art museums for children between 6 and 12 years. In particular it looks at informal learning in vulnerable communities, such as young asylum seekers, migrants, and refugees but also children who have not been able to visit art museums regularly due to COVID-19 restrictions as formal and informal education spaces moved online. Focusing on the Glucksman Gallery's pilot programme, which will be launched in Fall 2020, and will bring artists' prints of the exhibition *Viewpoints: Children's Rights in Imaginary Spaces* to asylum accommodation, rural schools, and centers of marginalized communities. We are interested in how picture books and nonverbal illustrations teach children in informal learning spaces, how these spaces motivate and shape children's lives, and how informal learning in community settings can be achieved beyond the museum walls as well as what challenges we have met in the process.

The data we used includes teacher surveys taken after schools' physical visits to the gallery (February and March 2020), observational data taken from art facilitators and myself, and interviews with parents and children who

participated in the COVID-19 created online learning space *Creativity at Home,* which incorporated the illustrations.

CHILDREN'S RIGHTS ILLUSTRATIONS FOR A VISUAL ART MUSEUM

> "Recognizing the value in children's voices and empowering youth to realize their right to participate can have a profound effect not only on children but also on programs that target children."
>
> *—Todres and Higinbotham, 2015, p. 15*

Children's literature and illustrated picturebooks are taking people from a very young age on the imaginative journey to fantastic spaces; to explore, learn, create, and share. Picturebooks inspire children's endeavours, their wishes, and their hopes. They also transfer knowledge about their strength and creativity, their values toward the world, and they inherit and incorporate children's rights (Todres and Higinbotham 2015, pp. 3, 207).[1] As a contemporary art gallery on University College Cork (UCC) campus, The Glucksman works to create a space for young people from marginalized communities to foster knowledge, to learn, and to develop creative and social skills (Ng et al. 2018), integrating picturebook illustrations into an art gallery. The gallery's Creative Agency programme has had a long-term relationship with migrant communities for the last four years to enable them to learn creatively and to foster empowerment. Stephen Weil claimed museums have to start transforming from "being about something to being for somebody" (Weil 1999, p. 229) and have to start to look at the online learning space in order to reach out to communities.

As an example of our work in progress to create a virtual learning space with blended learning opportunities for vulnerable communities, the collaboration between The Glucksman and the University College Cork (UCC) School of Law has to be highlighted. The partnership for the temporary exhibition *Viewpoints: Children's Rights in Imaginary Spaces* shows the development from an existing physical learning and teaching space to a virtual learning space in order to stay connected with children, and their families, to create a sense of comfort and to teach resilience through artworks and creative activities. Jonathan Todres and Sarah Higinbotham (2016) state, "Teaching children about their rights helps children transition from mere subjects of adults to partners and participants in their families, communities, and nations." (p. 15)

The gallery commissioned seven Irish children's book authors to create nonverbal illustrations of seven sets of children's rights.[2] The United Nations Convention on the Rights of the Child (CRC) was first established in 1989. The

CRC has been created as a comprehensive articulation of rights for children between 0 and 18 years old and is legally binding for states. It includes the right to education, to justice, to refuge, to belonging and being cared for by their families. and to health and protection from abuse and maltreatment. In their publication *Human Rights in Children's Literature*, Jonathan Todres and Sarah Higinbotham offer a legal insight into learning through storytelling, reading, and early childhood picture books:

> *"Children's literature allows children (and the adults who read books with them) to explore and even grasp the rights of children more fully. This is one of the crucial roles that stories play in our lives:* not just showing us what is, but also what can be*." (Todres et al. 2016, p.3; my italics).*

As a visual arts museum, we tell stories through artworks, how they are curated, and depict new perspectives to create meaningful moments for visitors, especially children. This led to the decision to focus on seven topics of CRC. The illustrations were digitally submitted to be then temporarily painted onto the gallery walls as large-scale murals. The exhibition invited children to become part of a life-size picturebook, transmitting messages about their own rights, and connected to their own lives as a familiar sociocultural experience which serves as "powerful mediators" for museum education (Anderson et al. 2002, p. 222) (Figure 1). In Todres and Higinbotham (2015) the question was raised how to make children's rights widely known and how to create resources for communities to teach their children these sets of rights to be valuable. Through a variety of engagement programmes, the Glucksman created physical and virtual spaces for children to learn about their rights, along with children whose access to visual art galleries is usually limited.

At first, school workshops were hosted, creating safe spaces for teachers and students to get inspired by the rights, ask questions, create stories, and actively work on an arts project while in the gallery. Second, community groups such as Irish Scouting and young children (6–12 years) living in refugee centres (referred to as Direct Provision Accommodation in Ireland) were invited to participate in an on-site project. Third, due to COVID-19 and the temporary closure of the gallery, online art activities have been established to engage with the exhibition through free downloads and online workshops called Creativity at Home. These three learning spaces are the basis for a more developed online learning space that will feed back to the gallery virtually. We will compare the physical gallery visit through a school workshop with the virtual visit through Creativity at Home, and gather information from collected data.

It is of importance to look at the framework of possible engagement with vulnerable communities, and the design of user-friendly and playful online learning spaces.

Figure 1 Image of The Right to Education by Roisin Hahessy, Exhibition View. Photo: Jed Niezgoda

ENGAGING OPEN-ENDED LEARNING

Environments such as museums and art galleries are social and physical spaces. They flourish through their visitors and their engagement with objects and curated topics to inspire critical thinking. Children, especially in school groups, are one of the museum's largest visitor groups, and usually in this context their visit is brief and singular, based on the educator's need to meet the curriculum, or their personal interest. (Andre, Durksen, Volman 2017) They learn in a formal way—as workshops for schools in the Glucksman last for 90 minutes—and will at best go back to the gallery with their family, their peers, or through their own motivation.

Children's learning in museums is mostly accompanied with a knowledgeable adult (e.g., curator, parent, teacher, artist) or technology paired with hands-on activities related to exhibits or topics. In addition, the engagement between visitors and museum education, in tours, workshops, and talks, nourishes a museum and also the visitor. But how do children learn informally in the museum? We cannot answer this question through one theory, or one particular study. Informal learning, and children's motivation to do so, is complex. Play can be one answer, shown by Deborah Perry (2012), "those visitors who have the most satisfying and enjoyable experiences are those who feel the most playful" (p. 137).[3] Andre, Durksen, and Volman (2017) speak about interactivity,

participative learning approaches and of object-based learning to understand ideas. Revisiting the museum more than once helps build relationships and visitors to become comfortable with the physical space, and the relationship with the educator can be another approach (Andre, Durksen, and Volman 2017, p. 48).

An advantage of working with a community outside of the curriculum-focused school visit, is to focus on "learning to look" through observation, inference, speculation, and open-ended questions and critical-thinking methods (Burchenal and Grohe 2007, p. 112 and hooks 2010, pp. 9, 141).[4] Scon G. Paris (1997) refers to learning as being connected with the visitor's personal "interests, background knowledge, and emotionally valued topics" (p. 22). Museums offer the opportunity to learn for all children, and create space to engage, which results in better commitment to learning, social and personal development through collaboration, critical aspirations, and academic decision-making for future opportunities and more perspective in general (Ng, et al., p. 1). Falk and Dierking (2000) even refer to museums and other non-school-based environments as "informal or free-choice learning" and as being "qualitatively different learning from that in schools," which is an approach we adopted at the Glucksman. We also adapted bell hooks' Teaching Critical Thinking (2010), and her approach to "Engaged Pedagogy": "Engaged pedagogy establishes a mutual relationship between teacher and students that nurtures the growth of both parties, creating an atmosphere of trust and commitment that is always present when genuine learning happens" (hooks 2010, p. 22). In Anderson et al.'s (2002) research, museum-based culture was imitated through children's own everyday activities, such as making collections and building personal "play" museums; an approach that relates to our observations. In art galleries and art museums, guided and facilitated play is the most powerful learning tool, inviting children to access, enjoy and motivate discussion of artworks on their own terms (Andre, Durksen, Volman 2017, p. 63). The space to learn is a transformative goal to create engagement within the museum:

> *"The availability of access to learning situations and accessibility of meaningful learning opportunities are necessary, if not sufficient conditions, for engagement—cognitively, behaviorally, emotionally, autonomously, and socially—in learning that results in the use of knowledge and skills." (Ng et al., p. 45)*

A further focus lies in digital and media literacy, as Renee Hobbs (2011) sees the need to strengthen people's capacity for engaging with information—their rights—"but also for addressing the many potential risks associated with exposure to mass media, popular culture, and digital media" (p. 15).

We understand that engaging children's open-ended learning in informal museum education is like a rhizome, expanding through play, interaction, critical

thinking, trust, and active engagement. These theories lead to the research in three different settings and to our approaches.

RESEARCH 1: ON-SITE SCHOOL WORKSHOPS

In February and March 2020 we invited over 1,000 children from primary and secondary level education to visit the exhibition on-site and to work on a specific, age-adequate set of rights. We collected data from the teachers and we gathered some observational anecdotes of the visits, to inform our plan to make the exhibition accessible through digital spaces for communities outside the formal school visit. The children were between 4 and 13 years old, and attended schools in and around Cork. The workshops were 90 minutes long, and included a tour and an art activity that was usually a collaborative one. The outcome of their sessions would have been shown in an on-site exhibition to introduce parents and friends of the participating children to the gallery. This could not happen due to COVID-19, and lockdown in March 2020. The workshop topic was chosen by the teachers, or in collaboration with the children. One teacher justified her choice, "Approximately two thirds of our pupils are New Irish. This (The Right to Refuge) was the topic toward which they gravitated."

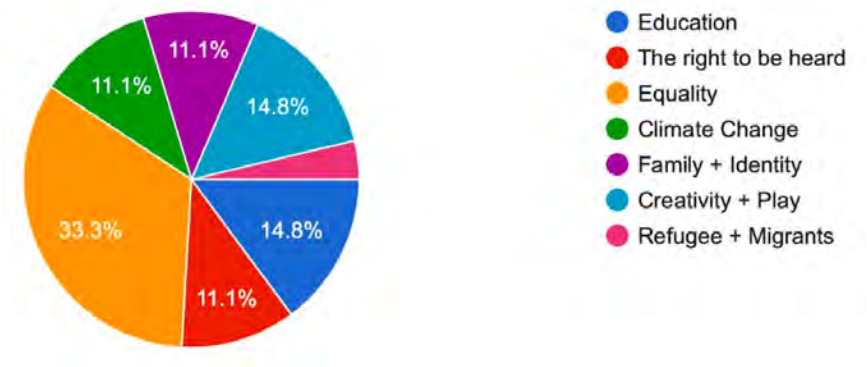

Figure 2

Which topic related to the UN Convention on the Rights of the Child did you choose for your workshop? (27 responses)

We wanted to know if the exhibition and workshop helped children understand their rights, and CRC. "This workshop definitely helped introduce the concept that every child has rights, and that rights include the everyday things they may not have thought about like play and the right to creativity." In workshops we

observed that if teachers have used pre-visit materials and prepared their children for the visit, they were able to interact and to ask questions more frequently than groups that were not prepared.

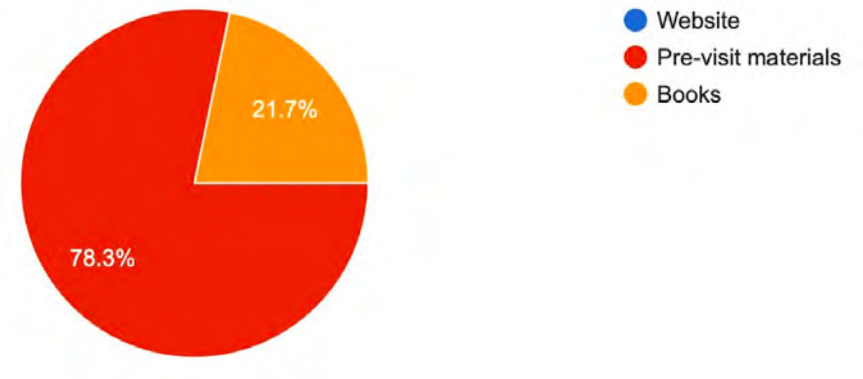

Figure 3

How did you prepare your students for your visit? Did you use any of the resources listed here? (23 responses)

The facilitators guided the children with questions around the selected right, which helped them look closely, and gave them an opportunity to learn through peer-discussion and questioning.

When the children broke up in smaller groups, they were assigned to work on an art activity collaboratively, which was probably the most challenging for them. As a group they were allowed to choose their approach, and the task was open-ended, for example: *What does Education mean to you?* It allowed students to explore information according to their interest and familiarity, and stimulated the children's curiosity through participation (Paris 1997, p. 23). This led to creations like those shown in Figure 4, such as a school with circus elements, a school on a boat, a traditional school, and a school in outer space.

Due to the children's young age (6–7 years), "it (the exhibition) was a great opportunity to introduce the idea of children's rights to them, and to have them develop an awareness of the wider world, not just their immediate environment." In this sense, respectively to Todres and Higinbotham (2015), we partnered with children in helping them realize their own rights and the rights of their peers. Especially, when we were introducing the Right to Be Heard, the children were very vocal about what they would change in their relationship with adults, to be heard more and to empower themselves. We also observed that

Figure 4 The Right to Education by 10 year olds in collaboration. Photo: Lucia Taeubler

when children successfully created a collaborative piece, they felt the sense of accomplishment in the face of a meaningful challenge (Paris 1997, p. 24).

All these key learnings from on-site children's visits have to be encountered to create a useful, valuable resource for vulnerable communities, since "...children who have developed skills to facilitate communication, cooperation, assertion, empathy, and self control, engage more effectively with others, find school more positive, and generally achieve more" (Ng et al., p. 198). We are looking to transform this empowerment, through CRC to vulnerable communities, as we did in the on-site visits of children in asylum accommodation to work together with Irish Scouting on the Right to a Climate Justice. This partnership strengthens the communities' understanding of the given topic but also creates opportunities to connect, and build trust for further collaborations.

RESEARCH 2: ONLINE ART ACTIVITY SPACE

Due to COVID-19 and a general lockdown, including the closure of all cultural institutions, we decided to create art activities for children to be accessible online. The Glucksman's focus has not been on digital engagement with vulnerable groups in the past, mainly because of the structure of the small team. But additionally, relationship building and connecting face-to-face has an

important impact on individual lives. We created a safe, private space with original artworks, and enabled them to link with local, and national artists, as well as empowering them to "experience support for acquiring a critical consciousness, for any commitment to end domination" (hooks 2003, p. 45).

We were trying to create "tools to assist children to learn and develop deeper understandings of the museum messages in and beyond the walls of the museum itself" (Anderson et al., p. 228). Still, while we cannot truly imitate the museum experience through a camera and a screen, we can find a connection to our participants through their learning journey and process, their engagement with art appreciation, and their understanding that "[a]s a mode of communication, artworks are visual representations of ideas, experience, and memory" (Wilks et al. 2012, p. 55). Artworks as such, and therefore art museums containing objects of art, are visual representations of knowledge, ideas, experiences and memory. They have been linked with people throughout history, and usually have a certain story to tell.

The first question we asked our interviewees who participated in Creativity at Home "Did you visit the exhibition *Viewpoints: Children's Rights in Imaginary Spaces* in person?", was answered 50% with yes, and 50% with no, but 90% of the interviewees participated in Creativity at Home and were able to connect the online space with our physical exhibition.

See the following 3 charts (10 interviewees).

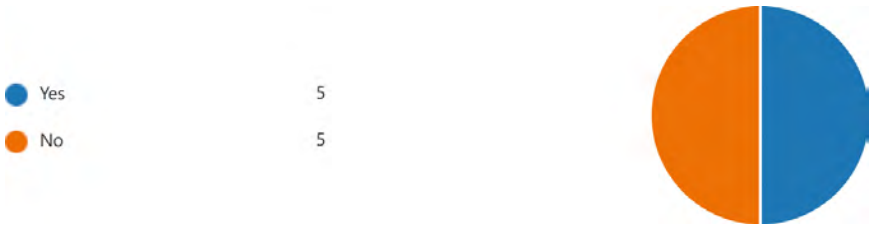

Figure 5

Did you visit the exhibition *Viewpoints: Children's Rights in Imaginary Spaces* in person?

Figure 6

Did you use the online resources 'Creativity at Home' provided during COVID-19 lockdown?

Figure 7

If yes, did you connect the exhibition and the resources given?

Their sense of discovery and wonder motivated them to explore further and to learn more, as Paris (1997) suggests. In inviting vulnerable and marginalized groups into the art gallery or the virtual space to create, this perspective can be widened. The Creativity at Home activity usually combined two tasks: creative exploration and practical making. The exploration included guiding questions to stimulate participants to observe and look, before (or after) they started with the art-making activity (Figures 8 and 9). "We sometimes skipped the questions and went right to the art making," an interviewee reported.

The pilot programme for our Viewpoints online learning space fosters learning through prints of the exhibits, which will be installed in community centers such as refugee accommodation and rural schools. These will be freely accessible to children and their community leaders. The gallery has already had long relationships with migrant communities in so-called "Direct Provision accommodation" around Cork through Creative Agency programmes.

Challenges we have assessed are as basic as accessibility to technology, such as hardware (computers, printers, art materials) and functioning Internet. Working without being on-site or face-to-face can also lead to misunderstandings, which we have faced in the Creativity at Home activities which included an example, a

CREATIVITY AT HOME with the **GLUCKSMAN** #1

The artwork above is by Niamh Sharkey and it featured in the Glucksman's Viewpoints exhibition. You can find out more about Niamh's fabulous books and illustrations here: http://niamhsharkey.com

CREATIVE EXPLORATION

Look at the image closely and answer the following questions:

What is happening in this picture?

What items can you spot in the picture?

Can you spot any differences between the two squirrels?

Can you think of a story around the girl and her painted squirrel (and the other squirrel)?

ART ACTIVITY

MATERIALS: Paper, Watercolours, Paintbrush, Water, Pencils, Eraser and Sharpener
Today, we are going to look at how to use watercolours to create images of different kinds of animals.
If you don't have watercolours at home, you can use food colouring or paints instead.

GLUCKSMAN

Figure 8 Creativity at Home, the Right to Play.

stop-motion animation tutorial, and step-by-step text. The online activities also require help from a parent or guardian to download, read, and support with art-

Figure 9 Creativity at Home, the Right to Play, participant's image. Photo: private

making skills. Especially, children with learning disabilities will need extra support, which needs to be assessed through the museum. We will assess the language barriers of parents and guardians to know which languages to prioritize for multi-language resources. "Digital and media literacy competencies are not only needed to strengthen people's capacity for engaging with information but also for addressing the many potential risks associated with exposure to mass media, popular culture, and digital media." Rachel Hoobs (2011) makes clear that as an institution we will have to provide a safe way of handling digital empowerment and protection for children.

Over the course of several weeks, workshop sessions with artists, authors, and museum educators will help build trust with the children, and to connect with their interests, knowledge, and backgrounds. We will provide virtual workshops to introduce topics, and create space to question and form ideas within the group. These ideas will be collected to inform collaborative projects, possibly with on-site instructions through local artists. In a final workshop we will collect feedback and learnings, and discuss potential improvements. The pilot programme's findings will feed into the finalization of our resources, in empowering children to know their rights, and become ambassadors for others by fostering engagement and fun. We are aiming for the following:

Children's participation as a community in online art-making sessions with the underlying understanding and knowledge of children's rights.

- Creating a space in their communities to view art regularly, and discuss the topics, even as passersby.
- The creation of resilient resources for vulnerable communities during a pandemic and beyond through digital and media literacy and the art of looking.

We have experienced that sharing children's creative and research works digitally (Robyler and Doering 2010, p. 377) fosters pride and happiness, knowing that their images not only reach other people but create the same emotions. *How did you feel when we shared your work online?* "I felt proud," one interviewee answered, still visibly proud. Todres and Higinbotham (2015) addressed the factor of social behaviour and learning improvement through learning about their rights, to become more responsible members of their community, and more highly motivated, active learners (p. 6).

Our interviewees showed a stronger willingness toward peer-learning and collaborative creating than the school workshops. Important to our approach is blended learning, including face-to-face sessions and open-ended tasks that can be worked on individually (or as a collective). Participants of the online activities were more likely to ask for support from their peers and to learn from each other than in the school workshop setting in which they tend to ask facilitators or teachers. Enabling children to become peer-leaders and guides creates a strong community connection, not only within the community but also the institution. Open-ended, activity-based social learning processes with discovery learning as their centre is our aim (Kolb and Fry 1975).

Learning should be fun and entertaining, especially in an informal learning setting. As educators we foster imagination and creativity through offline and online learning experiences, creating a platform for children to exchange, raise questions, and engage with institutions. The online activities inspired one of the interviewees to create her own "play" museum at home, gathering her creations throughout the weeks of lockdown and assembling them in her curation, which refers to Anderson et al.'s (2002) research. These resources teach social skills, which enable and help students connect socially and emotionally with others in their environment informally, and "optimize the cognitive abilities needed to engage with opportunities to learn and to achieve academically (Ng et al., p. 198)."

CONCLUSION

Picturebooks, and extracted illustrations of children's rights, are playfully "*not just showing us what is, but also what can be*." (Todres and Higinbotham 2015, p. 3) and inspire children's endeavours, their wishes, and their hopes. Through the extensive engagement with vulnerable communities online, and in face-to-face sessions conducted by the Glucksman, children are empowered to become ambassadors for children's rights, for themselves, and for their peers to raise questions and create a platform of justice. They lend their voice for our digital resources to become peer leaders and guides. This takes blended learning to another level: from the community, to the digital resource, to the peers, back to the museum. As a concept, this project needs active assessment around practicalities like accessible hard- and softwares, as well as languages in migrant communities.

The learnings we gathered from on-site school workshops and online art activities enable us to create virtual spaces to foster emotional learning and social skills. We hope our resource develops to become a collaborative, critically aspired and future-led opportunity for children to learn and teach.

NOTES

1. Todres, J. and Higinbotham, S. 2015. "Stories for children have historically been didactic and functioned as instruments to mold children according to prevailing notions of appropriate behavior. But alongside that tradition, books have also fostered children's imaginations, creativity, and autonomy," 207.

2. The Right to Education, illustrated by Roisin Hahessy, The Right to Justice, and to Be Heard, illustrated by Peter Donnelly, The Right to Equality, illustrated by Fatti Burke, The Right to Family and Identity, illustrated by Mary Murphy, The Right to Shelter and Security on a Functioning Planet (Climate Change), illustrated by Chris Haughton, The Right to Play and Leisure, illustrated by Niamh Sharkey, and The Right to Refuge, illustrated by Chris Judge.

3. Research about "play" has been conducted through a variety of researchers and collaborations, such as The Lego Foundation and UNICEF. 2018. "Learning Through Play." Strengthening learning through play in early childhood education programmes is also a target for the United Nations Sustainable Development Goals (SDG). Accessed October 26, 2020. https://drive.google.com/file/d/1ybUtJXEDWHqynF8U3UK4H_dZdKeLqRQB/view?usp=sharing

4. In addition, in bell hooks' Teaching Critical Thinking, 2010: "In such a community of learning there is no failure. Everyone is participating and sharing whatever resource is needed at a given moment in time to ensure that we leave the classroom knowing that critical thinking empowers us."

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Contributors

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Maria Paula Arias (she/her) is an early career researcher interested in how museums and galleries use social media. Particularly in the ways social media platforms and their audiences are valued and, therefore, what their relationships are with the brands of such cultural institutions., and the sociological approaches to museology and digital humanities . She's a proponent for the use of creative methodologies and mixed-methods, as well as an advocate for the mindful and ethical use of digital media in museological research. Her Twitter handle is @ariasmariap.

Emma C. Cantrell

Emma has worked as an educator and administrator for arts nonprofits since 2010, including the Center for Art and Community Partnerships, Smith College Museum of Art, and the Henry Art Gallery. She is passionate about creating accessible museum experiences that empower the public as learners, makers, stewards, critics, and consumers of culture, as well as developing museum processes that are visitor-centered and research-informed. She holds degrees from the University of Washington (MA, Museology) and Massachusetts College of Art and Design (BFA, Community Education) and is grateful to have had an education guided by brilliant artists, activists, teachers, and researchers. As an MCN 2020 Scholar, she is studying museum educators' self-efficacy beliefs during a field-wide shift to increased virtual education due to the COVID-19 pandemic. Emma's research is inspired by her own experiences transitioning to teaching and learning online in her current role as School & Youth Programs Manager at the Bainbridge Island Museum of Art.

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Emily Crum is a passionate museum educator who strives to ensure museum spaces are innovative, accessible, and serving the public at large. Emily holds dual Master's degrees in Arts Administration and Policy & Modern and Contemporary Art History from the School of the Art Institute of Chicago. She also holds a Bachelor's degree with Honors in The History of Art and Architecture with an emphasis in Museum Studies from the University of California, Santa Barbara. Her Master's thesis, "The Integration of Digital Technology in American Art Museums for Learning and Interpretation," argues that digital technology is a tool and platform that provides a point of access for non-museum goers and can foster the creation of relevant experiences with art in museums. This body of work is one of the only of its kind to strategically analyze the investment of modern digital tools for learning and interpretation in an informal learning environment. Emily has a wide array of experiences from holding positions in several museums, the government, and more. She is most passionate about exposing all audiences to art and culture through facilitating multi-sensory experiences with lasting impact.

Alexis Garretson

Alexis Garretson (she/her) is a National Science Foundation Graduate Research Fellow and a current PhD student at the Tufts University and Jackson Laboratory collaborative genetics training program. Her research focuses on improving the stewardship of community science and museum data while improving methods to incorporate these data into ongoing investigations into climate change, human health, and global change. Alexis is a Research Associate with the Mohonk Preserve Daniel Smiley Research Center, where she supports the digitization, stewardship, and curation of their collections, which include more than 60,000 physical items and a research library. Alexis received her BS in Environmental and Conservation Biology and her MS in Evolutionary Biology from George Mason University, where her thesis work focused on documenting changes in the phenology of maple trees over the past 200 years using community monitoring data and museum collections. Outside of research work, she enjoys hiking and submitting and identifying observations on iNaturalist.

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kYmberly Keeton, MLS, CA, is a native Texan, a nationally published writer, an art librarian & archivist, and genealogy curator. By day, the ALA Emerging Leader and Library Journal 2020 Mover & Shaker is the African American Community Archivist & Librarian at the Austin History Center, Austin Public Library. Independently, Keeton is the Chief Artistic Officer of NOVELLA MEDIA, a creative multimedia production company and the founder of ART | library deco. Currently, she is pursuing a PhD in Data Science at the University of North Texas.

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Dana Reijerkerk is the Knowledge Management & Digital Assets Librarian at Stony Brook University. She earned a BA in American Indian Studies and an MSI in Archives and Records Management from the University of Michigan. In her current role at Stony Brook University Libraries, she implements digital preservation practices and advises on long-term preservation and user experience design issues related to digital collections and open educational resources. She has years of experience working directly with federally and state-recognized Indigenous communities in the United States, helping further their cultural revitalization projects.

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Paulina Reizi is a film archivist at Eye Filmmuseum in Amsterdam, The Netherlands. She is a recent graduate of the MA programme in Preservation and Presentation of the Moving Image (P&P) at the University of Amsterdam. Paulina also holds an MSc in Information and Communication Technologies of Audio and Image and a BA in Journalism and Mass Communication from Aristotle University of Thessaloniki. She worked for over 10 years as a communications professional in organizations such as the European Space Agency, the United Nations, and the International Film Festival of Thessaloniki.

Julia Sager

Julia Sager is an emerging arts and cultural professional and graduate of Michigan State University with both her BA in Art History and Visual Culture and her MA in Arts & Cultural Management with a focus on Museum Studies. She believes that art history is about people's stories. In her current role as the Education Assistant at Lansing Art Gallery and Education Center, Julia finds joy in creating opportunities for the community to experience art through creative programming. Julia's experiences, in her current and previous positions, sparked her curiosity regarding the use of technology in museums and the way in which it may be used to highlight the many interesting stories throughout history.

Lucia Taeubler

Lucia Taeubler is educator and curatorial fellow at SIRIUS Arts Centre, Cobh, County Cork. Previously, she worked as Assistant Curator Engagement and Digital at The Glucksman, University College Cork. She engages with a diverse audience at the art museum through education projects, exhibition mediation, and digital media as well as observing visitor experiences. During lockdown in Ireland from March–July 2020 she worked mostly on engagement projects online and in the virtual space. Lucia is a graduate in Art History at University of Vienna in 2012, and is currently studying an MSc of Digital Education at University of Edinburgh. She has been working in the field of museum education and digital storytelling since 2013, and as Head of Museum Education and Visitor Experience, at Kunstmeile Krems since 2015. She received a grant at Victoria & Albert Museum for Creating Innovative Learning Programmes in 2016. In 2018, and contributed to the ICOM CECA Austria publication "From the Inside Cultural Mediation in Austria–Definition, Tasks and Working Conditions in the Field."