Ambition and Ambivalence: A Study of Professional Attitudes toward Digital Distribution of Archival Moving Images

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ABSTRACT

This study explores attitudes of moving image archivists and digital projects managers toward the digitization and online distribution of archival moving image materials. The primary method for gathering data about this subject was through in-depth interviewing of individuals who have managed moving image digitization projects in archival settings. The investigator discusses challenges in launching and sustaining digital projects and the evolving audience for archival moving images. Archivists also must reconcile their desire to provide more access with concerns about quality of digital surrogates, legal restrictions such as copyright, and how online distribution may impact relations with creators, donors, and content owners.

KEY WORDS

Film and Moving Images, Online Collections, Preservation

This essay presents the results of a study conducted on attitudes of moving image archivists and digital projects managers toward digitization and online distribution of archival moving images. The primary goal of the study was to gather data on how cultural heritage institutions, specifically archives, libraries, and museums, are making archival moving images available online via institutional websites and video-sharing services such as YouTube.

The research focused on digitization and digital distribution of archival moving images, whether the materials originated as analog motion picture film or video, or were born digital. The investigator delineated archival moving images as a separate category distinguishable from other types of moving image collections by their perceived long-term value; they are materials "intended to be kept so that they may be available for future generations, regardless of their age at the time of acquisition."[1] The study aimed to document current practices, attitudes, and future plans of moving image curators and managers regarding digitization and online distribution of archival moving images in the wake of increasingly ubiquitous mobile technologies.

The investigator used two primary methods for collecting and analyzing data about this topic: surveying and in-depth interviewing. To gather preliminary information about this topic in the first part of the study, she conducted a qualitative survey of archival professionals with experience in moving image digitization projects. Survey questions explored the extent to which archival institutions and organizations have digitized archival analog motion picture and video collections (in terms of number of items digitized and resulting digital file sizes), the methods and formats used by institutions to distribute digitized and born-digital archival moving images, and the extent to which archival institutions are analyzing online use of digital moving images.

A full report of the results of this survey appeared in the Fall/Winter 2012 issue of *The American Archivist*,[2] however, this article provides a brief summary of results for the purposes of understanding the approach used in the interviewing phase of the study. At the time of the survey, most participants reported that their institutions were just beginning to explore digitization projects; few archival institutions had digitized more than 5 percent of their motion picture or analog video collections. Many digital projects attempted by archives appeared to be exploratory or "low risk," using lower-quality formats for web-friendly distribution. When asked about barriers to wide-scale digitization and digital distribution, archivists identified lack of financial resources, inadequate technological expertise, and copyright restrictions as the most limiting factors. Finally, the investigator found that few institutions were analyzing usage in any systematic way at the time of the survey, which means they had an incomplete picture of who was accessing archival moving image materials made available online, or in what ways those viewers were using the materials.

While these survey results are intriguing, they give an incomplete picture of archivists' attitudes toward digitization. These initial data give only a glimpse into a complex set of decisions that archivists must navigate about whether to make moving images available online and the extent to which limited resources could be used to pursue a digital access initiative.

For the second part of the study, which is the focus of this article, the investigator wished to explore potential explanations for the patterns identified in the initial survey through extended conversations with a subset of the professionals who participated in it. Four questions guided the researcher in the design of this phase of the study, namely:

1. What is the role of digitization and digital distribution in relation to the mission of the institution?
2. What has been the impact of digitization work on the institution?
3. What are the most critical challenges facing archivists in providing digital access to moving images?
4. How will new venues for moving image consumption (such as streaming and download on mobile devices) influence digitization and distribution decisions?

Interviews were conducted in a way that allowed participants to reflect on these topics through the lens of their own experiences. The investigator used their responses to build an informed explanation of how moving image archivists align and reconcile digital ambitions with institutional and economic realities.

A Brief Overview of the History of Archival Moving Image Digitization

Wide-scale adoption of digital reformatting technologies for moving images has occurred more slowly than for other materials in the archives. In the last twenty-five years, the archival community has explored, debated, and ultimately embraced digital technologies as the preferred methods to achieve long-term goals of better access to paper-based and still photograph collections. In comparison, digitization programs for archival moving images have progressed much more slowly than efforts to create digital surrogates for text and photographic archival materials. For most cultural institutions with limited resources and expertise, digital reformatting of motion picture film and analog video was largely experimental until the early 2000s.

Best practices within the archival community dictated that reformatting of analog motion pictures should focus on film-to-film copying rather than transfer to another format. Archives professionals and agencies funding film preservation discouraged transfer of film to analog video for preservation purposes

due to the differences in quality between motion picture film and analog video-tape and because analog video is not considered an archival medium.[3]

After Sony's introduction of digital video to the commercial market in 1986, the archival community began to contemplate the potential of the new medium for access and preservation purposes. Although intrigued with the possibilities of digital video technologies for revolutionizing access to archival materials, the moving image preservation community often expressed significant concerns about the preservation challenges for digital video, given the speed at which new video formats appear and become obsolete. Only recently, since it has become feasible to store uncompressed digital video formats relatively inexpensively, have archives seriously committed to the use of digital video as a long-term storage medium (primarily for transfer of analog video, but in selected cases for transfer of motion picture film as well).[4]

Intellectual property restrictions and limited resources also put a damper on conversion projects for many institutions. The copyright status of many collections continues to be unclear due to the complex nature of intellectual property restrictions for moving images. Although archives may have the legal right to transfer copyrighted materials to new formats for preservation purposes, they often must limit access to the materials to on-site viewing unless the materials are owned by the archives or are in the public domain.

Finally, most archivists have little expertise to digitize these materials unless they have specifically sought training in this area. Equipment to handle transfer of moving images is often not available. While some archives own or have access to telecine equipment for transferring film to analog video, equipment for transferring film directly to a digital format has been impossible for most institutions to afford until quite recently. Most institutions that require digital copies of analog materials use the services of a vendor for transfer projects. The costs associated with such transfers—which are often calibrated to the commercial market rather than to archival projects—often further discourage archives from pursuing extensive digitization projects for moving images.

For most institutions, the perceived drawbacks and challenges to wide-scale adoption of digital video for the purpose of reformatting analog archival originals have far outweighed the potential benefits of the new technology, making archives averse to embracing digitization as a preservation or access method until costs came down and legal restrictions were worked out. Given such misgivings about digitization, digitized moving images from archival collections were rarely accessible to a wider audience until quite recently.

Beginning in the early 2000s, advances in technology and increased guidance on best practices from early adopters provided the encouragement that a number of archivists needed to move forward with new projects. Within the last decade, technological infrastructure for handling digital video affordably on

a large scale has become widely available to consumers in desktop and laptop computing environments, making digitization of legacy moving images an achievable goal for many organizations.

Institutions are also reconsidering the risks of digitizing and making available certain copyrighted materials; archivists are exploring new approaches to due diligence that weigh the potential benefits of increased access against the possibility of harm to copyright owners. For some materials judged to be in the public domain or of indeterminate copyright status, archivists are finding it more productive to provide some form of access, often low-resolution copies streamed online, than to restrict access completely. For a more detailed review of intellectual property concerns as they pertain to archival moving images, readers are encouraged to consult David Pierce's 2009 interview of copyright expert Eric Schwartz.[5]

Methodology

For this study, the investigator employed a grounded theory approach to data collection and analysis. Charmaz defined grounded theory methods as consisting of "systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories 'grounded' in the data themselves."[6] This methodology is particularly appropriate for studies that aim to explore unidentified or poorly understood phenomena, and "identify plausible causal networks shaping the phenomen[a]."[7]

The primary tool used to collect data about the research topic was qualitative interviewing. Weiss noted that this research method can be particularly helpful for several reasons, including the following: 1) developing detailed descriptions; 2) integrating multiple perspectives; 3) describing process; 4) developing holistic description; and 5) bridging intersubjectivities among multiple participants and the investigator.[8] Thus, the investigator chose interviewing as the preferred method for this phase of the research.

To identify individuals who could form a "panel of informants" about digitization and digital distribution in the field, the investigator compiled a short list of fifteen to twenty individuals that she considered to be key informants in the area of moving image digitization.[9] This list was drawn from the same population first identified in the survey research, supplemented by additional suggestions from survey respondents.[10] These professionals were contacted via electronic mail and asked if they would be interested in being interviewed on the topic of the study. Seven moving image archivists accepted the invitation to participate in an in-depth interview with the investigator.

The archivists invited to participate had all successfully completed one or more digitization projects and regularly engage with the archival community

to report on their projects through conference presentations or other types of professional communication. For this study, key informants were not necessarily top-level administrators at the institutions where they worked, but were individuals who had firsthand knowledge and experience managing digitization work, thus making them valuable sources of data relevant to this study.

All research participants were guaranteed anonymity and that their responses would be kept confidential, that is, all identifying details would be removed in any research results. Thus, this article uses pseudonyms for the archivists and their employers whenever providing direct quotations from transcripts or when paraphrasing a participant's statements.

The background of the interviewees and their employing institutions may be summarized as follows (all names are pseudonyms):

- Mark, an independent archivist/curator who has established a nonprofit organization to collect, preserve, and showcase an underappreciated genre of films
- Sophia, a digital projects manager for a small regional archives
- Lauren, a film archivist working in a large university library system
- Henry, a visual materials archivist working in a state historical society
- Emily, an archivist working in the archives of a midsize state university
- Ava, the director of a media archives (film and video) at a large state university
- Andrew, the collections manager for an art school who works with video art and documentaries about artists

These individuals represent a cross-section of the types of institutions and organizations that are actively exploring digitization work in moving image archives at the current time.

Over the course of the interviews, which were conducted in person or by telephone, participants provided important insights on the challenges and issues that the moving image archiving community faces in digitizing and distributing archival moving images. Interview subjects were asked to speak in detail about digitization projects and programs at their institutions and to share their opinions and aspirations regarding the future of digital archival moving image collections, particularly in the wake of new distribution channels such as mobile devices. The following topics provided the initial prompts for interviewees (the complete interview guide is available as an appendix to this article):

- Background of the interviewee and institution, including institutional mission and interviewee's job responsibilities;
- Types of archival moving images in collections and accessibility;
- History of digitization/distribution practices and programs and future plans;

- • Barriers to future digitization projects and programs;
- • Role that digitization plays in achieving institutional mission;
- • Perceived impact of mobile devices on interest in and consumption of archival moving images.

All interviews conducted for this study were recorded using a digital recorder and later transcribed in full for the purposes of data analysis. The investigator also took extensive notes while conducting each interview to supplement the transcript and provide a second recording method should the recorder fail to operate properly. In one case, these notes provided the best evidence of the interview responses when the recorder malfunctioned.

As per the grounded theory approach, the investigator employed qualitative data analysis techniques to define a set of codes that represented key issues and concerns expressed by interviewees and to provide a data-rich explanation for archivists' attitudes and opinions toward digitization and digital distribution of moving images. The investigator used the qualitative data analysis software package HyperResearch as the primary analytic tool.[11] The process of examining the data included the following steps: 1) *open, line-by-line coding* was used initially to identify phenomena and the archivists' understanding of their own situations; 2) *axial coding* allowed the investigator to identify relationships among related codes to create a unified explanation for how archivists viewed themselves, their institutions and collections, and their work; and 3) *theoretical sampling* was employed to seek additional pertinent data in moving image archival discourse, such as articles from the professional literature, to elaborate and refine the properties of categories.[12] In this study, theoretical sampling also included comparisons of professional discourse on digitization to interviewee responses.

Initial (open) coding of the seven interview transcripts using the HyperResearch analysis tool resulted in 159 codes. After reviewing each code closely for relationships and potential overlap among them, those 159 coding categories were analyzed, combined, and organized into fifteen clusters, or metacategories. The investigator noted that some initial coding categories could potentially fit into more than one cluster—indicating areas where further refinement of the structure was merited.

After conducting the initial sorting of codes into clusters, the investigator examined relationships among the codes more closely and created graphical representations to further explore models for representing concepts and worldviews as defined by the archivists who participated in this study. Figure 1 depicts relationships among concepts relating to the cluster category "Making Moving Images Available Online."

Table 1 presents one of the clusters and open codes associated with it.

Table 1. Example of Cluster Topic and Associated Codes

Making Moving Images Available Online	
Access to remote users	Putting digitized films on institutional website
Availability of online collections	Size of online collection
Benefits of digitization for users	Streaming clips vs. streaming whole item
Facebook	Streaming vs. download
Internet Archive	Theater viewing vs. mobile device viewing
Lack of planning for digitization	Tracking use of digitized moving images
Losing control of films on social media	Use of social media sites and functionality
Moving images on mobile devices	YouTube
Online distribution increases interest in collections	YouTube—triggers more demand

In Figure 1, the metacategory of "Making Moving Images Available Online" was further organized into three subcategories: "Availability of Online Collections," "Benefits of Digitization for Users," and "Drawbacks/Challenges of Digitization/Digital Distribution"; the first two subcategories were already established codes, while the latter subcategory was created to contain the four codes grouped together as challenges and drawbacks.
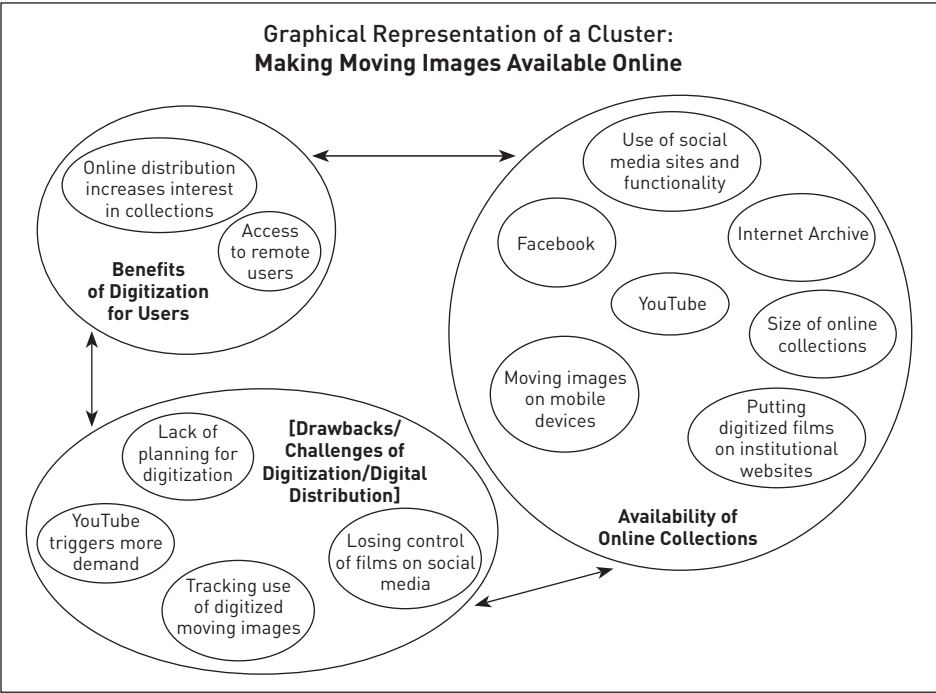

FIGURE 1. Example of cluster, topic, and associated codes.

The process of axial coding, as detailed above, was aided by the writing and refining of memos about codes and their meanings. Memoing helped to further elaborate and define categories of data, resulting in conceptual categories with explanatory power. Through this process of data analysis—including categorization, examination of relationships among categories, and integration of categories into larger systems of meaning—the investigator built an explanatory model for the archivists' views on the roles of digitization and digital distribution in their institutions and their place in the field.

Findings and Discussion

This section presents explorations and interpretations of particular concepts and issues that arose during the interview process. While these discussions relied on the participants' frames of reference, the investigator related responses of interviewees to the larger framework for the study as it has been expressed in the research questions stated above.[13] Although the interviews were semistructured and thus allowed significant latitude in the variety of topics addressed, the concepts presented here emerged as central concerns shared among participants and became the cruxes for analysis in this study. Through these expositions, the investigator also considered how professional discourse drawn from the literature of archival science and related disciplines supports or refutes these archivists' dispositions toward the digitization and digital distribution of moving images.

Assessing the Challenges of Launching and Sustaining Digitization Projects and Programs for Moving Images

In a 2009 article for *RBM*, Jackie Dooley encouraged special collections librarians to "digitize with abandon."[14] The cautious tone toward digitization once found in SAA's resolution about digitized reproductions and Abby Smith's Council on Library and Information Resources reports about digitization has largely been drowned out in the wake of mass digitization efforts by Google and its partner libraries.[15] In an era when providing access to materials through mass digitization has become a key part of the mission for many libraries, many archives feel similar pressure to convert significant numbers of holdings to digital formats as quickly as possible. In such an environment, archivists may consider it difficult to maintain a sense of balance between the traditional activities of the archives and the new responsibilities that digital conversion and access place upon them. The information field has few studies, however, that assess the impact of digitization efforts on the work patterns within an archives and those affected first by digital activities, namely, the archivists themselves.

Digital projects often have significant effects on many archival activities, including appraisal and selection, cataloging and contextualization, reference activities, and preservation work. While many studies of the impact of digitization focus on benefits for users and ways in which uses of digitized materials differ from uses of analog originals, they rarely touch upon on the impacts of implementing digitization programs for staff of preservation and special collections departments. Peter Hirtle suggested that in a future when users will primarily consult online versions of documents, special collections librarians may no longer be the authority on materials digitized from their collections, except when questions arise about a physical artifact, as opposed to the content of an object.[16] Marie Kennedy's study of how digitization work is affecting preservation departments showed that the volume of items scanned had increased significantly (10 percent) over a five-year period, but staffing levels had remained steady. This statistic indicates that "preservation departments are doing more work with about the same number of employees."[17]

In the archives field, the reaction to the More Product, Less Process (MPLP) framework proposed by Mark Greene and Dennis Meissner suggests that archives must find ways to streamline processing of archival collections through more selective approaches to arrangement, description, and preservation work.[18] While they did not offer specific recommendations for how to streamline digitization work, they did discuss the relationship between processing and digitization, namely that digitization projects usually require more extensive processing and description work to make materials accessible online.

While many archives have revisited and revised their processing guidelines in the wake of the MPLP framework, those who work with moving images or other audiovisual materials may find MPLP less applicable to their situation. Joshua Ranger's recent white paper on the applicability of MPLP to audiovisual materials explained that item-level processing, which must include playback of each item, is usually required to create descriptions that will be sufficiently detailed to make the materials accessible; it is rarely helpful to describe audiovisual materials at the collection or series level.[19]

Pressure to digitize can come from internal and external sources. Several participants in this study reported that they often must reconcile perceived external pressures to digitize with the responsibilities that are already part of their job, such as preservation and collection maintenance. Because digitization and online distribution may bring in many users who are not considered part of the institution's primary user groups, it may be a stressor on limited resources to provide reference and duplication services.

Having more accessibility to moving images can be a double-edged sword for some archivists, particularly those who are the primary point of contact for moving image collections. Some archivists, such as Andrew, are enthusiastic

about digital projects; he exhorts fellow archivists to "just start doing it! Don't let it be daunting. It's not that complicated or expensive." Other archivists are more ambivalent about digitization and its potential impacts on other archival activities. Henry, who works at a historical society, expressed concern about what having more documentation available online about the collection would mean for the number of reference requests:

> For a couple of our news film collections, we do have daily logs, which have been put on databases. . . . It's a little easier for me to search. It takes some interpretation. So, it's not something that I'd feel comfortable just putting on the Web so that people could surf it. I think that there would be a firestorm of requests if we did that, and then a lot of them would go nowhere. . . . So, I think for something like that kind of collection, it's still important for me to have a sort of a gatekeeper role.

Although Henry recognizes the exciting possibilities of new distribution avenues, he expressed ambivalence about opening up the collection to online access, given the limits of his ability to serve users. His current position is only half-time, and he is the only person in charge of the moving images at the institution. As he tells it, "It's a real conundrum, because . . . you know, it's the saying . . . 'if you build it, they will come.' And, in a lot of ways, I don't want them to come, but then what's the point of having this stuff in the first place?"

Integrating Digital Projects into Archival Workflows

For some organizations that have identified digitization, digital distribution, and digital preservation as priorities, the solution to increased capacity means investing in and building better infrastructure and workflow to handle the increased workload. Digital endeavors mean increased handling and processing of materials for digitization and preservation work, additional requests for materials from users, and increased documentation of analog materials and digital files resulting from digitization work.

Organizations that recognize the value of archival audiovisual materials may opt to invest significant resources to restructure preservation and access processes and practices and to hire the additional staff required beyond the archival personnel, including technical staff such as information technology (IT) personnel and broadcast engineers.

Ava's institution has made great strides in marshaling resources to build a digital infrastructure, leveraging resources across the organization, and redirecting funds to digital programs. Not all organizations find themselves in this fortunate position. At those organizations that cannot afford to increase staffing and technology resources, archivists may feel they still need to make some

effort in the digital area and may attempt to teach themselves the rudiments of digitization and preparation of materials for digital distribution.

The transition from analog to digital formats requires a re-evaluation of all activities of the archives, not just those tasks directly related to digital projects. One of the more profound overall impacts of digital projects can be found in the ways archivists accomplish preservation or access objectives. Digital work can trigger the refining or redefinition of the work of the archives, as evidenced by comments made by Sophia, the digital projects manager in a regional archives:

> I think from an archival perspective, what is the most profound issue is the workflow, and. . . . there's a whole universe around the workflow. Because we are traditionally an analog archive, and we're now turning into an analog and digital archive. So, we already have a whole workflow for how to conserve and make analog film accessible on an analog level. But now, we're going to a digital workflow, so that means not just developing the physical protocol for how we go take a tape and make it accessible digitally, but it also means having the storage capacity, and the place where we're going to make it accessible, and, the intellectual grounding for how we're going to make it accessible.

To elaborate further on Sophia's description, digital projects have forced her organization to reconsider and re-engineer tacitly understood processes in appraisal, preservation, description, and access. This concern about workflow resonates with other reports of required adjustments for managing digital imaging projects and digital preservation activities.[20] Chapman noted, "librarians and archivists are experts at project management. They routinely process groups of materials in selection, processing, cataloging, and preservation workflows. Digital projects, however, create new challenges. Perhaps the most difficult challenge is establishing clear boundaries, particularly stopping points." In Sophia's view, she is still in the midst of defining those boundaries for her work.

Quality and Digitization

Digital projects involving moving images often involve compromise due to the paucity of universally recognized standards for the creation of preservation-quality masters and lower-quality derivatives for access purposes and the dearth of best practices available to archivists.

On the surface is a dichotomy between quality of digitization for access and digitization for preservation. Digitization accomplished purely for the goal of streaming online is sometimes perceived as a "quick and dirty" way to get things online. In the following interview excerpt, Henry revealed his concern for how other archivists will view his more practical approach to digitization:

> I don't know what kind of answers you're getting from other people, but I know that in the film preservation world, using some of this poor man's equipment is not very well regarded, and it's my feeling . . . if it's between using that by someone who knows how to use it, and [you] can be as careful as possible, and not having any access, then . . . it's kind of an easy decision for an institution that has the mission that we have to make.

Henry implied that the expertise of the digitizer, who makes critical decisions about the quality of initial capture and conversion to an appropriate access format, matters more than the set-up used to create the digital surrogate. He still recognizes the difference in quality between capture for preservation and access purposes however:

> KFG: You said you're primarily digitizing for access at this point. Do you think that there will be a time at which you will digitize at a higher level with the idea that perhaps it's for preservation purposes?

> Henry: That would have to be done with either grant funds, or internal funds that would . . . that are highly contested, in terms of where they go in the agency. We're not a rich organization, and there is no preservation budget, basically . . . beyond storage, supplies, and that sort of thing. So, yeah, I do see us being able to do that, but under very controlled situations.

For him, the current priorities set up by the organization continue to limit the available resources, which allow him to create acceptable surrogates for the user to assess the content, but do not allow him to support the creation of digital surrogates that could serve as replacements for analog originals.

Another archivist interviewed for this study, who has begun to explore digitization work on an experimental basis, actually prefers the limitations that lower-quality digital video imposes upon users. In the following excerpt, she explained her initial foray into moving image digitization and motivation for doing so.

> Emily: We started getting into Web 2.0 very slowly. We started out with Facebook and Flickr, and then I thought, "Well, why not go to YouTube?" So, about 2008, I took a couple films . . . I didn't have any software here at work, so I downloaded the digital files onto a portable hard drive, and took it home, and worked on that at home to see what I could do. Because I had been doing this a little bit at home myself . . . trying to figure out what I needed to do. And I realized . . . I really didn't want good quality up on YouTube anyway, because that way I can control a little bit more who's using it and how. Because if somebody really wanted to use it for something, . . . they would contact us. If somebody just wanted to see it, then they would just go to YouTube and watch it.

> KFG: So, it becomes a kind of a reference copy?

Emily: Yeah, that's kind of what I looked at it as: as an access tool, not as a preservation tool.

Emily views this digitization work as satisfying most people's needs regarding the materials, while also providing publicity for the collection to drive commercial users back to the archives to license desired footage.

Archivists often express feelings of anxiety about balancing "the priority of protecting the physical integrity of objects/artifacts with facilitating safe and non-discriminatory access to them."[21] Archivists such as Henry or Emily may say that they are only "digitizing for access," rather than preservation, due to limited resources within the organization. In particular, digital projects accomplished by smaller organizations often mean compromise in terms of perceived standards.

Yet, while archivists recognize the difference between quality of capture done for preservation and that achieved to create streamable copies for access, they are less sanguine about the abilities of the average user to make those distinctions. Many archivists, such as Ava, assume that only users who request footage for broadcast purposes (i.e., media producers) will care about quality.

KFG: Do users really care about quality?

Ava: I don't think they do. I think the only users that care, are the producers who are creating documentaries, who are going to be showing it . . . broadcasting it and so on. I think they care about the quality. But your general researcher who's watching for content? I don't think so. I don't think so.

Ava's institution digitizes at a fairly high resolution, however, which gives archivists the option to create derivatives at varying levels of quality for different audiences. In the following excerpt, Ava explains that they are able to create good viewing copies for two of their main user groups: students and faculty.

KFG: But all of these [viewing copies] are actually coming off of preservation masters, and so . . . [Ava: Right.] You know? They started out with something decent and [Ava: Right] . . . so essentially, what they're getting in Flash is fairly high quality for Flash, I'm guessing?

Ava: Right, it is.

KFG: Rather than some of the stuff that you see people upload to YouTube that's almost unwatchable.

Ava: My boss said, "If we're going to be streaming this out, then I want somebody to be able to push a button, and get a full screen of it." And [for] it to look half-way decent. And so that's what we've done, so that it can be used in classrooms around campus.

At this stage in moving image digitization work, archivists have few objective guidelines by which to judge the quality of digital surrogates. This contrasts sharply to the situation in digital imaging, where decades of work on quality considerations for reformatting (first for microfilm and, more recently, for digital imaging) have resulted in quantitative measurements of quality that are now being used to assess the performance of mass digitization efforts by Google, HathiTrust, and others.[22]

While many archivists may have an aesthetic sense of what constitutes a quality transfer or access copy for moving image materials, a variety of influences may color this view, including the training that the archivist has received, the equipment available for reformatting, and the types of uses to which the materials are likely to be put. Resources are beginning to appear that may assist moving image archivists in creating more objective assessments of quality, such as the *A/V Artifact Atlas*, a compendium of video digitization errors that can help identify problems affecting the quality of digitization.[23] It is clear, however, that archivists need better tools to be able to make judgments about the quality of transfer work, whether that work is done in-house or by a vendor.

"Bending the Rules" for Access

For moving image archivists, the confines of intellectual property restrictions are particularly frustrating. Online distribution of any materials still under copyright is considered infringement unless archivists have permission from the copyright holder, even for materials that archives spend considerable resources to preserve and restore, or for materials that have been orphaned, that is, those for which the copyright holder cannot be found or no longer exists. Copyright still protects much commercially produced moving image heritage; while some materials have fallen out of copyright and into the public domain, it can be difficult to make a determination of their status. These problems are often compounded for noncommercial materials, such as home movies, interview footage, industrial and educational films, and artistic works, where last-known copyright holders are often deceased or no longer in business. Hesitancy among archivists to digitize and distribute many of these orphans has left a significant amount of moving image heritage in limbo.

Despite copyright restrictions imposed by current intellectual property laws, several archivists with whom the investigator spoke have explored ways to push the boundaries where potential benefit to users may trump risk in exposing the archives to potential liability. In the following two extended excerpts, archivists provided explanations for how they are navigating the gray zones of online access and fair use. In this first exchange, Ava distinguished between

providing access for research purposes and providing footage to television and film producers for incorporation into new works.

> Ava: I think that we have to be way more flexible and we have to push fair use. Especially for the universities. I will say this . . . and this, I would like you to keep anonymous, but . . . we ought to be able to stream out content that is early from the [name of collection]. And we'll just open it up, and have a researcher who can't come in . . . and we'll let them watch it online. And I'm not charging them to do it. Some people say that's broadcast.

> KFG: In that fuzzy, fair use . . .

> Ava: In that fuzzy, fair-use land. And my boss is behind this. And he's like, "You know what? Shoot it out there." And my feeling is . . . I'm gonna put it out there until I get my hand slapped, and I'm told I can't do it. And only then will I stop.

> So, it's not like I'm pushing out stuff from . . . this most recent ten years . . . and making [the copyright holders] lose any of their money. I'm talking . . . I like to look at '90 and earlier, or even '95 and earlier . . . to stream out. Because I don't want them to lose a revenue stream because I'm doing something that . . . you know?

> [...]

> We have so much local television. . . . And local television, they don't keep anything. So, when somebody's asking me for some local television that they want to watch, I'm like "Okay, I'm all about it. I'll stream that out to you. Sure thing."

> So, I've been streaming out to researchers all over the world. They have a question . . . somebody asking us for a bunch of busing footage that they can't get anywhere else. And so, okay, we'll just stream it out to you. I don't charge them for that. I will charge them for a DVD. But then they have to go get . . . if they want their own copy, then they have to get permission from the rights holder.

> KFG: So . . . in your world, streaming just for review is not the same thing as purchasing it.

> Ava: You're not selling it.

> KFG: Yeah, you're . . . you're not licensing it. It's sort of . . . should be outside of that.

> Ava: Yeah, that's my feeling on it.

In this second excerpt, Mark explained how he has created a partnership with several distributors of films that the archives holds. When the archives digitizes an out-of-print film owned by the company, the distributor receives a

digital copy that it can use for its own purposes, while the archives can stream a lower resolution copy online.

> Now the deal we have worked out with [name of distributor] . . . is that if people want licensed footage, what happens is we . . . part of our grant with [distributor] is that we'll give them a mini-DV. Because [the distributor hasn't] digitized all their content, and one of the reasons why they like working with us is 'cause we digitize films for them that aren't digitized. So if somebody wants to use that content, then we send them over to [company managing footage licensing for distributor]. . . . So, if [the company] doesn't have the digital content, then [they] will get that mini-DV.

As these two examples show, archivists are beginning to find creative ways to work around the significant limitations dictated by the current copyright law on online access to archival moving images. Progressive archivists such as Brewster Kahle and Rick Prelinger have fostered this attitude of open access; Prelinger has been particularly vocal in the moving image archiving community about the need to challenge the dominant paradigm of "copyright maximalism" and provide new pathways for users to access moving images.[24]

Moving Images Online: The Evolving Audience for Archival Moving Images

As archivists contemplate the goals of making moving images more accessible to users through new formats and distribution methods, they are also acknowledging the impacts of this transition on the types of users they will be serving and the uses to which archival objects will be put. Wherever archives provide access to archival moving images, either through their own websites, through social media websites such as Facebook and YouTube, or through other venues such as the Internet Archive or a digital repository environment, new users discover, consume, and make use of these materials. These new modes of access can be alternately exciting, disconcerting, or even overwhelming to archivists.

Some archivists, used to dealing with academic researchers and commercial users such as documentary producers who wish to license footage, must adjust to the needs of casual users who may have a general or personal interest in the content. Sophia is finding a greater diversity of users at her archives now that a significant amount of material is online. Sophia noted, "Even though we've been here for twenty-five years, there's a new influx of researchers who are interested in the holdings that we have and what they can reveal about their disciplines." When the investigator asked Emily about the changes that putting materials on YouTube brought to her archives, she responded that there were more general interest inquiries than before:

KFG: Have you seen a shift in what the requests were like, before you started putting things on YouTube versus now, in terms of the types of users that contact you? You know, academic versus just the general public?

Emily: Actually, we get a lot more general public.

KFG: Okay, a lot more general public . . .

Emily: Before, it was mostly academics, because they went to the library cata-log, and found what they wanted. And now, it's so available to everyone, people just can pop it into Google, or whatever, and you know, out pops something. [Now,] we get emails, "Do you have more of these? Do you have this? Do you have that?"

Henry reported similar requests: "A lot of our . . . just the general public want things out of our news footage collections, because of events in their lives or in their parents' lives, that sort of thing. First baby born in a certain year . . . that sort of thing."

For moving image archives that have established screening programs, increased access online may mean that their audiences will become both more diversified and less local. Mark is excited by the increasing number of viewers of online materials, compared to the audiences he was able to draw to public screenings prior to putting materials online.

When we did these shows, we could never tell how many people would show up. On a great night, we'd have fifty. Our least attended show, we had two people. And that's in addition to me and our vice president. So, the fact of the matter is, even though we were doing great work, and we were publishing our film notes on the Internet, there weren't . . . the audience really wasn't there. We really weren't doing anything, and part of our mission is to promote these films.

He feels strongly that in an era when theater-going is in decline, particularly in areas where there is a lack of appreciation for films outside the mainstream, online access is the best way to promote the value of the films that he's trying to preserve. He finds web accessibility to be the key to reaching the full extent of the potential audiences that he envisions for the collection.

Our audiences weren't very big, ever . . . [and] when [a colleague] and I talked about this, and I realized, . . . you know what? We could put some of this stuff up there, and millions of people could have access to them. It became more important to me at that point to try to get some of these films up on the Internet Archive. Now, look at it this way, we've only got 111 films up there. But . . . positively, we've got well over 100,000 views, and we probably have . . . maybe we've got between 500,000 and a million. I don't know. But that's way more people than ever saw these [in person]. So, to me, this was actually a really good move. And it enhanced our mission statement.

Mark related his archives' success directly to views online. Interestingly, he equated consumption of materials online to the experience of watching films in a space with others—the traditional group viewing experience. He later compared the power of online access to moving images to the introduction of the Sony Walkman and the iPod, which personalized the experience of music consumption. In the following excerpt, he described his feelings about social media for archival moving image exhibition and consumption.

> Mark: I think to a large extent, movie theaters as we've traditionally known them are going to go away. And people are going to choose. . . . Hey, you know, especially, we've got a whole younger generation of people now that watches things on handheld devices. And so, there's got to be something to draw them to the theater that's got to be special. I think the new generation of cinema enthusiasts is already making some pretty bold statements about how they choose to watch these things.

> KFG: Yeah, absolutely. I would agree with you.

> Mark: And so I am totally in favor of it, because you create your own personal experience when you watch a film. Now, I prefer to watch films at home on a 16mm projector. That's fun for me, right? But maybe somebody is going to get more pleasure watching a film in a bathtub.

> KFG: Or on a subway seat. That's the beauty of it.

> Mark: You, bringing your theater with you. And that's one of the revolutionary elements of this, is that you bring the theater with you wherever you want, whenever you want.

While Mark believes that online consumption is liberating for the viewer and online exhibition is more attuned to the ways younger generations engage with moving images, other archivists are less enthusiastic. Lauren revealed concerns that college- and high school–age users do not seem to care about the theater experience:

> The one thing I have noticed, and I think we're working on it on the Board of the cinema, but . . . it's an older crowd, even though we're on a college campus, and it's free, and there's amazing stuff. . . . Whereas I grew up in [college town], going to the [local repertory theater] . . . the entire summer, seeing *The Thin Man* series and seeing every Hepburn-Tracy film, and seeing. . . That's what I did as a high school [student] . . . and that mattered to me. I wondered, "Why are the college kids not walking into this door? Is it because they think they have it all on their phone, and that's the experience?"

The conflicting attitudes toward changing audiences and modes of presentation surface in the professional discourses of moving image archiving and cinema studies as well. For some archivists, the transition to online exhibition

and consumption of archival moving images represents a threat to the traditional responsibility of the archives to provide context for the viewer through exhibition practice. Luca Giulani, head of the Film Archive of Museo Nazionale del Cinema-Fondazione Maria Adriana Prolo in Turin, explained,

> A film is more than a mere narrative sequence of images and sounds (what is defined in today's corporate language as "content"). It is also, and primarily, a relationship between moving images and interpretation by a collective audience. This audience operates in a context based on specific spaces and rituals of vision, with all their technological and psychological implications. . . . A film experience reflects the degree of historical awareness shared by the members of the public, their conscious or unconscious knowledge of genres, styles, and modes of production, and the social and cultural environment in which they live. The loss of the notion of "film experience" deprives cinema of this context, diminishing its status to the level of "content."[25]

The changing paradigm for film exhibition also relates directly to the power of the archivist to act as a gatekeeper to cultural heritage and the potential for the archives to lose control over the ways in which audiences can experience and use moving images. David Francis, former head of the Library of Congress Motion Picture, Broadcasting, and Recorded Sound Division (1991–2001), suggested, "If our collections are no longer unique [due to copying and distribution of digital versions of works] and we are not able to keep control of them once they are available, we have to find other ways of justifying our existence. In [the] future it is our expertise that we must sell. Archive staff members possess a wealth of specialized knowledge, backed up by incredible collections of related material. We can provide a level of contextualization and supporting material that no one else can match."[26] Francis encouraged archivists to develop closer relationships with the audience, so that these viewers value and support the work of the archives rather than just seeing it as the conduit through which content is provided. While he was speaking primarily about those patrons who come to theater screenings, his points about building loyalty among audience members could easily be applied to other types of users as well.

The Intersection of Personal Philosophy and Archival Ethics

Moving image archivists often feel strongly about their responsibilities, both as custodians of the materials under their care and as advocates for the creators of those materials. In the following section, the investigator explores the importance of building trust relationships with creators and donors, and the sense of responsibility that many archivists feel about the archival mission.

Honoring the Trust Relationship with Creators, Donors, and Copyright Owners

For several of the archivists participating in the study, the sense of obligation that they feel toward creators, donors, and copyright owners is inextricably linked to the mission of their organizations. Mark, speaking of his original intentions in founding the organization that he heads, expressed why he is so dedicated to making the films in the archives widely available through screenings and, now, online distribution: "It really had kind of a sense that there's an injustice, that people who had made all these tremendous films never got really any credit for them. And I wanted to make sure that they got some recognition before they died. You know? And it was really kind of a sense of justice I had about that, that this is . . . I'm an art person, and this was a chance to right a wrong before it became unrightable, I thought."

Andrew feels just as strongly about his responsibilities to promote the field of video art; his institution has been supporting the work of artists by providing preservation and access services for almost forty years. In some cases, such as with Mark and Andrew, archivists and their organizations may operate as legitimizing agents, bringing attention to a neglected and undervalued genre or artist.

When organizations define themselves and their missions in relation to the creators or artists of the moving images they collect, archivists working for these organizations tend to feel very strongly about the responsibility of careful stewardship. Home movies, regional films, and amateur films are examples of moving image forms where the connection to creators requires particular sensitivity on the part of the archivist.[27] Archivists often feel a professional and personal obligation to honor the trust relationship between them and creators or donors (or the creator's or donor's family members, if the creator or donor is deceased). This feeling of protective custody may extend even to those materials of uncertain provenance.

While access to these materials is usually governed and codified by donor agreements, defined within a carefully delineated "archival" space through careful contextualization, the potential implications of digitally distributing materials can sometimes conflict with the archivist's personal ethics or the ethics of the institution (as interpreted by the archivist). Sophia, who works at an archives that collects home movies, related her strong feelings about respecting the donor-archive relationship:

> I think that one of the unique things that attracts me to this archive so much is . . . this archive specifically has a really strong tie to and responsibility to its donors. Even though we have a donor agreement—[an] agreement for how we can use the material—we still take a lot of responsibility and work really hard

on our relationship with those donors. We have a lot of amateur and home movies, and . . . the idea of just casting them off into the world to see . . .

[...]

As much as we would like to pursue crowdsourcing and making moving images accessible on the Internet, we're just tiptoe[ing]. . . . I think we're still just figuring out how to do that on our terms. . . . And especially with home movies and amateur films. These are some family's history. . . . They're historical moments . . . really important events, or places, or times, or just beautiful footage. But they're also somebody's home movies, you know? And there are a lot of those times when you really just want to respect that.

Other archivists envision digital distribution as a way of promoting those artists and genres overlooked by the prevailing historical narrative. Mark, who works closely with directors of the films he is trying to preserve, described his mission and personal philosophy of archiving thus:

Here's what we have to deal with here, because we're not in the academic/ scholarly world. We know that we don't have the traction that a lot of other archives do. Even within AMIA [Association of Moving Image Archivists]. . . . And we know that's a fact. [chuckles] It's a fact of the way things are. So, a lot of times we tend to get ignored.

[...]

And so . . . I don't know if they're gonna think this little archive is worth reporting on or not. But, you see, it doesn't matter to us, because we're doing the work. And . . . so, in a sense, if we here had to worry about enhancing our reputation, we'd all be hitting the bottle every night!

[...]

So, one of the neat things about this whole project is not only do people get to see films all over the world free, but . . . the filmmakers themselves get a real sense of being able to resurrect these things that they thought no one would ever be able to see again. And all of the sudden people can see them. And they can show them to their friends. And when they sponsor films, we give them a DVD. So they can even show their own films on DVD.

As the above discussion shows, the professional duties of several of the archivists in this study intertwine with strongly felt personal responsibilities to the creators and donors of the archival materials under their care. Thus, while providing access to materials in online environments can be a transformative experience for content creators, archivists, and users, it may also involve delicate negotiations to protect the privacy of moving image records creators.

The *AMIA Code of Ethics* as currently written does not specifically mention digitization and online distribution; however, it does recommend that for preservation and restoration work, which may include digitization, archivists "make decisions consistent with the intentions of the creators, whenever appropriate."[28]

The responses of the archivists participating in this study indicate a sensitivity toward creators and donors that reflects the spirit of the AMIA code.[29]

Implications of this Study for Research and Practice

Preliminary evidence presented in this study points to the beginning of a tipping point for moving image archives in the transition from analog to digital. Several factors are converging to make lower-quality digitization for access a practical, affordable option for archives that do not have the resources to do high-resolution transfer for preservation purposes. While archivists may express some degree of ambivalence about digital projects due to the internal stresses that they bring to many aspects of archival work, this new mode of access also lowers the barriers for expanded access to new audiences and allows an archives to achieve its mission more effectively than ever before.

As digital technologies become affordable and accessible to a larger range of archives, archivists who want to get materials copied and available to users more quickly and for a more reasonable cost are beginning to challenge the long-standing model for preservation work. In the past, preservation of analog motion picture film and video usually required a high initial investment in equipment or reliance on vendors, both expensive options that only those archives with sufficient resources and commitment to moving images were willing to pursue. In the case of motion picture film, the expectation that preservation copying meant creating new film masters using photochemical processes before creating lower-quality projection prints and video access copies also restricted the amount of transfer work that could be accomplished.

The new reformatting model—which affordable digitization equipment introduces—emphasizes capture of content over quality of the transfer, leap-frogging over the previous model's concerns for producing a high-quality product that aimed to be the equivalent of the deteriorating original in terms of resolution, color reproduction, and sound quality. While larger archives with sufficient staffing and technology resources may persist in their commitment to preservation-quality transfer work before creating lower-quality derivatives for access, the archives with fewer resources at their disposal have dispensed with the notion that reformatting must focus on creating preservation surrogates. More and more archives are now using affordable computing tools to create lower-quality copies of materials for online streaming and reaching a much larger and more diverse audience than in the past.

Some archivists experience conflicting feelings about this shift, given the dominant paradigm of transfer for preservation over access that reigned in the analog era. Preservation-quality transfers privilege perceived long-term benefits of creating true surrogates for originals over the more immediate benefits of

placing materials in the hands of users as quickly as possible. Such transfers also assume that users have high expectations for quality in reformatted materials, an assumption that may not necessarily be true for all user groups. Ava's opinion that most users do not care about quality and just want something that looks "half-way decent" represents a growing segment of archivists who must balance preservation imperatives with perceived user requirements.

While archivists sometimes fret over sacrificing quality when creating lower-resolution digital copies of materials, the concept that making something accessible is better than nothing appears to be convincing them to take the plunge into digitization using the resources available to them, even if they are "poor man's equipment," as Henry described it.

It is tempting to argue that introducing digitization and distribution technologies to the moving image archival field will ultimately have far-reaching implications and potential impacts for its future and the "market" (or valuation system) for archival moving images. If more and more archives decide to create digital copies for access purposes rather than for preservation purposes— using relatively inexpensive equipment and without providing the necessary infrastructure for long-term storage of digital copies—will the dominant model in reformatting of archival moving images change? And will archives become reconciled to the acceptability of lower-quality moving images for general use? While there will continue to be users who need broadcast quality transfers of materials that are suitable for licensing, preservation-quality digitization of materials (employing high-resolution capture and storage of uncompressed files as masters) may be the exception rather than rule for the majority of archives.

Many archivists will argue that it will be difficult for the field to relinquish its commitment to the primacy of preservation, but the *AMIA Code of Ethics* implies that the field does not privilege preservation over access. It presents the following goal: "To balance the priority of protecting the physical integrity of objects/artifacts with facilitating safe and non-discriminatory access to them."[30]

Adoption of digital technologies for access in fact highlights this tension by forcing archivists to reconsider long-standing assumptions. While these technologies have been available for some time, the ways a particular subset of archives is using them to make moving images more accessible suggests a change in direction and a shift in priorities that could have long-term implications for the operations of the field, particularly the establishment of new norms for archival work.

One model that may be worth exploring as a potential explanation for the changes taking place can be found in Clayton Christensen's work on innovation in industry. He explored how implementing new technologies can either support the current dominant players in a field, which he termed "sustaining innovation," or supplant them in favor of new competitors and value systems,

which he called "disruptive innovation." He argued that disruptive innovation has significant effect on the market for a product or service and in fact creates a new value network that eventually replaces the earlier technology that held dominant market share.[31]

While one might not necessarily see the archives field as a market, the argument can be made that archival institutions and professionals create and maintain a system for the production and distribution of cultural heritage.[32] It is intriguing to consider as a potential disruptive innovation the adoption of affordable digitization systems by moving image archives that facilitate the creation and distribution of copies of moving image heritage objects for interested users.

While Christiansen explained that the innovation may initially be seen as providing lower performance according to the demands of the mainstream market, it will offer new attributes, ultimately to be considered of greater value than the existing product or service. Archival moving images digitized primarily for access purposes may initially be deemed inferior to preservation-quality transfers; however, their increased availability and utility to users will eventually be considered preferable to the market and displace the previously favored product (i.e., high-quality transfers). Christiansen emphasized that this transition may not happen quickly, but over years or decades the previously dominant players in the market may find themselves no longer leading the field. For moving image archives, this displacement may result in larger archives still committed to preservation-quality transfers no longer being seen as the arbiters of best practices and the models for how preservation and access should be accomplished.

The archivists who participated in this study provided evidence that this shift in the market for digital archival moving images is already beginning to occur and that a new attitude for archival access is flourishing. Mark expressed powerfully this new activist ethos:

> A lot of people spend their whole careers . . . never taking a step. Because that way, they don't get in trouble. So, philosophically, I think in order to really be engaged in public access and digitization and do all this stuff, you really have to adopt a personal philosophy of what you will do and what you won't do, and stick with it. And for me, it was always all about the filmmakers, and having people see the material. That's all I ever cared about. So I never cared too much about having holdings that nobody knew anything about.

Archivists like Mark see digital distribution as having transformative power to achieve more effectively the mission of their organizations, and, despite the concerns about impact on archival functions, copyright restrictions, and ethical representations of content in online environments, their digital ambitions are emboldening them to experiment, explore, and commit to a new model of access.

Appendix: Interview Guide

Background of Interviewee and Institution

1. Please describe your institution's mission and explain your job responsibilities, particularly as they relate to moving images in your institution's collections.

2. Describe the types of archival moving images held by your institution and how accessible they have been to users in the past and currently.

Current Practices of Your Institution

1. Tell me how your institution first became involved in digitizing moving images.

2. Can you tell me about your first digitization project?

3. What did you learn from your first experiences with digitization?

4. Does your institution have an established digitization program? If so, please describe it, including goals for the program, selection methods, and best practices for digitizing moving images that you have used.

5. What distribution methods have you employed to allow users to access this material? Are there distribution methods that you do not currently use, but would like to use in the future?

6. Describe the role that you see digitization playing in the preservation of moving images.

7. What barriers do you see to establishing or expanding digitization programs for archival moving images?

8. What lessons have you learned as a result of your experiences with digitization of moving images?

Moving Images and Mobile Devices

1. Mobile devices represent a new distribution venue for archival moving images. What impact do you think mobile moving image consumption will have on interest in and desire for access to archival moving images?

2. What thoughts or concerns, if any, do you have about the use of archival moving images in mobile environments?

Notes

1 Association of Moving Image Archivists definition, as cited in "UNESCO Instrument for the Safeguarding and Preservation of the Audiovisual Heritage: CCAAA [Coordinating Council of Audiovisual Archives Association] Issues Paper," version 1.0 (April 1, 2005), http://www.ccaaa.org /docs/ccaaa_heritage.doc.

2 Karen F. Gracy, "Distribution and Consumption Patterns of Archival Moving Images in Online Environments," *The American Archivist* 75, no. 2 (2012): 422–55.

3 Even today, the National Film Preservation Foundation grant guidelines require that funded preservation projects create at least one film-to-film copy. See National Film Preservation Foundation Grants, "Basic Preservation Grants," http://www.filmpreservation.org/nfpf-grants /basic-preservation-grants.

4 The Academy of Motion Picture Arts and Sciences' (AMPAS) reports on the challenges of digitization and digital preservation of moving images may be particularly helpful for readers wishing an overview: Science and Technology Council of the Academy of Motion Picture Arts and Sciences, *The Digital Dilemma: Strategic Issues in Archiving and Accessing Digital Motion Picture Materials* (Los Angeles: AMPAS, 2007); Science and Technology Council of the Academy of Motion Picture Arts and Sciences, *The Digital Dilemma 2: Perspectives from Independent Filmmakers, Documentarians, and Nonprofit Audiovisual Archives* (Hollywood, Calif.: AMPAS, 2012). Both reports are available through the AMPAS website, "Publications," http://www.oscars.org/science-technology/council/publications /index.html.

5 David Pierce, "Copyright, Preservation, and Archives: An Interview with Eric Schwartz," *The Moving Image* 9, no. 2 (2009): 104–48.

6 Kathy Charmaz, *Constructing Grounded Theory: A Practical Guide through Qualitative Analysis* (London: Sage Publications, 2006), 2.

7 Catherine Marshall and Gretchen B. Rossman, *Designing Qualitative Research*, 5th ed. (Thousand Oaks, Calif.: Sage, 2010), 69.

8 Robert S. Weiss, *Learning from Strangers: The Art and Method of Qualitative Interview Studies* (New York: The Free Press, 1994), 9–10.

9 Weiss, *Learning from Strangers*, 18–20.

10 *Key informants* are individuals who possess particular knowledge and experience, and who are often recognized as acknowledged experts or leaders in a field. Please see Weiss, *Learning from Strangers*, 20–21, for a more detailed definition of key informants.

11 See Researchware, Inc., "HyperResearch," http://www.researchware.com/products/hyperresearch .html.

12 Please consult Charmaz, *Constructing Grounded Theory*, 42–71, for further explanation of coding qualitative data for grounded theory studies.

13 To ensure clarity of interviewee responses, transcript excerpts have been lightly edited in some places to remove words of hesitation such as "uh" and "um," "I mean," and "you know."

14 Jackie M. Dooley, "Ten Commandments for Special Collections Librarians in the Digital Age," *RBM: A Journal of Rare Books, Manuscripts, and Cultural Heritage* 10, no. 1 (2009): 53.

15 "The Preservation of Digitized Reproductions," resolution by the Society of American Archivists, June 9, 1997, http://www2.archivists.org/statements/the-preservation-of-digitized-reproductions; Abby Smith, *Why Digitize?* (Washington, D.C.: Council on Library and Information Resources, 1999).

16 Peter B. Hirtle, "The Impact of Digitization on Special Collections in Libraries," *Libraries and Culture* 37, no. 1 (2002): 48.

17 Marie R. Kennedy, "Reformatting Preservation Departments: The Effect of Digitization on Workload and Staff," *College and Research Libraries* 66, no. 6 (2005): 546.

18 Mark A. Greene and Dennis Meissner, "More Product, Less Process: Revamping Traditional Archival Processing," *The American Archivist* 68, no. 2 (2005): 208–63.

19 Joshua Ranger, "What's Your Product? Assessing the Suitability of a More Product, Less Process Methodology for Processing Audiovisual Collections" (New York: AudioVisual Preservation Solutions, 2012), http://www.avpreserve.com/wp-content/uploads/2012/08/WhatsYourProduct.pdf.

[20] See, for example, Stephen Chapman, "Considerations for Project Management," in *Handbook for Digital Projects: A Management Tool for Preservation and Access*, ed. Maxine K. Sitts, 1st ed. (Andover, Mass.: Northeast Document Conservation Center, 2000), http://www.nedcc.org/assets/media/documents/dman.pdf; Brian Dietz and Jason Ronallo, "Automating a Digital Special Collections Workflow through Iterative Development," *Proceedings of the ACRL Conference*, *Philadelphia, March 30–April 2, 2011*, 44–51, http://www.ala.org/acrl/sites/ala.org.acrl/files/content/conferences/confsandpre-confs/national/2011/papers/automating_digital_s.pdf; Bill LeFurgy, "Steps in a Digital Preservation Workflow," March 7, 2012, YouTube, http://www.youtube.com/watch?v=0A6MVp8GijQ; Anne Gant, "Some Considerations When Setting Up a Digitization Workflow" (FIAF Technical Commission, 2012), http://www.fiafnet.org/commissions/TC%20docs/Setting%20up%20a%20digitization%20workflow-%20FIAF%20tech%20paper%20V1%201.pdf.

[21] Association of Moving Image Archivists, *AMIA Code of Ethics*, http://www.amianet.org/about/code-of-ethics.

[22] Paul Conway, "Archival Quality and Long-Term Preservation: A Research Framework for Validating the Usefulness of Digital Surrogates," *Archival Science* 11, no. 3 (2011): 293–309.

[23] *A/V Artifact Atlas*, http://preservation.bavc.org/artifactatlas/index.php/A/V_Artifact_Atlas.

[24] Brewster Kahle, Rick Prelinger, and Mary E. Jackson, "Public Access to Digital Material," *D-Lib Magazine* 7, no. 10 (2001), http://www.dlib.org/dlib/october01/kahle/10kahle.html; Rick Prelinger, "Archives and Access in the 21st Century," *Cinema Journal* 46, no. 3 (2007): 114–18.

[25] Luca Giuliani, "Film Heritage as Cultural Patrimony," *Journal of Film Preservation*, no. 82 (2010): 7.

[26] David Francis, "The Way Ahead," *Journal of Film Preservation*, no. 82 (2010): 10.

[27] See, for example, Snowden Becker, "Family in a Can: The Presentation and Preservation of Home Movies in Museums," *The Moving Image* 1, no. 2 (2001): 89–106.

[28] *AMIA Code of Ethics*.

[29] Those readers more familiar with the Society of American Archivists *Core Values* and *Code of Ethics* may identify the words and actions of these archivists as embodying values such as advocacy, history and memory, privacy, responsible custody, service, social responsibility, and trust. See SAA *Core Values Statement* and *Code of Ethics*, http://www2.archivists.org/statements/saa-core-values-statement-and-code-of-ethics.

[30] *AMIA Code of Ethics*.

[31] Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Boston, Mass.: Harvard Business School, 1997).

[32] See Pierre Bourdieu, *The Field of Cultural Production: Essays on Art and Literature* (New York: Columbia University Press, 1993). Gracy has also explored the application of the Bourdieuvian model in the world of film archives in *Film Preservation: Competing Definitions of Value, Use, and Practice* (Chicago: Society of American Archivists, 2007).

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