Leveraging Existing Frameworks to Support Undergraduate Primary Source Research

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This exploratory study aims to improve librarian support for undergraduate users as they find, access, evaluate, and appropriately use primary source materials in their research. By approaching object-based information literacy instruction via the Association of College and Research Libraries' (ACRL) Framework for Information Literacy for Higher Education (Framework), this project will promote use of academic library special collections and archives in ways that reinforce the theoretical approach espoused by that document. Primary source evaluations collected before and after one semester of Framework-based instruction indicate that the concepts identified therein are relevant to and support learning with primary sources.

Primary source research continues to gain recognition for fostering deep learning and student engagement. Faculty across many disciplines as well as academic librarians increasingly incorporate primary sources into their instruction. Large-scale digitization projects, such as the Library of Congress's American Memory, have empowered instructors to connect learners directly with digital surrogates of important primary sources. Institutional archives or special collections are no longer the only means of interacting with primary sources. Nonetheless, physically interacting with primary sources is an active learning opportunity that many undergraduate students have not yet experienced and instructors in diverse disciplines seek to facilitate.

Academic librarians often lack the extensive backgrounds in investigating and analyzing primary source materials that faculty in other disciplines enjoy. Disparate documents and frameworks exist to support primary source document research. For example, the Library of Congress offers a simple "Primary Source Analysis Tool" intended for K-12 grade learners.[1] Similarly, the joint taskforce of ACRL's Rare Books and Manuscripts Section (RBMS) and the Society of American Archivists (SAA) recently finalized their new standard, the *Guidelines for Primary Source Literacy*, which brings together four core ideas and five learning objectives, and the Reference and User Services Association (RUSA) History Section offers "Information Literacy Guidelines and Competencies for Undergraduate History Students."[2] However, generalist and subject librarians have looked to the ACRL *Framework for Information Literacy for Higher Education* (Framework) and *Information Literacy Competency Standards for*

Higher Education (Standards) documents for guidance in planning and assessing undergraduate information literacy instruction.[3] This exploratory study investigates whether the Framework is inclusive and robust enough to support primary source research.

The following describes an exploratory study conducted by two academic librarians, representing both systems and special collections departments, in an undergraduate research methods course at the University of Memphis. The curriculum of this credit-bearing course was structured around the Framework and included instruction for each of the six frames. At the beginning and end of the semester, students participated in a voluntary primary source evaluation. The results of the study are not generalizable due to the small class size. Nonetheless, the qualitative data shows enhanced student understandings of what primary sources are and how they might be evaluated and used. Additionally, rubric analysis of the pre- and postinstruction surveys reveals trends that provide some insight into library instruction with primary sources.

LITERATURE REVIEW

Several studies have highlighted the enhanced learning that primary source research fosters. Archivist Doris Malkmus conducted a survey of how academic historians incorporate primary sources into their instruction and reported that working with these materials has a profound impact on student learning.[4] In 2010, she followed up on that study with an article for academic librarians focusing on the active learning opportunities that these resources afford and discussed the implications for a variety of course settings.[5] Morris, Mykytiuk, and Weiner shift the focus to students and reiterate the importance of archival literacy for history students; noting the lack of standard for archival research competencies at that time, they investigate faculty expectations for archival research.[6]

Archivists Elizabeth Yakel and Deborah A. Torres were among the first to discuss information literacy in relation to primary source research. In 2003, they published "AI: Archival Intelligence and User Expertise," which identifies "domain knowledge, artifactual literacy, and archival intelligence" as the three factors underlying user experience in archives.[7] Yakel subsequently authored a brief article acknowledging the increasingly diverse audience that digitization was creating and made an argument for "defining core knowledge and skill sets that would comprise information literacy for primary sources."[8] In 2008, Yakel, Aprille McKay, Wendy Duff, Joan Cherry, and Helen Tibbo collaborated to introduce Archival Metrics Toolkits, which was designed to facilitate archivist assessment via user-based evaluation.[9] They acknowledged that user-based evaluation in archival settings lagged behind similar processes in libraries and that archives and special collections are unique information settings.

Archivist Peter Carini noted the educational role of archivists through teaching primary sources in his 2009 article.[10] He also advocated for an approach to instruction that embraced information literacy and research methods instead of traditional bibliographic instruction. In his 2016 article, "Information Literacy for Archives and Special Collections: Defining Outcomes," he provides a list of standards created and used at Dartmouth College based on the work of Yakel and Torres.[11] He acknowledges the filing of the Framework and allows that both the Standards and Framework have weaknesses but nonetheless offer direction to librarians. Sarah Horowitz describes how she considered a variety of standards and documents before creating one in-house for a pre- and posttest, as well as adopting the Association of American Colleges and Universities' (AAC&U) rubric for information literacy for a paper analysis.[12]

Archivist Magia Krause investigated the assessment of learning in archival and special collection settings and found that few institutions were actively engaged in assessment.[13] In 2010, she introduced the use of rubrics to assess student learning in these settings. Her rubric included four categories:

- Observation: Were students able to describe the elements of a document, photograph, and finding aid?
- Interpretation/Historical Context: Were students able to find meaning in the sources and place them in a broader historical context?
- Evaluation/Critical Thinking: Were students able to ask questions of the sources regarding their validity, limitations, and strengths?
- Research Skills: Did students have a meaningful awareness of archives, where to locate primary sources, and how to read a basic finding aid?[14]

She noted that these categories would evolve and perhaps become standardized as archivists shared their instructional materials and assessment tools. Archivist and special collections librarians Bahde and Smedberg offer a literature review and discussion of assessment techniques appropriate for these settings, as well as an acknowledgement that instruction librarians have more experience conducting learning assessments.[15]

Eleanor Mitchell, Peggy Seiden, and Suzy Taraba edited a 2012 monograph on using special collections or archives to enrich undergraduate teaching.[16] Most of the chapters were written by archivists or special collections librarians, though students, nonlibrarian faculty, and other librarians also contributed. The chapters present case studies related to specific disciplines, collections, or programs offered to connect undergraduate learners with an institution's unique materials. The book was published before the Framework was written; accordingly, it cites the Standards and not the Framework as the guiding document for assessment and planning purposes.

Despite the documented importance of these unique collections and the opportunities they create to support

learners, there is a lack of literature on how instruction librarians should best integrate primary sources into their instruction. Samuelson and Coker articulate the differences between library instruction in special collections and general library settings and discuss opportunities for collaboration using special collections.[17] Merinda Kaye Hensley, Benjamin P. Murphy, and Ellen D. Swain authored one of the few articles that explicitly connects instruction librarians and their assessment tools to special collections archives. It was written before the Framework and suggests that the Standards are insufficient: "the perfunctory mention of primary sources in the ACRL *Information Literacy Competency Standards for Higher Education* does not sufficiently address how they could be used as a pedagogical tool for information literacy instruction in the archives or special collections environment."[18]

In their chapter on archival literacy in *Teaching with Primary Sources*, Elizabeth Yakel and Doris Malkmus discuss both the Standards and Framework as they relate to primary sources. They acknowledge that although primary sources are not explicitly discussed in the Framework, the nature of the document, and its use of threshold concepts in particular, may be useful in archival settings because it promotes creative approaches to addressing the frames.[19] In a chapter in a monograph written for librarians and not archivists, archivist Ellen Swain describes the collaboration of the Student Life and Culture (SLC) Archives and the rhetoric program at University of Illinois. She suggests that both the Standards and Framework "do not address this type of learning in a meaningful way" and advises readers to instead consult literature written by archivists.[20] Although the literature by and for archivists is incredibly rich on the subject of primary source instruction, this article contends that the recently submitted Framework—written by and for academic librarians—is indeed useful for planning and assessing primary source–focused information literacy instruction.

In order to successfully leverage the Framework in the classroom setting, librarians must invest in their instructional design, delivery, and assessment. The need for a teaching practice that is thoughtful, dynamic, and evidence-based is documented in the Scholarship of Teaching and Learning (SoTL) literature. SoTL invites scholars to show the same curiosity and care for their teaching as their research. In a foreword to the book *Into the Classroom: Developing the Scholarship of Teaching and Learning*, SoTL scholar Lee. S. Shulman provides a definitional quote: SoTL "invites faculty at all these levels to view teaching as serious, intellectual work, ask good questions about their students' learning, seek evidence in their classrooms that can be used to improve practice, and make this work public so that others can critique it, build on it, and contribute to the wider teaching commons."[21] As Shulman confirms, SoTL relies on teachers documenting and sharing their classroom practices so that their peers can interact with and improve the curriculum, methods, and results. It is in this spirit that the article at hand offers a small-scale application of the Framework to conduct primary source research.

METHODS

The authors conducted the study in their Fall 2017 section of Honors Forum (UNHP1100). UNHP 1100 is a required course for incoming honors students at the University of Memphis and is typically comprised of first-semester freshmen. It is a one-credit hour course that meets for fifty-five minutes once a week throughout the semester. Section enrollment is limited to fifteen students; the instructors of the course, who may be academic faculty or appropriately credentialed staff, are selected by the dean of the Honors College based on their proposed course design and curriculum. The authors named their course "Know Your University: Research Skills and Processes in Action" and required students to work with physical primary sources in the University Libraries Special Collections on several occasions.

Drawing on SoTL's terminology, the instructors asked "What Works?" as they began to consider how best to teach undergraduate students about primary source research. A "What Works?" project begins by "seeking evidence about the relative effectiveness of different approaches."[22] In this case, the instructors wanted to generate evidence about the utility of the Framework in teaching primary source analysis. The instructors based all instruction and assessments on the six frames presented in the Framework. Instructors took turns preparing weekly curriculum but frequently consulted each other throughout that process and copresented during class time; the approach was highly collaborative and supportive. The special collections librarian typically opened class with a discussion of a physical primary source from the special collections to pique student interest in the collection, to reinforce the evaluative methods taught throughout the semester, and to highlight the specific frame that would be addressed in that class session.

Students completed a voluntary and ungraded primary source evaluation assessment at the beginning and end of the semester. The special collections librarian selected a manuscript collection with a variety of similar artifacts, primarily letters, and distributed these to students. The assessment instruments, which may be viewed in their entirety in appendixes A and B, included questions related to five of the six frames. Because the primary sources were selected and distributed by the instructors and not found or accessed by the students, the frame Searching as Strategic Exploration was omitted from the survey instrument. Preclass surveys also included demographic questions, which provided useful information to the authors as instructors. The authors' local institutional review board (IRB) approved this study as exempt and all student data was anonymized.

The authors devised a rubric to more systematically approach and analyze changes in student methods for evaluating, explaining, and making use of primary sources. The rubric employed is available in appendix C. Because there were so few students in the section, the authors worked together to analyze and compare student responses. Doing
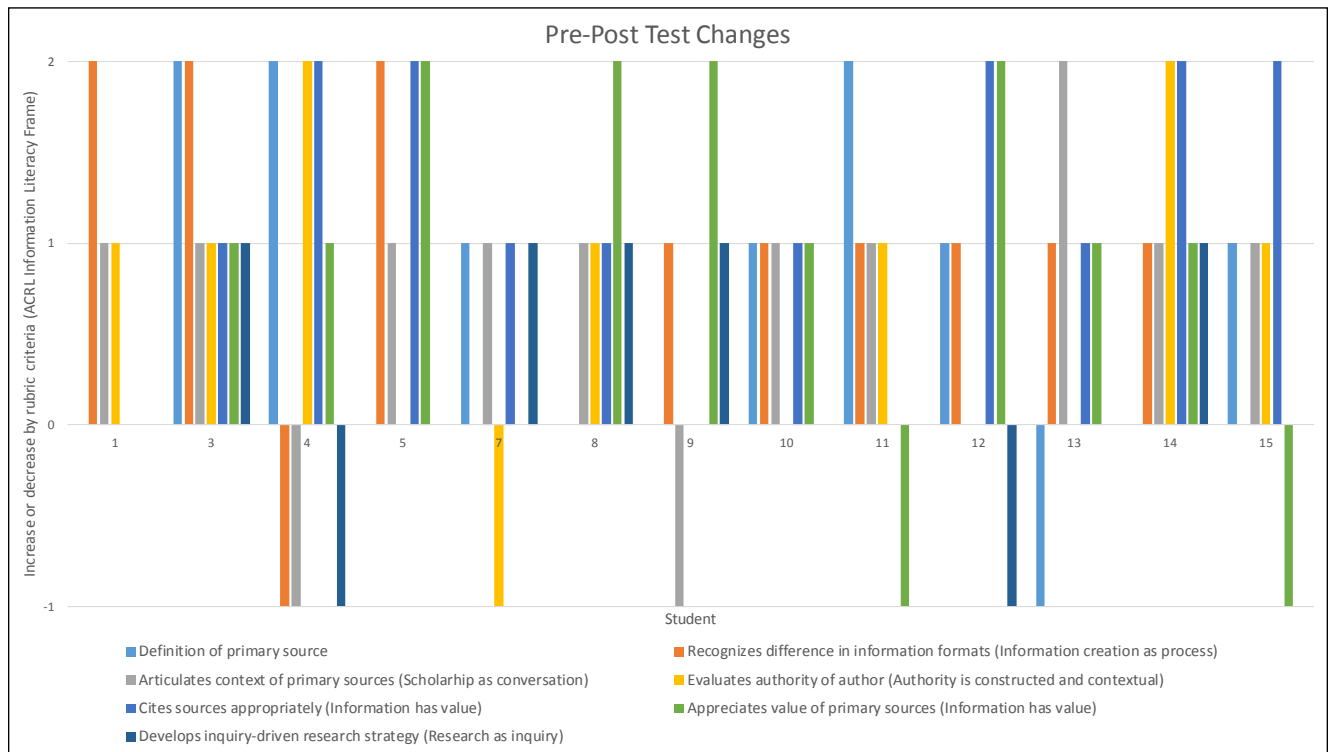
Figure 1. Relative Changes for Each Frame from Pre- to Posttest. Notes: Student 1 did not answer questions 5-7. Students 2 and 6 are not included in this table because they did not take the post-test.

so obviates concerns regarding inter-rater reliability. Results of the scored pre- and posttests are in appendix D.

RESULTS

Fifteen out of fifteen enrolled students submitted pretests, but one of those students dropped the course after the first class and another was absent when the posttest was administered. The pretest survey opened with some demographic questions about the students intended college/school and familiarity with primary sources. Of the fifteen students, all indicated that they had never visited an archive or library special collections. Thirteen indicated that they were familiar with primary sources, but one student qualified the response with "somewhat" and another added, "I'd say I used them without knowledge of the term." Nine students indicated that they have used a primary resource in a presentation or paper, five had not, and one did not answer this question. Students self-identified as representing seven of the colleges or schools, with only one student indicating instead that they were undecided: one student each selected Nursing, University College, and Arts and Sciences; two students each selected Communication and Fine Arts, and Health Studies; three students selected Business and Economics; and four students selected Engineering.

In both the pre- and posttests, students were assigned a primary source, asked to define "primary resource," and

answer several open-ended questions. Student results, as scored by the rubric, were tallied to measure the overall gains or losses for each of the frame-based questions, as well as for individual student progress. Rubric results, available in appendix D, indicate that all individual students experienced an increase in their primary source evaluation score from the beginning to the end of the semester, with scores ranging from plus three to plus nine. Although some individual students and frame-based questions experienced isolated negative changes from pre- to posttest, overall scores were entirely and largely positive (see figure 1). Likewise, all of the frame-based questions received higher scores at the end of the semester, with gains ranging from plus three to plus fifteen (see figure 2).

Five frames and one definition were evaluated in the pre- and posttest. The sixth frame, Searching as Strategic Exploration, was omitted from the pre- and posttest evaluation because the primary sources provided to students were curated by the special collections librarian. The Information has Value frame was evaluated in two ways: through student citations of an assigned primary source and through student answers to an open-ended question about how and when to use a primary source for research. This provided the authors with seven total indicators that could be measured against the rubric.

With the exception of the frame Research as Inquiry, each of the frames saw moderate to significant gains that would indicate that Framework-based instruction may be
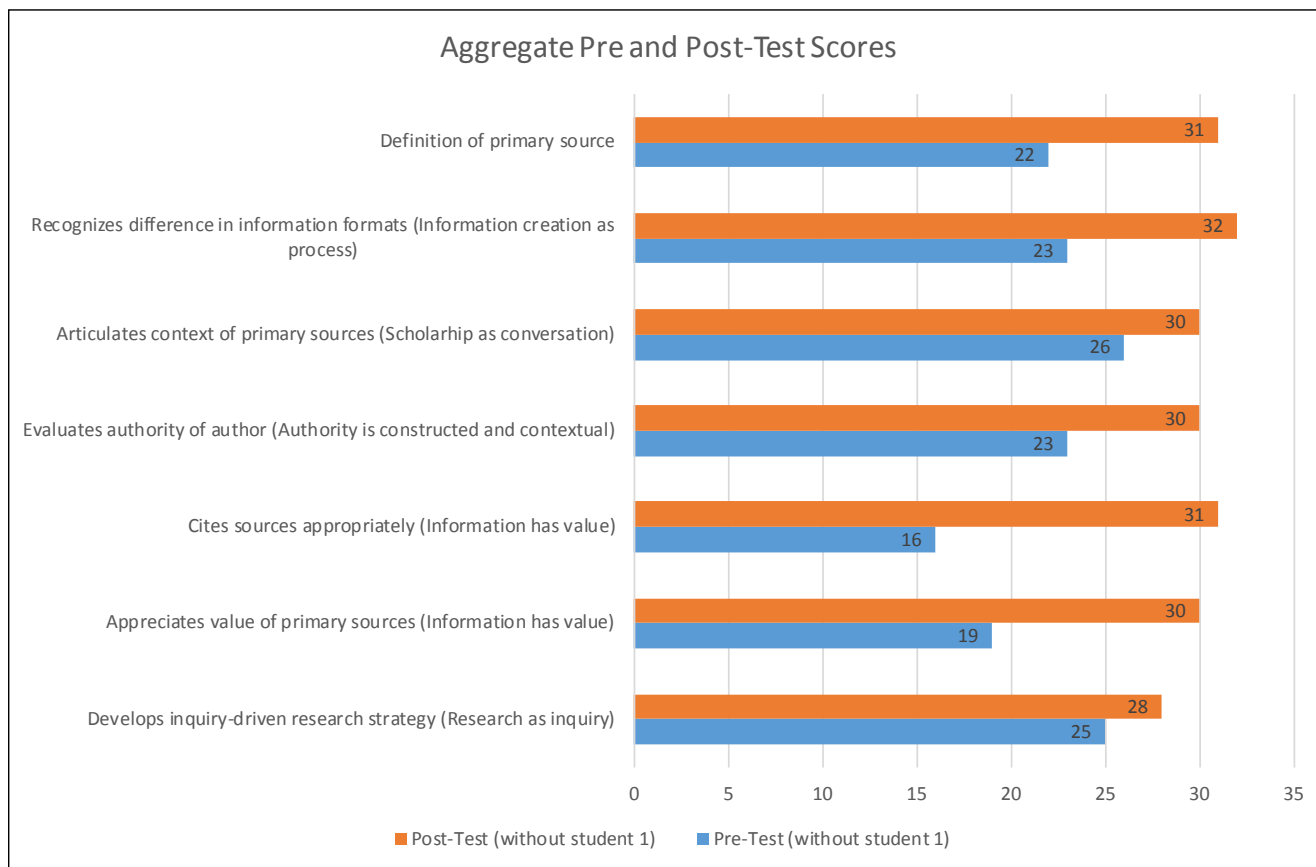
Figure 2. UNHP 1100 Class Outline

useful for teaching undergraduate students about evaluating, understanding, and using primary sources. Those indicators receiving between eight to ten points are designated as having moderate growth. Defining primary sources and questions for the frames Scholarship as a Conversation and Authority is Constructed and Contextual all saw moderate growth. Those frames with scores of eleven or higher are considered as having significant growth. The question for Information Creation as a Process and both questions associated with Information Has Value showed significant growth and are considered most successful in leveraging Framework-based instruction as a tool to teach undergraduates about primary sources.

DISCUSSION

Each class session made use of ACRL's Framework to explicate some aspect of primary source or archival literacy. Students gained hands-on experience with primary sources through workshops and individual research appointments held in special collections. The special collections librarian continued this learning by presenting and leading a discussion of a primary source before most classroom sessions. Reflection essays challenged students to think through

conceptual frames by responding to class discussions and a few open-ended questions in their own words. Diverse classroom activities, such as creating metadata for social media posts and evaluating the networks formed by the sources in a publication, enabled instructors to model some of the knowledge practices in which they engage as researchers and learners. In the following paragraphs, the rubric results for each frame will be contextualized with information about how that frame was discussed in the classroom throughout the semester. Table 1 presents a week-by-week outline of planned instruction. The final three weeks were dedicated to student presentations.

The highest gain was associated with the first Information has Value question. The pre- and posttests asked students to provide a comprehensive citation for the object that they were evaluating. The second Information has Value question asked students to consider how and when they might use a primary source for their own research. The authors requested citations "as if you were using it in a presentation or paper" to provide a useful point of reference for students, who in the authors' experience often lack confidence citing archival and primary sources. Students were encouraged to note all of the information that is available about the source, as well as where it came from, including collection number, information on the item's housing,

Table 1. UNHP 1100 Class Outline

Week	Description
1. Class Introduction	Syllabus distributed and discussed, pretest described and voluntarily completed
2. Introduction to Special Collections	Discussion of content and services available to researchers in Special Collections
3. Searching as Strategic Exploration	Discussion of challenges to finding primary source surrogates online; essay comparing finding primary source surrogates on various platforms assigned
4. Information Creation as a Process	Discussion of the process of digitizing and describing digital sources; social media metadata worksheet assigned
5. Authority Is Constructed and Contextual	Guest lecture: Historian of African-American Women's history discussed her work with primary source analysis, with emphasis on understanding authority; students responded to specific questions about an assigned primary source
6. Primary Source Workshop	Visit Special Collections, analyze physical primary sources in groups; assigned primary source analysis of Special Collections' digitized content
7. Research as Inquiry	Discussion about the questions primary sources prompt and how to answer them; assignment required students to identify research questions and strategy for final
8. Scholarship As Conversation	Discussion of an article that incorporated diverse sources with a focus on the variety of purposes citations serve; essay analysis of students' own interaction with published sources in their own prior work
9. Information Has Value	Guest lecture: Copyright expert discussed protections for digital surrogates and copyright alternatives in digital settings

name of the holding institution, the creator of the item, and a title of the item. Instruction for this frame began in the second class period, in which students visited special collections, filled out a researcher registration form, and learned the standardized language for crediting University of Memphis Special Collections. In the class period dedicated to this frame, the authors invited a copyright expert to give students an overview of copyright and copyleft and discuss how both work within digital collections. His lecture reinforced the importance of providing correct information about the primary source's provenance through bibliographic citation. The students reflected on this frame as they cited primary and secondary sources and all visual materials used in annotated bibliographies, essays, and final projects.

Information Creation as a Process also saw significant growth from pre- to posttests. Classroom activities and discussions introduced students to the digital lifecycle and to some of the challenges of digital preservation. Students reflected on the digital lifecycle by creating a personal digital social media history and practiced creating metadata records that captured social media activity on their preferred platform. Doing so not only helped them appreciate some of the many steps, decisions, and processes entailed in creating, describing, and organizing information, but also appreciate the iterative nature of this work. It also helped them to reflect on the format of the information and the importance of format for content, quality, and stability, which was inquired after in pre- and posttests.

Changes from pre- to posttests indicate moderate growth for the frame Authority is Constructed and Contextual. Instruction for this frame gave students a foundation for what authority is and what it means for authority to be constructed within a given community and contextualized based on the community's information needs. A historian of African-American women was invited to share with the class the processes by which she has investigated the authority of primary sources in her own work. Based on class discussions and qualitative analysis of student responses, it is highly likely that students have had prior experience with the concept of authority prior to this course. Indeed, at University of Memphis, consideration of authority and bias is taught in a lower-level English composition course taken by many honors students as dual-enrollment high school students. Six respondents noted authority or bias in their pretests, and nine respondents noted authority and bias in the posttest. Two different respondents referred to authority and bias without using the words authority or bias. The pre- and posttest results indicate that the students were attempting to integrate these themes into their answers, though some students did so with less success.

Another frame that saw moderate growth was Scholarship as Conversation. Instruction focused on the idea that scholarship is an ongoing conversation within a discipline and is usually exclusive to vetted participants within a specified academic community. This helped develop a dialogue surrounding inclusivity regarding who participates in these communities and the implications of what including more and varied voices can have within a community. Students reflected on this frame by writing an essay in which they evaluated how they "conversed" with the sources cited in one of their previous research papers. The pre- and posttest assessment for this frame asked students when and why an item was created. Throughout the semester, students were

encouraged to think of information not as isolated but rather in the broader context of a conversation. One of the ways the authors modeled this was by thinking out loud about the impetus for the given letter, broadcast transcript, poster, or other primary source we evaluated as a group in the beginning of the class session.

The least amount of growth was tied to the question for Research as Inquiry. The posttest data reflects that some frames saw negative growth between the pre- and the posttest. Negative growth was scattered throughout all of the frames except for the frame Information has Value. The low score for Research as Inquiry is worth mentioning. The assessment for this frame asked students to formulate questions using primary sources and consider how they might answer those questions. Students reflected on this frame by submitting final project proposals that required them to select and cite a primary source in special collections, identify a few questions that the item prompted, and then identify secondary sources that would help them answer the research questions they posed. Inquiry is driven by individual curiosity, and the authors struggled to devise an appropriate measure to assess this frame in this particular context. The importance of this frame was discussed throughout the semester, and the markedly lower score for this particular frame suggests that it was improperly measured.

In their classroom instruction for Searching as a Strategic Exploration, the authors introduced students to a variety of information platforms and asked them to consider why all information is not equally accessible. This led to a discussion about the variety of information formats, digital organization methods, and information description available online. The students completed a reflection essay which asked them to select a topic related to the history of the University of Memphis and then search and compare results from Google, the library's website, and the Internet Archive, on which the university has digital surrogates of primary sources. This was the only frame that was not assessed in the study.

The authors made several observations as they jointly analyzed the pre- and posttests. For example, some answers fell somewhere between the rubric options of "emerging," "developing," or "integrating." The score was typically rounded down, but the authors rounded up if the answer to the question reflected deeper meaning and understanding. The authors considered that adding a variable, potentially a zero or lowest value, would allow more granularity in the evaluation instrument. The authors also came to see that their personal understandings and articulations of primary source research differed slightly from and among some students' equally valid articulations. This recognition ties into an important premise of SoTL, namely teachers must be more than domain experts. Instead, "they need to know the ways it [their subject] can come to be understood, the ways it can be misunderstood, what counts as understanding: they need to know how individuals experience the subject." [23] The authors found the Framework to be an appropriately flexible structure to support curricular learning while still allowing individual students to experience concepts and processes differently.

CONCLUSION

This exploratory study investigated whether ACRL's Framework can be used successfully to support undergraduate primary source research. The Framework enables academic librarians of any specialty to theorize information literacy, but the authors propose that it can also be applied practically in undergraduate settings to teach students to find, understand, and critically evaluate primary sources. Librarians may choose from diverse guidelines and frameworks when teaching various components of primary source research; organizations from the Library of Congress and Society of American Archivists to the Modern Languages Association all provide useful information to librarians assisting undergraduate users with primary source research.

Preliminary findings suggest Framework-based instruction can indeed promote learning with primary sources in undergraduate settings. Analysis of qualitative data reveals moderate growth from the pre- and posttest; five out of seven data points fell into this range. Only one of seven data points did not measure moderate or significant growth. The remaining data point fell into the significant growth category. Although the findings cannot be generalized due to the small class size, SoTL encourages teachers to cultivate their teaching by opening up their practice to the scrutiny and input of their peers. The authors found that Framework-based instruction is a useful pedagogical intervention for this particular class. Instructors and librarians are most familiar with their own institutional contexts and may find that they need other or additional support to teach undergraduate students how best to find, understand, and make use of primary sources in their research.

As faculty and librarians continue to promote undergraduate engagement with primary sources, academic librarians must continue to develop appropriate methods to facilitate this work. As the literature review indicates, there are a wide variety of theoretical frameworks and standards documents from which a librarian may choose when designing or assessing primary source instruction. The Framework is one of many options, and although it does not speak specifically and solely to the evaluation or use of primary sources, neither does it exclude them. Undergraduate research projects challenge students to evaluate and understand information in a variety formats and generated by diverse processes; the authors can recommend the Framework as providing sufficient support to assist these learners as they grapple with complex notions of authorship, authority, format, provenance, and attribution. Academic librarians interested in a theoretical approach to information literacy should feel confident in considering how the Framework can be applied outside of the one-shot or credit-bearing course and with a variety of formats, including primary sources.

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APPENDIX A. PRETEST / PRESEMESTER QUESTIONNAIRE

1. Have you ever visited an archive or special collections library?   Y___   N___
2. Are you familiar with primary resources?
      Y___   N___
3. In your own words, define what a primary resource is (*Please indicate if you are unable to provide a definition.*):
4. Have you ever used a primary resource in a presentation or a paper? (*This can be a digital resource or a physical resource*)   Y___   N___
5. Please mark the college/school from which you hope to earn a degree:
      ___ College of Arts and Sciences
      ___ College of Communication and Fine Arts
      ___ College of Education
      ___ Fogelman College of Business and Economics
      ___ Herff College of Engineering
      ___ Kemmons Wilson School of Hospitality and Resort Management
      ___ Loewenberg College of Nursing
      ___ School of Communication Sciences and Disorders
      ___ School of Health Studies
      ___ School of Public Health
      ___ University College

Please respond to the assigned primary source by answering the following six questions:
   a. What kind of item (newspaper article, diary, yearbook entry, advertisement, etc.) is this? Can you name the collection that the object came from? How does the format type influence how you can use it?
   b. When and why was this item created? Please explain how you came to both conclusions.
   c. Who is responsible for this? Provide a few reasons that the author is an authoritative source.
   d. Provide a citation for this primary source as if you were using it in a presentation or paper.
   e. Would you cite this (or other primary sources) in your research? Please provide a few reasons you would or would not.
   f. After examining the object, what questions can you identify? Please explain or map how you might research one question.

APPENDIX B. POST-TEST

1. On a scale from 1 to 5, please rate your satisfaction with your visits to the Special Collections Department at the McWherter Library.
   Not satisfied   Extremely satisfied
      1   2   3   4   5

2. Based on what you learned during your orientation to the Special Collections Department at the McWherter Library, how confident are you that you can locate and use a primary resource for research?
   Not confident   Extremely confident
      1   2   3   4   5
   Please elaborate on your degree of confidence below.

3. In your own words, define what a primary resource is (*Please indicate if you are unable to provide a definition.*)
4. What did you find most useful about your orientation to the Special Collections Department at the McWherter Library? Please select one option:
      ___ Learning about special collection's holdings/collections
      ___ Viewing and/or handling items from archival collections
      ___ Learning about special collection's policies; i.e., how to request or duplicate items
      ___ Instruction on how to use special collection's access tools
      ___ Other:

Please respond to the assigned primary source by answering the following six questions.

   a. What kind of item (newspaper article, diary, yearbook entry, advertisement, etc.) is this? Can you name the collection that the object came from? How does the format type influence how you can use it?
   b. When and why was this item created? Please explain how you came to both conclusions.
   c. Who is responsible for this? Provide a few reasons that the author is an authoritative source.
   d. Provide a citation for this primary source as if you were using it in a presentation or paper.
   e. Would you cite this (or other primary sources) in your research? Please provide a few reasons you would or would not.
   f. After examining the object, what questions can you identify? Please explain or map how you might research one question.

APPENDIX C. RUBRIC

Code	Criteria & Related Frames	Emerging - 1	Developing - 2	Integrating - 3
Def	Primary Source Definition	Struggles to explain or define primary resources.	Provides a basic definition.	Articulates a definition which demonstrates deep understanding.
A	Recognize differences in information formats and their utility. —*Information Creation as a Process*	Struggles to correctly identify format and cannot identify format implications.	Identifies item format but does not communicate implications of the format.	Identifies item format and communicates implications of the format.
B	Understands and articulates the context of the primary source. —*Scholarship as Conversation*	Does not provide explanations for when/why the item was created.	Attempts to explain when/why an item was created.	Articulates the proposed origination by pointing to textual evidence.
C	Evaluates the authority of the author and/or source. —*Authority Is Constructed and Contextual*	Struggles to identify specific information about the author or source.	Identifies information about the author or source but does not explore the implications of authority.	Engages with the concept of authority.
D	Uses and cites the resource appropriately. —*Information Has Value*	Omits citation elements and makes several citation errors.	Includes most citation elements and makes citation errors.	Includes all citation elements and makes few citation errors.
E	Appreciates the value and importance of the primary sources. —*Information Has Value*	Little or no understanding of how or why primary sources should be used.	Articulates basic appreciation of how primary sources can be used.	Clearly articulates how and why primary sources enrich research.
F	Develops inquiry-driven research strategy —*Research as Inquiry*	Struggles to identify valid questions. Unable to explain research strategy.	Identifies potential research questions but does not attempt to explain strategy.	Successfully identifies one or more questions and attempts to explain or map strategy.

APPENDIX D. RUBRIC RESULTS (*N* = 13)

Student	Definition Pre/Post/ Change	A. Pre/Post/ Change	B. Pre/Post/ Change	C. Pre/Post/ Change	D. Pre/Post/ Change	E. Pre/Post/ Change	F. Pre/Post/ Change	Student Scores
1	2/2/0	1/3/+2	2/3/+1	2/3/+1	3/na/na	1/na/na	3/na/na	Plus 4
3	1/3/+2	1/3/+2	2/3/+1	2/3/+1	2/3/+1	2/3/+1	2/3/+1	Plus 9
4	1/3/+2	2/1/-1	3/2/-1	1/3/+2	1/3/+2	1/2/+1	3/2/-1	Plus 4
5	3/3/0	1/3/+2	2/3/+1	3/3/0	1/3/+2	1/3/+2	2/2/0	Plus 7
7	2/3/+1	3/3/0	2/3/+1	3/2/-1	2/3/+1	2/2/0	2/3/+1	Plus 3
8	2/2/0	3/3/0	2/3/+1	2/3/+1	1/2/+1	1/3/+2	2/3/+1	Plus 6
9	2/2/0	2/3/+1	2/1/-1	2/2/0	1/1/0	1/3/+2	2/3/+1	Plus 3
10	2/3/+1	2/3/+1	1/2/+1	2/2/0	2/3/+1	1/2/+1	2/2/0	Plus 5
11	1/3/+2	2/3/+1	1/2/+1	2/3/+1	2/2/0	3/2/-1	3/3/0	Plus 4
12	2/3/+1	1/2/+1	2/2/0	1/1/0	1/3/+2	1/3/+2	3/2/-1	Plus 5
13	3/2/-1	2/3/+1	1/3/+2	2/2/0	1/2/+1	1/2/+1	1/1/0	Plus 4
14	2/2/0	1/2/+1	2/3/+1	1/3/+2	1/3/+2	2/3/+1	1/2/+1	Plus 8
15	1/2/+1	3/3/0	2/3/+1	2/3/+1	1/3/+2	3/2/-1	2/2/0	Plus 4
Totals/ change	24/33/ +9	24/35/ +11	28/33/ +9	25/33/ +8	19/31/ +15*	20/30/ +11*	28/28/ +3*	

*Student 1 did not complete final three questions of the post-test.