

# REFORMAT REQUIRED:

## *Addressing "Paper Minds" in Archives through a New Collaborative Model for Digital Knowledge Transfer*

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**For many memory institutions, policies, procedures, and practices are built on the realities of analog records. The belief that digital content can be appraised, acquired, described, and made accessible using the same methods as paper records can inhibit the development of end-to-end digital preservation programs. To start to address this challenge, I developed a collaborative model for digital knowledge transfer based on adult education theory. The model has shown great promise for building digital capacity, capability, and community amongst my colleagues at Library and Archives Canada. This paper outlines the concepts that drive the model, as well as the three steps that are required for its implementation. As analog preconceptions often influence the thinking of those who are responsible for relationships with records creators, as well as the acquisition and processing of digital content, such collaboration and capacity building is a necessity for the success of end-to-end digital preservation programs.**

**Collaboration, capacity building, learning, knowledge transfer, digital archives**

**Collaboration: a Necessity, an Opportunity or a Luxury?; Building Capacity, Capability and Community**

### I. INTRODUCTION

Many of the policies, procedures, and practices concerning the acquisition of documentary heritage in memory institutions are built on analog foundations. In 2007, Canadian archivist Terry Cook observed that despite the "fundamental changes" necessitated by digital records, "despite the consequent need to reorient or reinvent or reconceive our work, almost all the concepts, practices, procedures, and even accepted terminology of the [archival] profession reflect our legacy of paper records. We have paper minds trying to cope with electronic realities" [1]. The intellectual divide Cook observed twelve years ago still exists, as

"paper-minded" approaches continue to prevent meaningful engagement with digital archival and digital preservation approaches and programs [2]. Digital content is often acquired without a full examination of the feasibility of such acquisition in terms of long-term preservation and access. How do we, as digital preservation professionals, develop collaborative relationships that will overcome "paper-minded" approaches and thinking to develop our digital archival and digital preservation programs?

In 2018, I developed a collaborative model for digital knowledge transfer based on andragogy, "the art and science of helping adults learn" [3]. The model has four unique elements that make it a good basis for successful collaboration. First, it is focused on the self-concept of the learner; second, it is conducted in small group learning environments; third, it is problem, not subject, oriented; and fourth, it responds dynamically to the learner's shifting needs. The model's first participants have developed the ability to engage with digital archival and digital preservation approaches and issues, representing the beginnings of a true shift in "paper mind" thinking. Collaboration, therefore, has had the greatest impact when we share knowledge based on best practices for adult learning. As digital preservation needs and concerns become tied to the professional self-concepts of our non-digital preservation colleagues, we will start to see true growth in digital capacity. In this manner, we pave the way for a reorienting or "reformatting" of the "paper mind."

#### A. *Institutional Context*

As the center of expertise for digital archival records at Library and Archives Canada (LAC), the Digital Integration unit has tried a variety of initiatives to build digital capacity. Such initiatives have included large-

scale training sessions and presentations on LAC's digital procedures. While such initiatives have provided short-term motivation for acquiring staff to engage with digital archival and digital preservation issues, they have not sparked a deeper self-reflection on what it means to apply a "paper mind" to digital issues. Such initiatives are not best suited to engage the learning needs of adults, which results in a lack of effectiveness.

The collaborative model for digital knowledge transfer was developed in the context of Digital Integration's efforts to address our institutional backlog of digital content. Responsibility for this content is assigned to archivists according to subject-matter portfolio, and digital archivists are assigned to provide strategic direction, guidance, and support. In the digital archivist role, I saw an opportunity to achieve three goals: first, to help process the backlog content and make it accessible to our clients; second, to build the skill sets of portfolio archivists, so that they could process subsequent content independently of us; and third, to start to raise institutional awareness and build digital capacity.

## II. DEVELOPING A COLLABORATIVE MODEL FOR DIGITAL KNOWLEDGE TRANSFER

### A. *Step 1: Understand and Incorporate the Self-Concept of Your Collaborator*

Andragogy posits that adult learners see themselves as self-directing, deriving self-fulfillment from their performance in certain roles, such as worker, spouse, or parent. Adults no longer see themselves as full-time learners, but rather as "producers" or "doers." This self-concept must be understood and engaged by those who wish to transfer knowledge to adults [4]. In many ways, the adult defines the self by experience, and those experiences should feed into any educational activity they undertake [5].

#### 1. *Diagnosis of Needs*

The learner's self-concept has important implications for the development of successful digital knowledge transfer. In the model, the development of the learning program itself must be a collaborative effort.

In curriculum development, the "diagnosis of needs" occurs when learning experiences are selected and organized on the basis of learner requirements, which can include interests, abilities, background, motivational pattern, social needs, or values [6]. Andragogy places emphasis on self-diagnosis, under the assumption that an adult is more deeply motivated to learn what he or she identifies as something he or she needs to learn, in order to enhance an aspect of the self-concept. The teacher serves as a facilitator, guide, or resource; the learner diagnoses their own needs, and collaborates with the teacher to translate those needs

into specific educational objectives and learning experiences [7].

How can this theory be applied to the transmission of digital archival and digital preservation knowledge? How can our non-digital preservation collaborators be in a position to diagnose their own learning needs, when "paper minds" underpin much of their thinking and approaches?

The collaborative model for digital knowledge transfer addresses this by starting small in scope, with a tangible goal (or goals) linked to one or more basic professional objectives of the collaborator. Often, the immediate identified learning need is to develop the skills necessary to process backlog digital content. This goal has a concrete link to the self-concept of many of our collaborators, who are archivists or other curatorial professionals who find fulfillment in meeting professional expectations.

### B. *Step 2: Plan Your Initial Program*

#### 1. *Problem-Centered Focus*

A crucial difference between childhood education and adult education is that the former is often *subject-centered*, while the latter should be *problem-centered*. Andragogy suggests that children gather information that does not necessarily apply to their everyday life challenges; adults, however, are motivated to address the problems they currently face. Thus, andragogy places emphasis on immediacy. The goal of a learning experience should be to help adults develop approaches and solutions to current problems, rather than learning a particular subject matter [8]. Expertise is not taught directly, but will emerge gradually over time.

Processing backlog content is a good problem-centered objective, well suited to the needs of many archivists or other curators. This objective can and should, however, be adapted to meet the needs of collaborators with different professional goals. The essential task in planning a collaboration for digital knowledge transfer is to ensure that all learning experiences are tied to real, measurable goals, such as clearing assigned backlog, acquiring a new digital collection, or testing a new technique or software tool, that is relevant to the collaborator's self-concept.

This is an area where the small-scale collaborative model differs significantly from large-scale presentations of content. In smaller, hands-on groups, it is possible to develop individualized activities that meet the needs of specific collaborators. The facilitator may also receive knowledge from their collaborator, including a better understanding of the way in which the "paper mind" is influencing their approaches to digital work. Through such sharing, messages can be customized to explain differences and similarities between analog and digital records in ways that will be meaningful to the learner. Such sharing is not possible in a large-group setting. In such a setting, an archivist

interested in processing backlog and an archivist interested in furthering their specific subject-matter expertise would receive the same information, such as a general tutorial. Neither would feel the same sense of professional ownership over their learning and development, which is why I believe much of the motivation falls away shortly after such large-scale sessions.

Thus, the goal of the collaborative model is to facilitate the efforts of "paper-minded" colleagues who are struggling with very specific digital challenges. How do I ensure that the content on this hard drive I acquired is preserved? A creator wants to transfer a database, what should I do? How do I set access restrictions on individual email messages? These are the types of questions the collaborative model for digital knowledge transfer is built to address. In so doing, over time, expertise emerges through experience.

## 2. *Learning Environment*

After needs are identified, planning specific learning experiences should also be, as much as possible, a collaborative effort. In my role as facilitator, guide, and resource, I often suggest that the program begin with facilitated processing. This often takes the form of addressing digital object content categories, starting with textual files and proceeding to more complex content such as graphic or audiovisual files in non-standard formats.

One such collaboration aimed to process the digital-born records of the National Roundtable on the Environment and the Economy (NRTEE), which was rendered defunct in 2013. As LAC is mandated to assume the "care and control of all records of a government institution whose functions have ceased", NRTEE's digital assets were transferred to LAC on an external hard drive [9]. The content included an export from the NRTEE's Records, Document, and Information Management System (RDIMS), an electronic document and records management system used by the Canadian government, the contents of a shared drive, and the NRTEE's email accounts.

By 2018, this content was considered "backlog." The immediate learning need, self-identified by the portfolio archivist, was problem-centered: to develop the skills necessary to select, arrange, and describe the material so that it could be preserved and made accessible. My task was to develop a learning program to meet this goal.

The NRTEE data posed several challenges, including file formats that did not conform to LAC's Guidelines on File Formats for Transferring Information Resources of Enduring Value. The data also represented a fundamental disruption to the method by which government records archivists appraise and select archival records at LAC. "Macroappraisal" places emphasis on the context of records creation over the

content of records. The records of a unit of government whose business functions are deemed to create records of archival value will be declared to have archival value, even if the archivist never sees those records. The strategy relies on file classification plans that detail the intellectual and physical arrangement of (usually analog) records.

The NRTEE data was exported from RDIMS by user name. The archivist could not identify relevant program functions with such a data structure, as it was impossible to link individual employees to business functions. The files had also exported with system identifiers as file titles, which did not make sense to the archivist (for example, a Word document was titled "6mq01!"). The user-assigned file titles were stored in a poorly structured Microsoft Access database that had accompanied the transfer. As NRTEE was defunct, it was not possible to work with the department to export the data in a structure more amenable to archival processing. How could I explain that selection work based on macroappraisal strategy would not be possible for these records? How could I help the archivist develop a workable path forward?

Andragogy places emphasis on experiential teaching techniques and practical application of new concepts. The theory suggests that the transmittal techniques prevalent in youth education, such as readings, lectures, and audiovisual presentations, are not well suited to adult learners, who seek self-direction and thrive when they have a sense of ownership over their learning [10]. As such, small group, hands-on workshops, with ratios of 1:1, 1:2, or a maximum of 1:3, seem to be most beneficial for digital knowledge transfer. The learner "drives" the work (in most cases, this equates to conducting all mouse navigation and clicks), while the facilitator provides strategic guidance and direction. Weekly meetings are beneficial, with collaborators agreeing on deliverables for the next week at the end of each session, such as files to be processed or research to be completed.

For the NRTEE content, the portfolio archivist and I met for one hour, twice a week, for six months, as part of our regular operational work. In 1:1 sessions, I explained how to mobilize software tools like TreeSize Professional and Quick View Plus to perform archival selection, arrangement, and description on the shared drive content. The portfolio archivist conducted all navigation and clicks, building confidence in completing this kind of work. Our second task was to work through the export from RDIMS. I provided explanations of the challenges presented by this content, the most significant of which being that it required item-level review, rather than macro-level review, due to its structure. Between sessions, the portfolio archivist reviewed user-generated file titles from an Excel file generated by the Digital Preservation team. By manually comparing this list to the NRTEE files, the

archivist gradually identified records of archival interest. As time passed, realizations emerged from this work that would radically change the nature of our knowledge transfer sessions.

### *C. Step 3: Respond Dynamically to Your Collaborator's Shifting Needs*

The success of the collaborative model is also predicated on the facilitator's ability to respond to their collaborator's shifting needs. A collaboration may begin with an identified learning need of "develop the skills necessary to process digital backlog." As work progresses, however, a collaborator may become interested in other areas of digital archival work, such as approaches to acquisition. The learning program should expand in response. In this example, the focus should grow to include deeper engagement with the theoretical underpinnings of digital archival practice as they apply to acquisition. Sessions might now include discussion of how to prevent the acquisition of problematic data at the point of transfer, or through early intervention in the creator's recordkeeping process.

The learning program for the processing of the NRTEE records required this sort of dynamic response as learning needs shifted. The portfolio archivist became frustrated by the manual nature of the archival processing of the RDIMS content. Though incredibly engaged in the work, the individual review of over 20,000 files was an undeniably time-consuming and tedious task. It was therefore essential that our collaboration seek out new solutions in order to avoid discouragement, or the development of the belief that this sort of work would be required for all digital archival records. Thus, I changed one of our weekly meetings to a brainstorming session in which we began thinking about alternate approaches.

How could we proactively engage with departments upstream to prevent LAC receiving such poorly structured data? Could such discussions make LAC's preferred macroappraisal approach feasible for digital records? These questions were serendipitously timed. Digital Integration was actively researching the Producer-Archive Interface Methodology Abstract Standard (PAIMAS). At the same time, the portfolio archivist was engaged in a disposition process with four other Government of Canada institutions. We decided to workshop the standard as part of this process, in an attempt to understand the digital recordkeeping contexts of each of these entities. We sought to understand whether the proposed transfer of their digital archival records to LAC would be both trustworthy and feasible. The relationships we developed through a PAIMAS-driven approach led to the transfer of digital content that was not only well structured, but also transferred in preferred preservation formats. Macroappraisal of these digital records was easily achieved.

Perhaps the most outstanding result of this collaboration was the portfolio archivist's newfound ability to engage directly with some of the basic assumptions of the "paper mind." Macroappraisal strategy is the theoretical underpinning of government archives work at LAC. It was developed, however, in the context of analog records, and the ways in which it must be adapted to cope with digital realities is not yet well understood. Through our collaboration, the portfolio archivist realized that having an intellectual understanding of government program functions is no longer sufficient; archivists must also understand the context of digital recordkeeping systems for macroappraisal to continue to be viable. This demands significant change in the skill sets of archivists, and as such, represents a very deep disruption to professional identity that cannot be effectively explained through a large-scale lecture or presentation. A true realization of the implications of digital disruption can only emerge when a learner self-identifies digital challenges as a learning need, and has that need addressed in a knowledge transfer program that concretely identifies areas where new approaches are necessary. The resulting sense of ownership over the solution leads to true acceptance of the need for change. Digital expertise will then emerge slowly, over time. The collaborative model for digital knowledge transfer, therefore, is an important component in changing our understanding of the very nature of archival work.

The ability to respond deftly to changes in a learner's self-identified needs is a difficult but very important component in the development of such a successful digital knowledge transfer collaboration. Malcolm Knowles states that "the truly artistic teacher of adults perceives the locus of responsibility for learning to be a learner; he conscientiously suppresses his own compulsion to teach what he knows his students ought to learn in favor of helping his students learn for themselves what they want to learn" [11]. It is crucial to listen carefully to our collaborators. Are they finding their current work discouraging? Are there previously unidentified digital issues with which they are struggling, that they may not be able to articulate? Can we help identify these issues? If so, can we reprioritize our learning programs to address the new challenges? Being able to identify such issues, and being able to respond to them quickly and effectively, is an important skill that we must develop within ourselves to enable successful collaboration.

The collaborative model also requires that the digital preservation professional relinquish some control over the deliverables of the learning program. If our collaborators would like to discuss acquisition, for example, can we put aside the processing of backlog content to explore this new path? There is of course a balance to be struck between meeting identified deliverables and institutional objectives and encouraging the self-identified digital capacity growth

needs of our collaborators. Finding this balance will depend significantly on institutional context, but flexibility and responsiveness, in my experience, leads to better outcomes.

### III. CURRENT CHALLENGES

A significant challenge to the success of the collaborative model is how our potential collaborators perceive digital archival and digital preservation work. Digital capacity cannot be developed under the model until our "paper-minded" colleagues self-identify the acquisition of digital knowledge as a learning priority. This accounts for the slow adoption of engagement with such issues that we are seeing in our work as digital preservation professionals. If our colleagues believe that they do not require any new skills to appraise, acquire, describe, and make accessible digital content, it will be impossible to help them self-identify specific learning needs and develop learning programs. How can we address such entrenched ideas?

Shifting the culture of an institution at a grassroots level may be a potential solution. As early adopters at LAC move through the collaborative model, they are beginning to discuss its benefits with their peers; while these conversations are in their infancy, there is potential in a "teach the teacher" concept. If the collaborative model can engage the attention of a few previously "paper-minded" colleagues, and help them meaningfully engage with how digital archival work is different from analog archival work, they may pass this understanding to their colleagues organically. Those receiving this information may, in turn, begin to identify digital skills amongst their own learning needs. I am hopeful that LAC's early adopters will continue to disseminate this thinking, so that the collaborative model's digital capacity building can engage more and more of our staff.

### IV. CONCLUSION

In early 2019, a co-collaborator that had been working with me on digital knowledge transfer since mid-2018 suggested that "all archivists should become digital archivists." This attitude is incredibly promising. As records become almost exclusively born digital, digital preservation needs and concerns will be even more integral to managing archives. I see collaboration and knowledge transfer between digital preservation professionals and their more "paper-minded" colleagues as the path forward. We cannot do this alone; we need our colleagues to help us implement end-to-end digital preservation programs. Through a collaborative model built on adult education theory and techniques, I have witnessed outstanding results in digital capacity building amongst those who self-identify digital as a learning priority. It remains to be seen whether such gains can be brought to scale within LAC, and whether the model might be useful for others in the profession.

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