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Teaching Archival Research Skills to Undergraduates

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Archivists in universities and colleges have long supported the scholarly research conducted by faculty in their institutions. In the past, scholars were considered their primary clientele. While occasionally called upon to provide an orientation to the archives for undergraduate students who had been assigned a research project, academic archivists understood their main task as providing access to archival materials for scholars and administrators. All of this began to change in the 1980s as archivists were increasingly called upon to document the value and utility of archives to decision-makers of institutional resources allocation. Academic archivists' efforts to document the wide-ranging importance of their role in the academy compelled them to turn their attention to their users. They sought to understand who their users were, what their needs were, and to evaluate their own performance in meeting those needs. Attention was now given not only to *current* users, but also *potential* users of the archives. Among the leaders of this introspective turn for archivists were Bruce W. Dearstyne and Elsie T. Freeman.[i]

Students at all levels, including undergraduates, were identified as a group that could benefit from archives in their learning experience. The teaching of history to K-12 students and undergraduates traditionally relied on textbooks, lectures, and the memorization of facts. However, in the 1980s the use of primary sources in the classroom gathered momentum and popularity for a number of reasons. Their intrinsic interest as authentic evidence from history

held the potential for increased student engagement. It was also thought that students should not only learn history, but "*do*" history—i.e., actual historical research—as one aspect of a participatory learning experience. This "doing" of history empowered them by giving them a taste of what it was like to be "real historian[s]." Students could develop their critical thinking skills by using primary sources to create their own interpretations and assess other interpretations of history.[ii]

The growing emphasis of history teachers on research by students was part of a shift in pedagogical practices toward an inquiry-based, student-centered learning process in which students were conceived as active builders, not passive receptors, of knowledge. The teaching of research and writing skills thus acquired greater significance in all subject areas. The application of these trends to higher education was furthered by the influential report of the Carnegie Foundation's Boyer Commission in 1998. *Reinventing Undergraduate Education: A Blueprint for America's Research Universities* cited the philosopher of education John Dewey in support of the Commission's belief that "learning is based on discovery guided by mentoring rather than on the transmission of information." Therefore, the report lists "make research-based learning the standard" among its "Ten Ways to Change Undergraduate Education." Educators' emphasis on student research and engagement with primary sources along with the archival profession's new user-awareness set the stage for an expansion of whom academic archivists believed their

clientele to be. They sought to understand students' information needs and their ability to conduct archival research.[iii]

Despite these changes in theory and approach, academic archivists continue to struggle in their attempts to meet the research needs of undergraduate instructors and students. College and university archives generally are not utilized to their greatest potential by undergraduates. One explanation is that one or both user groups may be unaware of the subject coverage of their university or college archives' collections. Another possibility is that some instructors may not be aware of archivists' willingness to collaborate with them on students' research projects. Other instructors find it difficult to incorporate the use of primary sources and student research in the archives into their current teaching practices. On this point, archivists can be cautiously optimistic as there is evidence that younger, non-tenured history faculty tend to utilize primary sources more often in their teaching than older, tenured faculty.[iv]

Archival Skills and Primary Sources in Classroom Practice

This paper will undertake another explanation of the problem of underutilized academic archives and propose an agenda for resolving it. Undergraduate students generally do not have the requisite knowledge and skills for effective archival research. This lack of proficiency in basic principles of archival research prevents students from pursuing significant online and on-

site research. Archival research skills and classroom exposure to primary sources are incommensurate in recent educational practice. As noted above, the use of primary sources in all levels of instruction is on the rise. Recent evidence of this is the *Common Core State Standards Initiative*, a set of national curriculum standards for K-12 students, adopted by many states beginning in 2010. They emphasize the development of research skills and critical thinking about primary sources. Doris J. Malkmus thus argues that students are "arriving on college campuses more prepared to deal with primary source documents than any previous generation, but they have not yet developed the skills to find and identify primary sources—whether online or in the archives."[v]

While an instructor's increased exposure of students to primary sources improves their ability to think critically about those sources, such thinking is entirely different from the ability to do effective archival research to *find* those sources. Archivists are grateful for the newfound importance of primary sources in all instruction, particularly history. Some academic archivists have even joined the effort to teach critical thinking about primary sources. But as the opportunities for collaboration between archivists and faculty to facilitate undergraduate students' research grow, archivists are paying more attention to the methods they utilize in teaching archival research skills. The improvement of archivists' teaching methods would raise the archival research proficiency level of undergraduates. A secondary benefit of better archival

research skills would be an improved ability to contextualize primary sources. This is due to the provenance-based system of archival organization that requires consideration during the search process of such primary source attributes as creators, document functions or purposes, and dates of creation.[vi]

The advantages of an expanding base of college and university archive users are clear. Once a student becomes proficient in archival research, he is more likely to return to the archives in the future for more research. English instructor Carol A. Senf noticed this pattern after a class project requiring archival research. She noticed that students completing that project continued to use the archives for research in other classes she taught, even though such research was not required. Moreover, Kenneth Osborne argues that archivists who fail to teach archival research skills "deny themselves the possibility of building and benefitting from the support of a knowledgeable and sympathetic public." Put into an academic context, the administrative support that archivists need is more forthcoming when the archives have the widespread support of proficient users across the academic community.[vii]

Archival Orientations for Undergraduates

Academic archivists' traditional method of preparing undergraduate students for a research project has been an "archival orientation." In its least effective form, this orientation is

what Barbara Rockenbach calls a "'treasure tour' highlighting the gems of archival collections."

The rationale behind this approach, writes Michelle McCoy, is that "a selection of materials is

displayed for students with the hopes that their interest would be piqued." The hope is that the

archival treasures will make students eager to return to the archives and discover their own

treasures. But without any element of active participation in which students could learn by

engagement in practical steps toward such discovery, few students are likely to return

voluntarily. At its best, the traditional orientation takes the form of what Elizabeth Yakel calls a

"how to do research here" session that focuses too specifically on the research steps that are

particular to *this* archive. Yakel argues that there is little generalization of archival research skills

that the student can take away from this presentation. While there is a positive role for step-by-

step instruction (in *this* archive) in reducing students' research anxiety, so long as it has students

walking through the steps and not simply listening to or observing them, little progress is made

in terms of a student's ability to conduct research in other archives.[viii]

       With traditional archival orientations for undergraduates coming under heavy criticism,

the question can now be asked: How *should* archival research skills be taught? What pedagogical

methods should archivists use in order to ensure undergraduate students' proficiency as archival

researchers? Answering these questions is the primary task of this paper. I will begin by

describing the ideal context of instructor-archivist collaboration for learning archival research

skills. Second, I will outline the specific archival skills and knowledge that should be taught in

archival orientations. Third, I will highlight the importance of archivists writing out and using

lesson plans for their instruction. Finally, I will suggest ways in which current educational

research and theory can be applied to the teaching of archival research skills. These theories will

be divided into several categories: 1) constructivism, 2) inquiry-based, active learning, 3) the

theory of multiple intelligences, and 4) assessment. For each of these, I will first summarize the

theory or practice in general terms, then propose several applications of it to the teaching of

archival research skills.

Instructor-Archivist Collaboration

The application of current educational techniques to the teaching of archival research

skills logically leads one to an ideal context in which these skills should be taught. My

assumption throughout this paper is that the archivist is teaching such skills to a class of

undergraduate students who have been assigned a research project requiring the use of archival

sources. The instructor has invited the archivist to teach a lesson to his/her class on how to do

archival research. This context compels the archivist to avoid teaching archival research skills

and concepts in an exclusively abstract manner. The archivist does not need to artificially

generate an information need for students. Rather, the archivist addresses the *real* research needs

of the class as stated in the assigned project. The most ideal conditions for active learning occur

when the student can immediately apply abstract concepts to real problems and questions.

Magia G. Krause's survey research shows that the majority of archival research teaching

opportunities for archivists occur within a collaborative context. The course subjects most often

represented are History and English. For example, McCoy describes a research project at

Duquesne University that required each student to choose a letter that was written home by an

American Catholic missionary to China during the early twentieth century. The letters were in a

collection called "China Mission Correspondence." Each student was required to create an

annotated critical edition of his chosen letter by using both primary and secondary sources to

research its context.[ix]

Barbara Rockenbach, an archivist at Yale University, provides another example of an

instructor-archivist collaborative project. She worked with a class whose project was to create an

online exhibition of Yale archival materials on a chosen topic. Each student was in the curatorial

role of choosing which materials he wanted to have digitized for the exhibition. Both of these

projects exemplify how instructors and archivists can work together to create engaging archival

research and learning experiences for undergraduate students.[x]

The instructor and archivist both contribute their own expertise and play specific roles in

the collaboration. The archivist knows which collections are relevant to the instructor's

assignment, but "only faculty can determine which collections animate students, support course objectives, and are appropriate for student levels of skill." To ensure a positive collaboration, the archivist should review the course syllabus and requirements before meeting with the instructor. Close collaboration can prevent instructional time from being lost on learning objectives that are either non-essential to the project or that students are already proficient in. For example, Xiaomu Zhou relates one instance when an archivist spent a lengthy time explaining the difference between primary and secondary sources despite the fact that students in the class had already received instruction on this point. The subjects of archival collections, their accessibility to novice researchers, and learning objectives are all essential conditions for keeping students engaged. The archivist's collaboration with the instructor is vital to getting each of these factors correct. Krause reports that one archivist in her study summed up the importance of collaboration: "the more a professor participates in the instruction session, the more engaged the students are."[xi]

There are two main alternatives to teaching archival research skills in an instructor-archivist collaborative context: 1) a traditional archival orientation, 2) online tutorials. Both alternatives involve learning archival research skills through methods that are disconnected from students' actual research needs. Both alternatives consist of lessons that are meant for mass distribution to the university or college community. The disconnection is the main root of

students' difficulty in applying it to their own needs. However, neither alternative should be completely avoided by an academic archivist. Outreach to the academic community requires a multifaceted approach that is prepared with a variety of educational tools and programs for an equally wide variety of potential users and needs. For some undergraduate students, an orientation or online tutorial might be the only communication that occurs between archivists and students; this is especially true given the rising popularity of digital archives. Some instructors or students might be inspired by one of these alternative teaching opportunities to pursue more collaborative learning contexts with the archivist. But orientations and online tutorials remain alternatives to the ideal context for teaching archival research skills to undergraduates: instructor-archivist collaboration.

A traditional archival orientation is given to undergraduate students under several circumstances. Some universities and colleges include it as a component of their library orientation programs. Other archivists offer an archival orientation in response to the request of an instructor to introduce his class to the basics of archival research—such an orientation is distinguished from the collaboration described above by not being designed for the specific research needs of students in that class. Archival orientations need not take the form of the denigrated "treasure tour" described above. Many lesson features with active, hands-on participation in resolving (archivist-generated) archival research problems can be incorporated

into orientations. James Gerencser and Malinda Triller of Dickinson College teach an effective

two-session orientation as part of a semester-long course, "Introduction to Historical

Methodology." Several of their inquiry-based teaching methods are cited in this paper. For

example, they generate research questions that require students to search through both finding

aids and the materials they describe. Their questions and anticipated searches illustrate important

research ideas they want students to learn. However, the fact remains that students experience a

temporal gap between the learning of archival skills and concepts and the application of them to

research needs that arise in their normal coursework. According to theories of active learning, the

further instruction is removed from actual research needs either temporally or in its application,

the less effective it is.[xii]

Yakel notes another problem with many archival orientations. She argues that

orientations do not prepare students for archival research in general, only research in the

particular archives where they are taught.

> Orientation reflects a paradigm focusing on a physical tour of the facilities as the
> necessary preparation to facilitate use of the archives of manuscript collection[s]. Even if
> this is combined with a more detailed instructional component, the module usually deals
> primarily with understanding access tools and procedures within the context of a single
> repository. This approach can be characterized as how to do your *current* project in *this*
> archive.

Yakel therefore contends that orientations do not address the more abstract concepts she believes

to be part of "archival intelligence." The latter term and Yakel's elucidation of it will form the

foundation of the archival research learning objectives to be outlined in this paper. However, it is

worth noting that while Yakel highlights the importance of abstract archival concepts that can be

applied to all archives, not all instruction should be at a high conceptual level. Undergraduate

students also need step-by-step directions for how research in a particular archive is done in

order to reduce their anxiety about getting started. I will address the issue of abstract and

particular archival ideas later. It is therefore evident that archival orientations are not by any

means totally ineffective. While they are not the ideal means of teaching archival research skills

to undergraduates, they can be used with some success in the absence of collaborative

opportunities for the archivist.[xiii]

Online tutorials are another alternative to teaching archival research skills within an

instructor-archivist collaborative context. In Krause's survey of archivists who teach research

skills, she found that only twenty percent of archivists have utilized this teaching method. These

can take the form of either videos or interactive activities. For example, San Diego State

University's "Special Collections and University Archives" department makes two video

tutorials available on its website: 1) "Special Collections and University Archives Reading Room

Orientation", and 2) "Using Finding Aids for Special Collections." The main objection of active

learning theory to online video tutorials is that viewers are only *watching how* to do archival research, not actually *doing* the research. This critique would not hold up as well regarding online interactive tutorials that may well involve live research in a digital archive.[xiv]

There are several good reasons for archivists to create and maintain online tutorials. Yakel writes that online tutorials were originally created because of the growing recognition that an increasing number of archives users, specifically online digital archives users, would probably never have the opportunity to speak with an archivist face-to-face. This is a problem for archivists because they have always considered the in-person reference interview as a significant opportunity for user education. As long as this issue of lost opportunities for user education persists, online tutorials can be justifiably maintained for a similar reason to that of orientations. A variety of outreach tools should be retained in order to make contact with the largest possible group of users. Moreover, there is evidence that college and university history faculty are highly supportive of online tutorials.[xv]

From an archivist's pedagogical perspective, there is another reason for continuing to make online tutorials available. The idea of a "flipped" classroom is currently gaining popularity in K-12 education and could easily be applied to an instructor-archivist collaborative teaching context as well. K-12 teachers who use this technique create online material (e.g., videos or interactive activities) for their students to learn from prior to class. The main incentive is that

instructional time (for introducing new ideas or modeling new skills) that would normally occur

in the classroom is instead shifted to a student's own time before class. The student arrives in

class already having learned and thought about the lesson topic. The teacher can then use lesson

time in the classroom to move the discussion forward to more advanced questions that students

have about the topic. The flipped classroom was inspired by K-12 teachers' recognition that

lesson time in the classroom is scarce. A "flipped" classroom is one response to the scarcity of

in-person instructional time.[xvi]

The online tutorials that many academic archivists have created provide an excellent set

of tools to "flip" the archival research classroom. In this lesson scheme, undergraduate students

would arrive at the archives already having been introduced to a concept such as "finding aid."

The archivist could then engage students in a more advanced discussion of finding aids than

could otherwise be managed. This type of lesson is most ideal in the context of instructor-

archivist collaboration because the instructor has the leverage with students to ensure that they

use the online tutorials to prepare for the archival research lesson and arrive in the archives with

higher-level questions to be addressed.

Archival Intelligence and Artifactual Literacy

Elizabeth Yakel and Deborah A. Torres' important article, "AI: Archival Intelligence and User Expertise," provides an organization of knowledge and skills required for proficient archival research. They write that successful archival research requires proficiency in three distinct skill and knowledge sets: 1) domain knowledge, 2) artifactual literacy, and 3) archival intelligence (AI). Domain knowledge is subject knowledge in the field that the user is researching. Teaching domain knowledge as a regular practice is clearly out of the professional expertise of archivists *as* archivists. There are of course many archivists with significant domain knowledge in a particular field. This knowledge is frequently a considerable asset for their institutions to take advantage of. But the expertise that all archivists have in common is archival theory and practices, not another subject domain. Therefore, the teaching of domain knowledge (even when it is applicable to archival materials) should *in general* be left to other specialists in the academic community.[xvii]

Artifactual literacy is the ability to correctly interpret primary sources in the archives. Marcus Robyns, an archivist at Northern Michigan University, divides this skill into "external" and "internal" criticism of a primary source. External criticism of a primary source is the process of "determining 'where, when, why, and by whom' a document is written." Conversely, internal criticism is the "evaluation and interpretation of the content" once an external critique has been completed. Robyns argues that many of the undergraduate students he has observed in his

university archives are unable to think critically about primary sources. After citing evidence that many of the academic librarians who teach information literacy to undergraduates include critical thinking about information sources among their objectives, he argues that it is archivists' responsibility to teach both internal and external criticism of primary sources. Robyns developed a standard lesson template that he uses to teach critical thinking about primary sources in many different departments across campus. The diversity of departments from which faculty have invited him to teach, including history, nutrition science, and chemistry, is a testament to his teaching skill and the design of his lessons. Robyns is clearly effective in realizing his teaching objectives. But I will argue below that archivists would do better to focus their efforts on teaching archival intelligence, an idea that in my view is inclusive of Robyns' concept of external criticism of a primary source, but excludes the notion of internal criticism.[xviii]

According to Yakel and Torres, archival intelligence is "a researcher's knowledge of archival principles, practices, and institutions." It contains three dimensions: 1) archival theory, practices, and procedures, 2) strategies for reducing uncertainty and ambiguity, and 3) intellective skills. Each dimension itself contains a number of ideas. Dimension 1) includes knowledge of technical archival language and concepts such as "provenance," along with the rules and procedures commonly practiced in archives. Dimension 2) involves the researcher's ability to translate unique information needs into search strategies that query the archival

descriptive tools in their own language. For dimension 3), a researcher with "intellective skills" understands the multiple descriptive tools designed by the archivist to provide intellectual access to archival materials. With this understanding, he determines ways in which each tool represents or does not represent the materials. In my view, dimension 3) is inclusive of Robyns' "external criticism." Dimension 3) implies to large degree knowledge of the external facts of a primary source. If a researcher knows how a descriptive tool represents or does not represent an archival document, then he also knows the "where, when, why, and by whom" contextual facts about it. Again, the capability of searching the provenance-based organizational scheme in archives presumes an awareness of these facts as well. The teaching of archival intelligence enables students to better contextualize their sources by providing them with the information required to do so.[xix]

Yakel and Torres' idea of archival intelligence is an excellent starting point for determining the learning objectives that academic archivists should be aiming for in their teaching to undergraduates. Although knowledgeable on the subject of artifactual literacy, academic archivists are generally not the most ideal academic faculty for teaching the internal criticism of primary sources. This would be better left to faculty in other university departments for whom critical thinking about primary source content is a common necessity of their scholarly research. Yakel and Torres contend that "the acquisition of archival intelligence is something

that should be embraced by archivists as a role unique to them in this educational puzzle."

Considering the limited instructional time available to academic archivists, it is reasonable for them to focus entirely on teaching archival intelligence.[xx]

Archival Intelligence and Learning Objectives

Yakel and Torres articulate archival intelligence and its three dimensions (noted above) at an abstract level. Archivist educators are left to translate these ideas into specific learning objectives. This section will undertake such a translation.

Yakel and Torres argue that archival intelligence provides the researcher with generalized or abstract knowledge of archival theory, practices, and procedures. They advocate a "movement away from a focus on 'how to do research here' toward a more conceptual understanding of archives and search strategies." The user can apply this abstract knowledge to research in *any* archive. They are backed up on this point by findings in cognitive science, which reveal that a person with relevant conceptual knowledge can adapt to a new situation more quickly than a person with merely relevant particular knowledge from his experience. Following their dictates would therefore result in a set of learning objectives whose focus is beyond any specific archives, including the institution in which they are being taught.[xxi]

Archivists collaborating with an instructor should not, however, lose sight of the fact that

they have an institution-specific goal at hand. They are preparing *this* class of students for

research in *this* repository. Archivists should prepare students with the basic rules and procedures

for their particular archives. If a new researcher is able to initially go through the motions of

archival research without difficulty, then his anxiety about pursuing this new type of research is

reduced. One researcher relates this idea: "There's something to a starting place I think that you

just get into it. I've done that a few times where I was like, 'I don't know what's all in here. But

I'm just going to start somewhere just to get a lay of the land…" Archivists cannot in any case

teach the larger archival concepts without frequent referral to applications of them to actual

research. Students cannot acquire the larger concept without multiple examples of the idea at

work. What better source of examples can there be than those from the archives in which the

research instruction is occurring? Moreover, for student engagement and effective use of time,

these examples can be chosen for their relevance to the research assignment at hand.[xxii]

Therefore, for both practical and theoretical reasons, archival research instruction should

utilize a combination of large archival research concepts and illustrative examples from the

archivist's own repository. But this conclusion is not represented in the instructional practices of

most archivists. Krause's surveys of archivists show that the most popular elements of archival

instruction are rules, procedures for requesting materials, and the presentation of materials.[xxiii]

Provenance and original order are two concepts of central importance for students' ability to conduct successful archival research. In order to frame their research questions effectively in a provenance-based system of arrangement, they need to begin by considering who would have recorded the information they are searching for; or, who would have performed the function that is being inquired into. Malkmus points to two major benefits of these concepts for researchers' external critical thinking about primary sources: creators and context. Because of the centrality of provenance to the search process, there can generally be little doubt about who created a record or document. Students' understanding of the principle of original order leads to improved contextualization of archival materials. Provenance and original order are thus essential not only in the archival search process, but also significant in the correct interpretation of materials.[xxiv]

In addition to general archival concepts, archival intelligence's dimension 1) includes knowledge of basic practices and procedures. These include rules guarding the security of materials, handling of materials, and how to request materials. As noted above, each of these practices and procedures can constitute an affective barrier for users. Archival practices about security and handling can be easily misunderstood by researchers as evidence that the archivist distrusts them. Yakel argues that the instructional objective here should be the removal of practices and procedures from users' deliberate thinking—that is, if practices and procedures are

internalized and habitual, then users' thinking can be devoted more completely to searching strategies.

A final aspect of dimension 1) is users' self-knowledge and ability to assess archivists' knowledge on the topic of their research. Expert researchers are capable of self-evaluating their research. They can determine when they have found the answers to their questions and when they require still more information. For example, a key question an proficient researcher might ask himself is: "Have I considered all of the possible individuals or organizations that could have created the documents or recorded the information that I am looking for?" Expert researchers are also able to ascertain when and how the reference archivist can help them, especially during a reference interview. Reference interviews are the only aspect of dimension 1) that cannot be addressed in archivist-instructor collaborative lessons. Familiarity with the interpersonal skills needed in these circumstances comes primarily from experience, not instruction. However, the process of strengthening students' self-knowledge during archival research is part of the archivist's instructional task.[xxv]

Dimension 2) of Yakel's archival intelligence concerns a researcher's proficiency in developing a searching strategy. Building a searching strategy requires users to understand the major concepts of arrangement, provenance and original order. The user needs to translate his research question into a query that matches archives' unique organization. This can be a difficult

task given most researchers' previous experience in subject-organized libraries. They need to

become comfortable thinking in terms of who might have recorded the information they need.

What was happening when the needed information might have been recorded? Why might the

information have been recorded? When might it have been recorded? Expert archival users arrive

at a new repository for research with a prepared search strategy. In this way they are able to

establish, according to Yakel, "a modicum of control over the environment and independence

from the reference archivist." Despite their grounding in common principles, archives vary

widely enough in the organization of their holdings (due in part to varying material types) that

even experienced researchers sometimes become apprehensive in a new repository.[xxvi]

Dimension 3) of archival intelligence is about "intellective" skills, or a researcher's grasp

of the tools for intellectual access that archivists create. It involves recognition of how

descriptive tools represent or does not represent archival materials. Researchers proficient in

these skills are able to determine from descriptive tools whether a certain collection or part of a

collection deserves closer examination. This dimension requires that users be familiar with

multiple finding aid types, from descriptive inventories to indexes, from online subject guides to

MARC records. It also encompasses the complex topic of how online and offline finding aids

can describe both digital and analog records. The complexity added to intellective skills by

online finding aids (and the expectations of users accustomed to online information-seeking)

compels the archivist to carefully consider how this dimension of archival intelligence can be effectively taught.

While the principles governing the arrangement of archives are simple, archivists' descriptions are more complex. Archivists utilize a wide variety of finding aids to describe and provide intellectual access to materials. Intellective skills require an understanding of how each finding aid type is related to collections. Multiple finding aids types can describe a single collection that is arranged on the principles of provenance and original order. This fact is beneficial for the learning of these two concepts of archival arrangement. Educational research in cognitive science demonstrates that "teachers must teach some subject matter in depth, providing many examples in which the same concept is at work and providing a firm foundation of factual knowledge." Examining a collection from the perspectives of multiple finding aids should facilitate conceptual comprehension of its arrangement.[xxvii]

Archivists have expanded access to their collections by placing an ever-growing number of finding aids online. This tactic has made access more convenient for some users and more confusing for others. The confusion stems partly from the misguided expectations of online archive users, and partly from a failure to understand the specialized language of archival descriptions. Some online researchers are bewildered when they find out that not all archival materials have been digitized and are hyperlinked to online finding aids. Others are sometimes

unable to distinguish between finding aids and original archival materials. Some of these

misunderstandings are due to the fact that since so much information is now available online,

some users expect all archival information to be accessible in this way as well. Archivists are

culpable for some of these false impressions. For example, some databases give the option of

searching the "full text" of finding aids. In most other online information contexts, "full text"

does not refer to descriptions, but to the document itself. Archivists teaching research skills to

undergraduates first need to establish the basic need for archivists to generate descriptions that

make archival materials accessible, then progress into an examination of the ways that this can

be done.[xxviii]

Proficient intellective skills depend on proficiency in archival language. Terms such as

"finding aid" and "series" are essential for a user's evaluation of whether a particular collection

meets his information needs or not. Yakel argues that facility with what she calls archival

"jargon" indicates a researcher's mastery of dimension 1)'s archival concepts. But she found that

many archival researchers, even experienced users, do not understand even basics terms like

"finding aid." Misunderstandings range from believing that a finding aid is a staff person who

helps researchers, to believing that it is a tool for searching all of a repository's collections. Some

archivists have responded to this confusion by replacing overly technical terms with others that

they believe are user-friendly. But this is a mistaken tactic that can result in an even more

confusing multiplicity of terms, making it hard to apply archival intelligence across multiple

repositories. Rather, education of new archival researchers, as undergraduates or earlier, in

settings where archival language and concepts can be applied to actual research problems is a

better approach. This is the approach argued for below.[xxix]

The dimensions of archival intelligence, including 1) archival theory, procedures, and

practices, 2) searching strategies, and 3) intellective skills, have been outlined above. This paper

has mostly followed Yakel's original research and thought on the topic, supplementing it

occasionally with the insights of other archivists. But there are two qualifications that need to be

made in this paper. First, while archival intelligence requires knowledge of abstract concepts

such as provenance and original order, undergraduate researchers are in need of significant

pragmatic guidance in step-by-step procedures as well. This guidance will be one topic in the

application of educational research to collaborative archival instruction below. Second, Yakel's

dimension 2) reference interview skills are excluded from the learning objectives considered

below. Such interpersonal skills come primarily from experience, not instruction. It may be

useful for archivists to think of reference interviews as opportunities to continue teaching

archival intelligence in the future after the collaborative instruction has ended.

The outline of archival intelligence above can be easily condensed into learning

objectives for a collaborative undergraduate research project between academic archivists and

instructors. The remainder of this paper will examine the ways in which current educational

research and practices provide guidance for how these objectives can be effectively taught.

Several examples will be provided of how some archivists have already applied these ideas.

Archivists should also take note of similar instructional objectives that confront academic

librarians in their teaching of information literacy—and how librarians' instructional practices

are progressing. The analysis below will supply archivists with some of the ideas and practices

that they require in order to take advantage of current educational research in their archival

research instruction.

Lesson Plans

University and college archivists teaching archival intelligence should create structured

lesson plans with distinct learning objectives. With an average of one to two hours spent with

each undergraduate class, careful consideration should be given to what the lesson's goals are

and how they can be efficiently achieved. In addition to the cultivation of good time

management, writing a formal lesson plan compels the archivist to consider the basic steps that

educational theorists believe are requisite for students' learning. Fewer than ten percent of

archivists have any formal education in pedagogy, having learned how to teach primarily through

individual study and other teaching experiences. Surveys conducted by Krause demonstrate that

archivists preparing to teach archival research skills tend to focus more on the content of their

teaching than on their delivery. Time management, learning objective, and pedagogical methods

can all be improved by an archivist's preparation of a lesson plan before teaching undergraduate

students.[xxx]

The preparation of a lesson plan requires basic familiarity with various approaches to

what educational theorists call "instructional technology." Instructional technology is a

"systematic way of designing, carrying out, and evaluating the process of learning and teaching."

There are many lesson plan prototypes available for instructors to build their plans on. But all

effective prototypes have certain features in common. All prototypes have learning objectives

(including the communication of these to students), the introduction of new information or skills

to students, activities for students to exercise or practice their new knowledge or skills, and some

type of assessment or evaluation of students' learning. Plans written within the parameters set by

these essential elements permit the instructor to utilize a wide range of constructivist, active

learning, and multiple intelligence-guided methods. Many of these methods will be applied

below to the teaching of archival intelligence.

The process of writing a lesson plan not only ensures that essential instructional elements

are included, but also requires the instructor to carefully consider the effectiveness of learning

activities and how they align with lesson objectives. Bruce R. Ledford argues in his primer on

instructional design that instructors who fail to use lesson plans produce "learning activities

[that] are usually limited, inappropriate, or lacking in proper depth and focus." The failure to use

a lesson plan results in an "inefficient" lesson. Inefficiency in instruction is not a luxury that

archivists can afford, given the limited instructional time available to them.[xxxi]

Constructivism

Constructivism is a psychological theory of how people acquire new knowledge. People

"construct" new knowledge on the basis of what they already know. The theory has several

historical roots, being found in the ideas of John Dewey, Jean Piaget, and Leon Vygotsky.

Educational psychologists John D. Bransford, Ann L. Brown, and Rodney R. Cocking explain

that people approach learning with a set of incomplete, naïve, and false beliefs. Educators begin

by recognizing these incorrect beliefs, but then guide learners in activities designed for them to

construct new knowledge for themselves. Learning on the constructivist model is a student-

centered process of discovery. Bransford and his collaborators sum up the importance for

educators to understand the constructivist approach: "if students' initial ideas and beliefs are

ignored, the understandings they develop can be very different from what the teacher

intends."[xxxii]

It is critical that archivists teaching archival intelligence to undergraduates account for the constructivist approach to learning. Most undergraduates arrive in the archives with a set of vague assumptions about archival materials, organization, procedures, and practices. In many instances, these assumptions are largely based on their knowledge of libraries and the belief that archives are similar to libraries. The comparison comes naturally. Yakel's archival user studies have produced much evidence that new archives users initially frame their research strategy as if they were in a library—e.g., by hoping to search for materials by subject. Some users compare finding aids to card and online library catalogs.[xxxiii]

A constructivist approach to archival intelligence accounts for misguided expectations that online users bring to both digitized archival descriptions and digital archives. Malkmus observes the "disjuncture between the 'instant information' environment of the Web and the need for critical analysis of sources." Studies of information seeking online behavior show that if given the option between two methods, browsing through subject headings or typing a keyword in a search box, users prefer the keyword search. Similarly, in the online archival information context, Christopher J. Prom's research shows that novice users' first preference is a keyword search, regardless of whether the search is for descriptive or original (digital or digitized) materials. In fact, novice users are often unable to distinguish between archival materials and their representative descriptions in an online environment. Some believe that online finding aids

will ultimately guide them through hyperlinks to a digitized archival record. Alternatively, Prom

finds that expert online archival researchers browse "through the collection as a whole, often

reading the scope and content note or the narrative series descriptions."[xxxiv]

If archival intelligence is to be successfully taught to undergraduate students, archivists

must both build on and correct the knowledge that students already have about archives. But

what *do* students already know about archives? One method of discovering students' existing

archival knowledge is to begin the lesson with a five-minute class discussion during which

students have the opportunity to share the knowledge of archives they bring to the class. The

archivist will carefully set a tone of openness to student expression and thought that is so vital to

a constructivist approach—students need to feel free to share their pre-existing knowledge. Some

students take pride in their researching skills, even if they apply mostly to libraries. The archivist

has an important opportunity here for building students' confidence by affirming the archival

knowledge, however small it may be, that they already have. Most importantly, the archivist

takes away from this activity an understanding of misconceptions about archives that he should

focus on guiding students to correct.[xxxv]

Individual students approach the archivist-instructor collaborative lesson with not only

varying levels of pre-existing archival intelligence, but varying subject knowledge. Prior subject

knowledge is closely related to a student's level of curiosity in that subject. In a sense, a person

has to have some knowledge on a subject before he can have unanswered questions about it. If the archivist chooses not to account for students' prior subject knowledge and interests, then he risks not fully engaging them. Alternatively, a constructivist lesson plan would allow students some level of personal choice about what archival materials they would handle during the lesson or project's exercises or research. This would produce a higher level of student interest.

   The allowance to students of some choices in their learning is not only rooted in constructivism, but is also the basis for inquiry-based instruction. In this instructional model, students are permitted to pursue their own line of inquiry so long as it meets the guidelines set by the instructor. The archivist in collaboration with the instructor can arrange these guidelines and parameters to ensure that both archival intelligence and course content knowledge are utilized during the student's inquiry. When students visit the archives to learn about archival intelligence, the archivist could offer an array of materials for students to choose from for their research and lesson exercises. Allowing students research choices leads to higher motivation. The authors of one book on inquiry-based learning passionately argue that, "in the end (and the beginning) it is the raw and vibrant interest and curiosity that we see in very young children that drives learning." Inquiry-based learning and the constructivism it is based on offer to archivists the opportunity of expanding undergraduate students' self-motivation in conducting archival research. [xxxvi]

Active Learning and Archival Intelligence

Active learning is most clearly defined in relation to passive learning, the pedagogical

method that is opposed to it. A lecture with little opportunity provided for teacher-student

interaction is a frequently-cited example of passive learning. A passive learner is thought to take

in or memorize information with little modification or engagement with it. Active learning

involves significant engagement of students with the material to be learned through reading,

writing, reflection, interaction with teachers and classmates, and the practicing of skills. The

educational philosopher John Dewey was a prominent early advocate for active learning.

Inquiry-based learning and cooperative learning are both types of active learning. This section of

the paper will apply the inquiry-based variety of active learning to the teaching of archival

intelligence, with the subsequent section on the theory of multiple intelligences addressing

cooperative learning.[xxxvii]

One argument given in defense of the lecture method of teaching with little student

interaction is that more material can be "covered." Some instructors faced with a demanding

curriculum and a limited time to teach it in respond by reluctantly expanding the percentage of

the course or class taken up by lectures. Active learning techniques, such as hands-on activities,

often require a greater amount of lesson time to teach an objective. But, ironically, the results of

research in cognitive science have shown that students tend to retain less knowledge from passive lectures than they do from active learning methods. Wendy Duff confirms this conclusion in the case of archival intelligence instruction, quoting a student who just completed a lecture-style archival orientation: "You did a fine job, but it did not stick in my mind." Therefore, what seems on one view to be more subject coverage accomplished by a lecture actually translates to less knowledge retention than active learning methods. Consequently, Bransford and his collaborators argue that "superficial coverage of all topics in a subject area must be replaced with in-depth coverage of fewer topics that allows key concepts in that discipline to be understood."[xxxviii]

There are many ways to use active learning in the teaching of archival intelligence. Short exercises for students that practice the use of a recently introduced archival concept or finding aid allow the student to engage with ideas and tools and through first-hand experience build a more solid foundation for their knowledge. For example, after learning from a short lecture about the representation of an archival collection through MARC records, students might be asked to locate in the MARC record five "external" facts about the collection that help to establish the context in which the records were created.[xxxix]

A more extended approach involves posing problems for students to resolve through research in the archives. Gerencser and Triller use this approach in their historical methodology

class. For one of their lesson exercises, they craft research questions that are designed to

illustrate selected concepts of archival organization. Students are asked to use Dickinson's

archival finding aids and materials to find answers to the questions. For example, they pose the

problem of how several reliable secondary sources cite variant birthdates for John Dickinson, the

founder of the college. Even though students are permitted to request any materials in the

archives to resolve the problems, Gerencser and Triller have a general awareness of which

collections and series can answer their questions. They prepare the relevant boxes ahead of time

and hold them out of sight. This active learning method compels students to make use of their

newly learned information about archival organization and searching strategies.[xl]

Teaching Archival Intelligence to Multiple Intelligences

The theory of multiple intelligences began as a reaction in the early 1980s to traditional

intelligence assessments. Psychologist Howard Gardner argued that human intelligence is based

on a capacity for solving problems and on the ability to resolve problems in a naturalistic, as

opposed to an artificial learning, context. [xli] He categorized human intelligence into eight

categories:

Table 1: Teaching to Multiple Intelligences[xlii]		
Intelligence	Description	Teaching Activities
Linguistic	Sensitivity to the sounds, structure, meanings, and functions of words and	lectures, discussions

	language	
Logical-mathematical	Sensitivity to, and capacity to discern, logical or numerical patterns; ability to handle long chains of reasoning	problem solving, critical thinking
Spatial	Capacity to perceive the visual-spatial world accurately and to perform transformations on one's initial perceptions	visual presentations, mind-mapping, metaphor, visualization
Bodily-kinesthetic	Ability to control one's body movements and to handle objects skillfully	hands-on learning, tactile activities
Musical	Ability to produce and appreciate rhythm, pitch, and timbre; appreciation of the forms of musical expressiveness	using songs that teach
Interpersonal	Capacity to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people	cooperative learning, peer tutoring, simulations
Intrapersonal	Access to one's "feeling" life and the ability to discriminate among one's emotions; knowledge of one's own strengths and weaknesses	individualized instruction, independent study, options in course of study
Naturalist	Expertise in distinguishing among members of a species; recognizing the existence of other neighboring species; and charting out the relations, formally or informally, among several species	nature study, ecological awareness

Individual people possess all eight intelligences to some degree. But each intelligence exists in greater or lesser degrees, in highly developed or underdeveloped states, in each person. A highly developed intelligence in a person can provide clues for an instructor about the most ideal methods for teaching new knowledge and skills to him. The fact that a single person can have more than one intelligence to a high degree (and that a classroom of students therefore contains a complex interplay of strong and weak intelligences) has important implications for teaching

methods. Instructors should attempt to diversify their methods in order to address all eight

intelligences and the modes of learning following from them.[xliii]

Despite the similarity of terms, archival intelligence cannot be conceived of in terms

commensurate with Gardner's multiple intelligences. Gardner's intelligences each meet a strict

set of scientific criteria and are meant to apply universally to all humans. They are descriptive

categories by which all human intelligence can be classified. For example, if the theory is true,

there should be examples of savants or people with brain injuries for whom a particular

intelligence exists in an isolated state of extreme development.[xliv]

Archival intelligence, on the other hand, is the product of Yakel's analysis of the skills

and knowledge necessary for conducting effective archival research. She unifies the requisite

archival skills and knowledge under the term "intelligence." But her use of the term is entirely

different from Gardner's. It is more prescriptive than descriptive. Still, one can legitimately ask

the question of how the skills and knowledge referenced by archival intelligence are related to

Gardner's multiple intelligences. How can instruction in archival intelligence capitalize on the

strengths of undergraduate students who possess these intelligences to a high degree? That is the

question that this section undertakes to answer. In the discussion below, when I refer to a student

as having a particular intelligence, I am referring to a student with that intelligence in a highly

developed state. I do not mean to imply in an absolute sense that some people have a particular

intelligence and others do not. As has already been said, each person has all eight intelligences in *some* degree.

Archival intelligence is related to some of Gardner's intelligences more than others. For example, the abilities to categorize and classify ideas and objects are usually included in descriptions of logical-mathematical intelligence. Learning the concepts of provenance and original order and how to manipulate them during research probably comes more easily to a person with logical-mathematical intelligence. Despite this close relationship, an archivist teaching archival intelligence to undergraduates should attempt to diversify his instruction as much as possible to meet the learning strengths of his students, among whom all of the intelligence types are likely to be represented in a developed state.[xlv]

Archivists have a natural advantage in diversifying their instruction to meet the learning styles of multiple intelligences. Academic archives and special collections generally contain materials in a wide range of media formats and on many subjects. Archivists can use a variety of formats to illustrate archival concepts during short lectures (lectures appeal to those with linguistic intelligence) and student exercises. Archivists and instructors can design research projects for which primary sources are available in multiple formats for students to choose from. Textual documents appeal to those with linguistic intelligence. Students with spatial intelligence have a preference for materials requiring visual interpretation, such as videos or photographs.

Perhaps materials with musical features could be worked into some projects for those with musical intelligence. The same possibility exists for materials on the topics of nature, the environment, and animals—all of which would appeal to a person with naturalist intelligence. Clearly not all multiple intelligences could be addressed in most single instructional sessions, but archivists can make a general effort to design their lessons with an eye toward appealing to as many intelligence types as possible.
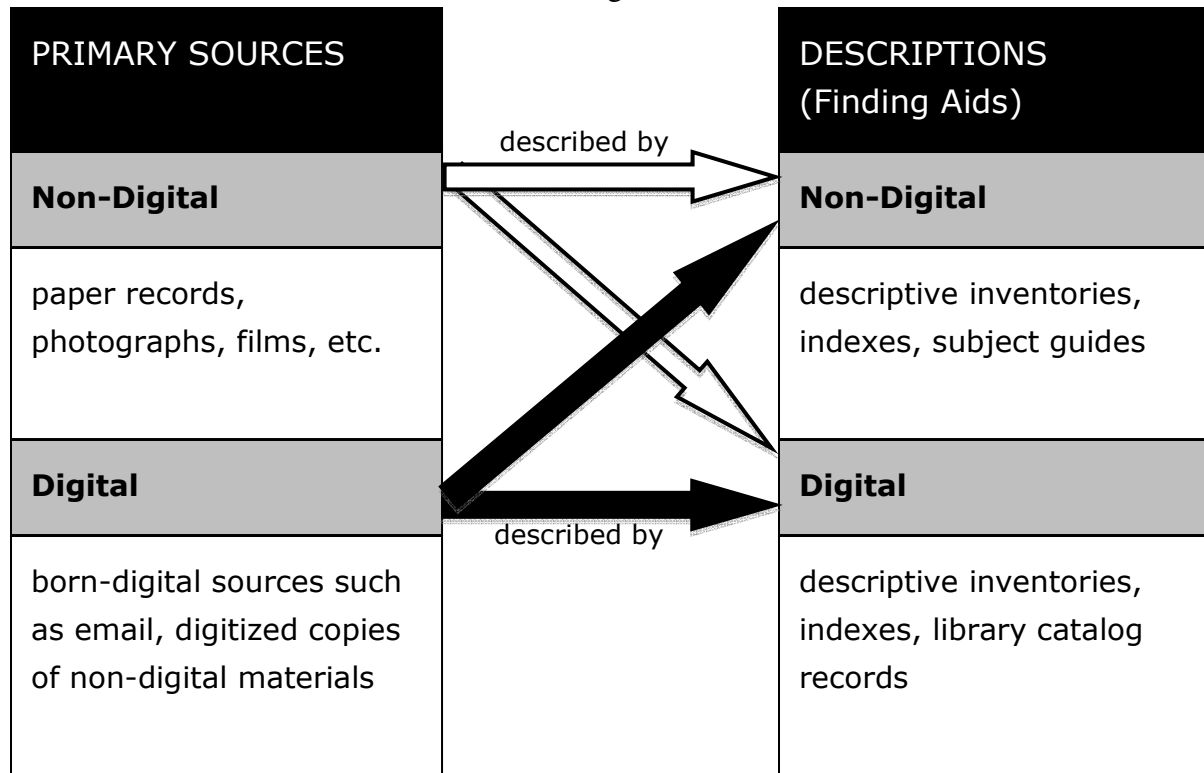
Another natural advantage for archivists is the fascination that many students have with handling original artifacts from history. This fascination is heightened for students with bodily-kinesthetic intelligence, whose learning is heightened by touching and handling objects. But instruction for this intelligence type need not always involve movement or hands-on activity directly tied to learning objectives. Simply asking students to stand up and shift locations in the room periodically, perhaps to join a group exercise, can improve the ability of a person with bodily-kinesthetic intelligence to concentrate on the material to be learned.[xlvi]

Repository tours are another excellent method for teaching archival intelligence, particularly archival organization and intellective skills. By observing the magnitude of archival materials in conjunction with finding aids in print, students can generate a more accurate sense of their relationships to one another. Tours provide a combination of physical movement and learning that is ideal for both bodily-kinesthetic and spatial intelligences. The physical

organization of the archives becomes more clearly evident. One novice researcher questioned by

Yakel and Torres commented on the usefulness of tours for intellective skills: "when I got there,

I saw them [finding aids] all on a book shelf about this size. That helped too, just to be able to

see how big is this that whatever I saw online… was exactly what I was seeing in front of

me."[xlvii]

Graphic charts constitute another effective method of teaching intellective skills to

students with spatial intelligence. Such charts could present a visual contrast between records or

manuscripts on the one hand and the various descriptions or finding aids on the other. The

complexities added by digital and digitized records and finding aids could also be graphically

represented. Such charts may not be able to self-evidently stand on their own without the

archivist's explanation, but once understood, graphic charts could be a useful way for students to

distinguish between archival materials and their many representations in finding aids. One

example of a graphic chart for building intellective skills is Figure 1 below.

Figure 1

PRIMARY SOURCES		DESCRIPTIONS (Finding Aids)
Non-Digital	described by	**Non-Digital**
paper records, photographs, films, etc.		descriptive inventories, indexes, subject guides
Digital	described by	**Digital**
born-digital sources such as email, digitized copies of non-digital materials		descriptive inventories, indexes, library catalog records

An appropriate complementary exercise with Figure 1 would be the physical handling by students of both archival materials and finding aids; this would, of course, benefit those with bodily-kinesthetic intelligence. Students could be asked to compare critical external details between the original document and the finding aid corresponding to the collection of which it is a part. Finally, the archivist could present students with digital versions of both the document and finding aid, dispelling any notion that the digital format is the sole province of either archival records or their descriptive finding aids. The graphic chart and the above exercise in handling materials could be the first steps in building intellective skills in students with bodily-kinesthetic and spatial intelligences.

Cooperative and group learning is another major teaching method for archivists to utilize in archival intelligence instruction. This method appeals to students with interpersonal intelligence who thrive on learning in an interactive social context. Despite cooperative learning's theoretical backing for classroom applications of multiple intelligences and its grounding in broader educational psychology research, it is underutilized by archivists in their current instructional practices. Krause's survey results reveal that group exercises are "rarely or never part of instruction" for more than half of all archivists who teach archival research skills. Only 16.8% of archivists surveyed "always or often" utilize group exercises. As noted for active learning above, some instructors hesitate to use cooperative learning methods because they cannot "cover" as much material. But archivists should consider not only how many aspects of archival intelligence are covered, but also how many of them are retained and internalized by

students. As an effective instructional method for students with interpersonal intelligence, cooperative or group learning should play some role in almost all teaching.[xlviii]

Cooperative learning allows students learning archival intelligence to hear the multiple perspectives of their classmates. This produces in each student a more nuanced understanding of the skill or knowledge under examination. When a student is compelled during group discussion to articulate his understanding or critique, his thinking is usually more active and richer than when he is merely listening passively to new information. This point is accentuated under one model of cooperative learning called reciprocal teaching, in which one student teaches other students a new concept or skill.[xlix]

The teaching of searching strategies (Dimension 2)) becomes more effective by incorporating cooperative learning. In an activity they call "Team of Detectives," Gerencser and Triller give a research problem to each small group of students. Their task is to solve the problem using the Dickinson College Archives and Special Collections' finding aids and archival materials. Through the interplay of students' ideas, the searching strategies employed soon become more complex; each student benefits from the perspectives of his classmates. The research problems can, of course, be crafted to emphasize skills in using one type of finding aid or document; in this way, a spectrum of problems are engaged in by the class. The whole class ultimately benefits if each group is given a chance to share their problem or question and what searching strategies they employed in finding an answer.[l]

A "jigsaw" activity in cooperative learning has each student become an "expert" on a topic, then teach classmates about it. It can be applied to intellective skills and searching strategies by having students examine a variety of finding aids or document

types. The class could be divided into four groups of four students each. Each group would be given one of four different finding aids to examine, discuss, and become "experts" on. The second stage of the activity would be a redistribution of students into new groups, with each new group containing an "expert" on one of the finding aid types. This activity has not only the advantage of each student learning about four types of finding aids, but also knowing one finding aid type well enough to introduce it to other students.[li]

As beneficial as cooperative learning is for students with strong interpersonal intelligence, archivists should not neglect to account for students with intrapersonal intelligence. Students with intrapersonal intelligence need time for individual study and introspection. In practice, archivists should use a combination of methods in their instruction that addresses the needs of both groups. Gerencser and Triller's "Touching the Past" activity combines group and individual instruction. They prepare for the activity by gathering "documents, photographs, and artifacts that represent a wide range of formats, functions, and points of view." One item is distributed to each student. They are asked to inspect their documents to answer a list of basic questions about the context in which the item was created. After several minutes, students are asked pair up with nearby classmates in order to compare and contrast their documents. Finally, they are asked to share their document and their analysis of it with the rest of the class. Gerencser and Triller successfully combine features directed toward the interpersonal and intrapersonal intelligences within this single activity. In general, archivists' goal should be an overall combination of group and individual learning activities in a single lesson or instructional session.[lii]

Archivists should attempt to address as many of Gardner's eight intelligences as they can through their instruction on archival intelligence. While it is true that some archival concepts such as provenance are intrinsically related to the thinking of a person strong in logical-mathematical intelligence, archivists can deliberately craft their teaching to reach all or most of the eight intelligences. It is important for archivists to remember that all eight intelligences are present in the classes they teach.

Assessment of the Learning of Archival Intelligence

An indispensable part of each lesson on archival intelligence should be some type of assessment or evaluation of the new skills and knowledge acquired by students. Whether intended for the improvement of students' self-knowledge or the archivist's instructional practices, assessment in these circumstances is primarily of the formative, not summative, type. Any type of examination or quiz to assess students' archival intelligence would seem out of place in a collaborative archivist-instructor session in the archives. Archival intelligence is not an end in itself. It is one of the means by which better research products are realized. The proof of archival intelligence is not in an exam, but in the research product itself. In her study of archival orientation sessions at Yale, Duff undertook this type of research product assessment. She found that three out of four instructors reported an increased number of archival citations in their students' work following the orientations. An evaluation of students' research product is the closest to a summative evaluation that can be achieved in this context.[liii]

Students should be provided with time to reflect on their learning, evaluating what they have learned and where they still need improvement. This self-evaluation is what

Bransford et al. call "metacognition." They posit that "a 'metacognitive' approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them." There are many self-assessment activities that can meet this need. For example, students may keep a "KWL" table for self-monitoring during the class. This would be a three-column table with the following headings: 1) What I know about archival research, 2) What I want to know about archival research, and 3) What I learned about archival research. The first two columns are completed at the beginning of the class. The final column is completed during and at the end of the class.[liv]

The metacognitive skills developed during archival intelligence instruction can be transferred to student's actual research processes. Yakel and Torres' dimension 3) of archival intelligence is about self-knowledge in the research process. Proficient researchers evaluate their own research results to determine when they should pursue further information. They evaluate when their knowledge of searching strategies or collection details is not meeting their information needs—thus requiring guidance from a reference archivist.

The effectiveness of the archivist's instructional practices is another major area to be formatively assessed. The data and information gathered from this instructional assessment allows the archivist to modify his lessons to improve students' learning experience. These assessments potentially benefit the whole profession as best practices for teaching archival intelligence could be developed. But Krause reports that only a minority of archivists who teach archival intelligence undertake any formal assessment effort. This will probably change in the future as the pressure from administrators builds

for academic archivists to objectively measure their utility to the academic community, as academic librarians have lately been asked to do.[lv]

Yakel argues for "pinpoint" assessments that could target specific points for improvement in archivists' instruction. But the assessment tools currently available for evaluating archival instruction tend to be less precise than one would hope for. The most widely used assessments are a set of surveys developed by the Archival Metrics Project. These gather the perceptions of archival instruction from both students and collaborating instructors. The surveys address topics such as students and instructors' satisfaction with the instruction, the level of confidence students have in conducting archival research following the instruction, and students' use and citation of archival sources in research. One advantage of the surveys is that archivists can determine the level of archival anxiety present in students. This indicates the likelihood of their continuing to use the archives even after the course ends.

An indirect assessment of archivists' instruction is simply the number of teaching exercises throughout the academic community that utilize the archives and special collections; similarly, the number of repeat collaborations between an instructor and archivist is an indirect indication of the instructor's satisfaction. But none of these assessments, including Archival Metrics, approach Yakel's demand for "pinpoint" evaluations in order for archivists to know what they did or did not teach well. Perhaps the best available way at present for archivists to acquire the feedback with which they can evaluate their instruction is to have colleagues observe their instruction and discuss how it can be improved.[lvi]

Conclusion

The necessity for academic archivists to build their user base beyond their traditional scholarly and administrative groups is increasingly apparent. They are being asked to actively participate in the education of students. Fortunately, many academic archivists have responded by offering archival orientation and research skills classes, often in collaboration with instructors for specific research assignments. However, pedagogy and current educational research are not usually part of the training programs for archivists. This means that academic archivists teaching archival research skills should familiarize themselves with contemporary pedagogical practices in preparing their lessons.

Elizabeth Yakel and Deborah A. Torres analyzed the knowledge and skills required for proficient archival research, summing them up under the term "archival intelligence." This is a good starting point for an archival research curriculum. On the basis of archival intelligence, archivist educators can develop learning objectives for written lesson plans. Writing a lesson plan compels an archivist to carefully consider the teaching methods by which the objectives can be learned. In preparing their lessons, archivists should incorporate the findings of recent educational research and correlative practices. Three major theories and practices are constructivism, active learning, and the theory of multiple intelligences. This paper is an introduction to the ways that these theories can be applied to the teaching of archival intelligence. Adopting these practices will result in increased student engagement and, ultimately, will produce more ongoing and lifelong users of archives. An expanded base of users with archival intelligence will provide support for archives as an important component of the academic community.

This is a prospect that should motivate many archivists to continually develop their

instructional skills.

i Bruce W. Dearstyne, "What is the 'Use' of Archives? A Challenge for the Profession," *American Archivist* 50, no. 1 (Winter, 1987): 83-84; Elsie T. Freeman, "In the Eye of the Beholder: Archives Administration from the User's Point of View," *American Archivist* 47, no. 2 (Spring 1984): 111-123.

ii Ken Osborne, "Archives in the Classroom," *Archivaria* 23 (Winter, 1986-1987): 21; Michelle McCoy, "The Manuscript as Question: Teaching Primary Sources in the Archives--The China Missions Project," *College and Research Libraries* 71, no. 1 (January 2010): 58.

iii The Boyer Commission on Educating Undergraduates in the Research University. "Reinventing Undergraduate Education: A Blueprint for America's Research Universities." (2008): 15-16.

iv It is difficult to determine what the conclusion from this finding should be because the explanation of why older faculty use primary sources less often is unclear. For the survey of college and university history instructors' use of primary sources in their teaching, see Doris J. Malkmus, "Teaching History to Undergraduates with Primary Sources: Survey of Current Practices." *Archival Issues* 31, no. 1 (2007): 26.

v There is an ample selection of examples in the standards to support this interpretation. The "Integration of Knowledge and Ideas" group of standards in the English Language Arts—Reading—Informational Text strand address critical thinking about at all levels of secondary education. Another section in the English Language Arts standards is entitled "Research to Build and Present Knowledge," Common Core State Standards Initiative, "Implementing the Common Core Standards," Common Core State Standards Initiative. http://www.corestandards.org/ (accessed February 24, 2014); Doris J. Malkmus, "Primary Source Research and the Undergraduate: A Transforming Landscape," *Journal of Archival Organization* 6, no. ½ (January 2008): 48.

vi On the incorrectness of the assumption that simple familiarity with primary sources improves archival research skills, see Elizabeth Yakel, "Information Literacy for Primary Sources: Creating a New Paradigm for Archival Researcher Education." *OCLC Systems and Services: International Digital Library Perspectives* 20, no. 2 (2004): 62. Marcus Robyns advocates archival outreach in the form of teaching critical thinking about primary sources. Marcus C. Robyns, "The Archivist as Educator: Integrating Critical Thinking Skills into Historical Research Methods Instruction," *American Archivist* 64, no. 2 (Fall-Winter, 2001): 363-384.

vii Carol A. Senf, "Using the University Archives to Demonstrate Real Research," *Changing English: Studies in Culture and Education* 12, no. 2 (2005): 303; Osborne, "Archives," 17.

viii Barbara Rockenbach, "Archives, Undergraduates, and Inquiry-Based Learning: Case Studies from Yale University Library," *American Archivist* 74, no. 1 (Spring/Summer 2011): 276; Michelle McCoy, "Manuscript", 51.

ix McCoy, "Manuscript," 49-62.

x Rockenbach, "Archives," 297-311. Another example of an instructor-archivist collaborative project, an "anthology" of archival materials related to a course topic, is described in Bianca Falbo, "Teaching from the Archives," *RBM: A Journal of Rare Books, Manuscripts and Cultural Heritage* 1, no. 1 (March 2000): 33-35.

xi Magia G. Krause, "Learning in the Archives: A Report on Instructional Practices," *Journal of Archival Organization* 6, no. 4 (2008): 244-248; Malkmus, "Primary Source Research," 48;

Magia G. Krause, "'It Makes History Alive for them': the Role of Archivists and Special Collections Librarians in Instructing Undergraduates," *The Journal of Academic Librarianship* 36, no. 5 (September 2010): 407; Xiaomu Zhou, "Student Archival Research Activity: An Exploratory Study," *American Archivist* 71, no. 2 (Fall-Winter 2008): 483.

xii James Gerencser and Malinda Triller, "Hands-on Instruction in the Archives: Using Group Activities as an Engaging Way to Teach Undergraduates about Primary Sources," *Journal of the Society of North Carolina Archivists* 6, no. 2 (Winter 2009): 55-66.

xiii Yakel, "Information Literacy," 63; for more on how step-by-step instruction reduces researcher anxiety, see McCoy, "Manuscript," 61; Zhou, "Student Archival Research Activity," 484.

xiv Krause, "Learning," 257; San Diego State Special Collections and University Archives. "Tutorials and Handouts." San Diego State University Library and Information Access. http://library.sdsu.edu/guides/sub2.php?id=336&pg=354 (accessed February 27, 2014);

xv Yakel, "Information Literacy," 63; Doris J. Malkmus, "Teaching History to Undergraduates with Primary Sources: Survey of Current Practices," *Archival Issues* 31, no. 1 (2007): 34.

xvi Bill Tucker, "The flipped classroom," *Education Next* 12, no. 1 (2012): 82-83.

xvii Elizabeth Yakel and Deborah A. Torres, "AI: Archival Intelligence and User Expertise," *American Archivist* 66, No. 1 (Spring-Summer, 2003): 52.

xviii Marcus C. Robyns, "Archivist as Educator," 375-384.

xix Yakel and Torres, "Archival Intelligence," 51-54.

xx Yakel and Torres, "Archival Intelligence," 52. Malkmus makes a similar point in "Primary Source Research," 61. She argues that K-12 teachers are teaching critical thinking about primary sources, but not archival intelligence.

xxi Yakel and Torres, "Archival Intelligence," 77; John D. Bransford, Ann L. Brown, and Rodney R. Cocking, *How People Learn: Brain, Mind, Experience, and School,* Washington, D.C.: National Academies Press, 2000: 17.

xxii Yakel and Torres, "Archival Intelligence," 71; Bransford et al., *How People Learn*, 20.

xxiii Krause, "Learning," 251. Krause's survey of archivists who teach archival research skills was inclusive of all types of archivists, not only academic archivists. Respondents from academic archives and special collections represented 54% of her study group.

xxiv Malkmus, "Primary Source Research," 63.

xxv Yakel and Torres, "Archival Intelligence," 66; McCoy, "Manuscript," 61.

xxvi Yakel, "Information Literacy," 62; Yakel and Torres, "Archival Intelligence," 70.

xxvii Bransford et al., *How People Learn*, 20.

xxviii Christopher J. Prom, "User Interactions with Electronic Finding Aids in a Controlled Setting," *American Archivist* 67 (Fall-Winter 2004): 247; Elizabeth Yakel, "Are Finding Aids Boundary Spanners or Barriers for Users?" *Journal of Archival Organization* 2, no. ½ (2004): 74.

xxix Prom, "User Interactions," 247, 262; Yakel and Torres, "Archival Intelligence," 64.

xxx For the one to two-hour average of instructional time, see Krause, "'It Makes History Alive'", 407; Sherri Berger, Ellen Meltzer, and Lynn Jones, "'The Links in the Chain': Connecting Undergraduates with Primary Source Materials at the University of California," *California Digital Library* (May 1, 2012), escholarship.org/uc/item/5b1044cd, (accessed February 10, 2014); McCoy, "Manuscript," 51.

xxxi Bruce R. Ledford and Phillip J. Sleeman, *Instructional Design: A Primer,* Charlotte, NC: Information Age Publishing, 2007: 2. This book provides an introduction to lesson planning along with several prototypes.

xxxii Gary D. Phye, *Educational Psychology: Handbook of Academic Learning: Construction of Knowledge,* Burlington, MA: Academic Press, 1996; Bransford et al., *How People Learn*, 10.

xxxiii Elizabeth Yakel, "Listening to Users," *Archival Issues* 26, no. 2 (2002): 117-118; Zhou, "Student Archival Research," 491.

xxxiv Malkmus, "Teaching History," 32; Prom, "User Interactions," 247, 251-259.

xxxv Marcia W. Keyser, "Active Learning and Cooperative Learning: Understanding the Difference and Using Both Styles Effectively," *Research Strategies* 17 (2000): 35-44.

xxxvi Barbara Losoff, Caroline Sinkinson, and Elizabeth Newsom, "Special Collections Instruction in the Sciences: A Collaborative Model," Eleanor Mitchell, Peggy Seiden, and Suzy Taraba, eds. *Past or portal? : Enhancing Undergraduate Learning Through Special Collections and Archives*, Chicago: Association of College and Research Libraries, 2012: 140; Virginia S. Lee, David B. Greene, Janice Odom, Ephraim Schechter, and Richard W. Slatta, "What is Inquiry-Guided Learning?" Virginia S. Lee, ed. *Teaching and Learning Through Inquiry: A Guidebook for Institutions and Instructors.* Sterling, VA: Stylus Publishing, 2004: 5.

xxxvii Charles C. Bonwell and James A. Eison, *Active Learning: Creating Excitement in the Classroom,* Washington, D.C.: School of Education and Human Development, George Washington University, 1991; Center for Teaching and Learning, "What Is Active Learning?" University of Minnesota, http://www1.umn.edu/ohr/teachlearn/tutorials/active/what/ (accessed April 13, 2014).

xxxviii Wendy M. Duff and Joan M. Cherry, "Archival Orientation for Undergraduate Students: An Exploratory Study of Impact," *American Archivist* 71, no. 2 (Fall-Winter 2008): 516; Bransford et al., *How People Learn*, 20; Zhou, "Student Archival Research," 484.

xxxix Keyser, "Active Learning," 40.

xl Gerencser and Triller, "Hands-on Instruction," 57, 62-64.

xli Howard Gardner, *Frames of Mind: The Theory of Multiple Intelligences*, New York: Basic Books, 2011: 64.

xlii The table here is a selective combination of two tables found in Thomas Armstrong, *Multiple Intelligences in the Classroom*, Alexandria, VA: Association for Supervision and Curriculum Development, 2009: 10-11, 58-59. The "Description" column contains all quotes of Armstrong. The "Teaching Activities" column is taken from a table on pp. 58-59. I chose to include in my table only those activities I think are relevant to teaching archival intelligence to undergraduate college students.

xliii Armstrong, *Multiple Intelligences*, 15.

xliv Gardner, *Frames*, 63-74.

xlv Armstrong, *Multiple Intelligences*, 6.

xlvi Krause, "'It Makes History Alive,'" 406.

xlvii Yakel and Torres, "Archival Intelligence," 76; Ryan Bean and Linnea M. Anderson, "Teaching Research and Learning Skills with Primary Sources: Three Modules," Eleanor Mitchell, Peggy Seiden, and Suzy Taraba, eds. *Past or portal? : Enhancing Undergraduate Learning Through Special Collections and Archives*, Chicago: Association of College and Research Libraries, 2012: 158.

xlviii Krause, "Learning," 248; Keyser, "Active Learning," 38.

xlix Science Education Resource Center, "Cooperative Learning Techniques," Carleton College, http://serc.carleton.edu/sp/library/cooperative/techniques.html (accessed April 19, 2014)

l Gerencser and Triller, "Hands-on Instruction," 62-64.

li A description of the "jigsaw" and other activities is in Science Education Resource Center, "Cooperative Learning"; a slightly different activity designed for information literacy instruction appears in Keyser, "Active Learning," 38.

lii Gerencser and Triller, "Hands-on Instruction," 58-61.

liii Duff and Cherry, "Archival Orientation," 517.

liv Bransford et al., *How People Learn*, 18; Mark H. Maier and Theodore Panitz, *End on a High Note: Better Endings for Classes and Courses*. n.p.: 1999. *ERIC*, EBSCO*host* (accessed April 20, 2014).

lv Krause, "Learning," 248; Yakel, "Listening," 122-123.

lvi Yakel, "Listening," 119-120; Elizabeth Yakel, Helen Tibbo, Wendy Duff, Ricardo L. Punzalan, Amber L. Cushing, Ayoung Yoon, Joan Cherry, Aprille Cooke McKay, Magia Krause, Morgan Daniels, Kathleen Fear, and Adam Kriesberg, "Archival Metrics: Promoting a Culture of Assessment in Archives and Special Collections," University of Michigan, http://www.archivalmetrics.org/ (accessed April 20, 2014); Rockenbach, "Archives," 277.

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