

New Skills, New Knowledge, and New Attitudes for a Digital Era

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When I took office as President of the Society of American Archivists, I wanted to focus on one basic question: What do archivists need to know to be comfortable working with digital materials? One of the challenges has been to find the right tone when addressing the impact of technology. I wanted to communicate my belief that unless archivists respond to the challenge, technology could have a devastating impact on the profession. At the same time, I didn't want people to feel so threatened that they were paralyzed. It was important to respect the work that had been done, while also recognizing how much more we need to do. I hoped to find the right words to inspire archivists. I wanted to give us the sense that we can do something that would make a difference. I hoped to encourage everyone to do something, no matter how small, because even small steps can make a big difference.

Technology presents opportunities as well as threats. If archivists are willing to respond, the profession will thrive in the digital era. Unfortunately, many archivists don't have the skills or knowledge to know how to respond.

A little over a year ago, the question of skills and knowledge surfaced when Allen Weinstein, now the Archivist of the United States, met with leaders of the Council of State Archivists, the National Association of Government Archives and Records Administrators, and SAA. Weinstein proposed a colloquium to bring together archivists with experience working with electronic records to consider an answer to the question about skills and knowledge. That colloquium, sponsored by NARA, SAA, and the Arizona State Library and Archives (my employer) took place in early June. I thank Allen Weinstein and GladysAnn Wells, director of the Arizona State Library and Archives, for their support of this project.

The "New Skills for a Digital Era" colloquium brought together more than 60 archivists, librarians, records managers, and technologists – all with significant experience with digital records and publications. Participants represented many different kinds of repositories: government, corporate, and collecting, both large and small. The group included young and seasoned professionals, managers and staff. The diverse group brought to the table a wide range of perspectives and insights.

In her keynote address, Margaret Hedstrom, associate professor at the University of Michigan School of Information, helped frame the discussion by describing skills as a smooth sequence of interrelated actions that are based on a series of choices that vary based on previous steps.¹ Skills, she observed, become second nature. When learning to drive, one must pay careful attention to the steps and sequence: clutch, ignition, shift, check for traffic and pedestrians, feather the accelerator, and let up the clutch. With a bit

¹ Hedstrom discussion of skills cites Richard Nelson and Sidney Winter, *An Evolutionary Theory of Economic Change* (Belknap Press, 1982).

of practice, drivers perform these steps – to use a colloquialism – “by the seat of their pants.”

Because skills are second nature, it’s difficult to identify their underlying steps and choices. The New Skills participants took up the challenge of reflecting on how they do their jobs. The conversations were intense, insightful, and exciting. The proceedings, which will provide a more systematic analysis of all participants’ ideas, will be published online by SAA later this year. I’d like to offer some personal reflections on themes I heard.

Skills and knowledge are two sides of the same coin. “Skill” connotes applied, rather than theoretical, knowledge. To be effective in our jobs, we must have both. Theory guides *why* we take certain actions. Craftsmanship is the successful marriage of theory and practice, a union that transforms mere product into art. The skills to work with digital records will necessarily be different from those to work with paper and other formats. But we still need to do the same basic things: selection, acquisition, organization and description, reference, and preservation. Much of our knowledge of what to do in the physical environment translates well into the virtual realm. Not only do we need practical skills to work with digital materials, we need to reconsider the theoretical knowledge that guides that work. Only then will we be digital craftsmen.

We need both technical and social skills. Records are used in a human context. Knowledge of papers, inks, and filing systems is critical to understanding traditional records, but so is knowledge of records creators and those who use the records. In the digital era, we must consider how technology has influenced those groups, but we must also learn to work effectively with technologists. That means we must be able to articulate archival concepts using vocabulary and syntax that is familiar to technologists. That may mean learning the basics of systems analysis and modeling.

Not everyone needs to know everything. Although it may be obvious to some, it’s easy to overlook the simple fact that skills and knowledge vary according to context and roles. Different activities require different skills and knowledge. An archivist acquiring a digital collection may need to know a variety of techniques to transfer the records, such as file transfer protocol or how to burn records to a DVD. An archivist processing the records may benefit from knowledge of natural language processing programs to aid in organization and generate metadata. A third archivist working on preservation will likely need to know something about data transformation and migration. Managers and staff do different things, and therefore need different skills and knowledge. Although managers may not need the same level of expertise as staff working directly with the records, they need to understand enough to ensure that the staff are making good choices, to ensure the quality of their work, and to plan for the future.

Archivists don’t have to do everything. In one break-out group, someone expressed the concern that it appeared archivists need a whole host of professional skills – programmer, business process analyst, workplace anthropologist, psychologist, and even evangelist. Clearly the more skills one has, the better. But there are limits. At a minimum, we

should know how these different professions can help us do our jobs better. Some archivists may cross-train in one or two other fields to explore those possibilities at a more advanced level. But even the most advanced archivists don't need to be masters of many fields; they will know when to turn to other professionals for assistance. We do that today. Most archivists know enough about preservation to ensure that their collections are properly housed, and they may even have some rudimentary repair skills, such as surface cleaning or flattening. When faced with a complex problem, they turn to a professional conservator.

In addition to these themes, I heard some specific skills that you may want to think about acquiring (or honing if your skills are rusty). Many at the colloquium felt that at least a rudimentary knowledge of these skills would be desirable for all archivists. Depending on your job, you may want to try to master some.

Navigating operating systems and file systems. Knowing the basics of how a computer organizes files and how to perform some simple operations is essential for anyone working directly with digital records. At a basic level, you should probably understand folders and how to move, copy, and rename files. At a more intermediate level, you may need to understand how to perform these operations on selected sets of files, how to create lists of files, how to compare the contents of files, and how to map drives.

Markup languages. Extensible Markup Language (XML) is becoming the *lingua franca* of technologists. Most archivists should understand the concept of how tags can be used to add semantic structure and formatting to a document. They should be familiar with different types of markup languages. At an intermediate level, archivists should be able to do simple markup, and at an advanced level they may want to be able to develop document type definitions (DTDs) and use Extensible Stylesheet Transformations (XSLT).

Databases. The heart of archives is analyzing and organizing knowledge. Databases are the fundamental tool to do that in the digital environment. Virtually all archivists – managers and staff, regardless of the work they do – can benefit by developing relatively simple databases using desktop applications. Intermediate and advanced archivists may want more robust software and advanced skills to take full advantage of these tools.

Programming. Many colloquium participants felt that archivists don't need to know how to program, but a few felt it was very nearly essential for all archivists. To reiterate what I said above, archivists can't know everything and archivists need to know when to turn to a professional. Minimally, it will make it easier to talk to technologists. But a little knowledge of programming can really unleash the power of computers to do basic tasks for sorting, filtering, and analyzing records. Even managers will benefit from some familiarity with programming to know if the work a contract programmer proposes is reasonable and sustainable.

What may be most essential for archivists to prepare themselves for the digital era is neither skills nor knowledge, but new attitudes. Archivists need to adopt a pioneer

spirit, a willingness to face the unknown. To do that, we must be willing to take risks and experiment. We need the resourcefulness and courage to create something in this alien world. We cannot let the perfect be the enemy of the possible, and we must be willing to try untested solutions. Fynnette Eaton, Change Management Officer for the National Archives and Records Administration Electronic Records Archives, taught me one of the first and most important lessons I've learned about electronic records: Whatever we do we may fail, but if we do nothing, failure is guaranteed.

Archivists must have chutzpah; we need to become articulate advocates for our profession and our programs. We can't wait until we're invited to the table to talk about our concerns. We need to step up to the plate and assert our right to exercise our social mandate to preserve those records of enduring value. We need leadership skills and the willingness to take the lead on collaborative projects to make sure projects address archival issues. To be effective, we need the skills of an effective team builder and of a team player.

The challenge of this new frontier is daunting. And it is easy to forget that no one will become a master in a day. We must not be overwhelmed by the magnitude of the problem. Rather, we must do what we can today. The path to the digital future may not be clear, and we will certainly face obstacles and dead ends. But the journey of a thousand miles begins with a single step. Where will your journey take you?

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