Tools and methods for digital humanities are increasingly implemented into curricula and research in higher-educational institutions. In order to learn about the ways librarians are involved in digital humanities pedagogy and explore their understandings of the skills required to be a digital humanities librarian, semi-structured interviews were conducted with eight librarians at four universities in the Research Triangle Region of North Carolina, which are Duke University, NC State University, the University of North Carolina at Chapel Hill, and North Carolina Central University. This study gives an overview of how the academic libraries at these four universities support digital humanities pedagogy and provides practical experience for academic librarians working in this area and future studies.
DIGITAL HUMANITIES PEDAGOGY IN ACADEMIC LIBRARIES
IN THE RESEARCH TRIANGLE

by
Wuyan Yao

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Approved by

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Ryan Shaw
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1 Introduction

As an emerging field, “digital humanities” (DH) introduces innovative ways of sharing, analyzing, visualizing and thinking about data as information. Though the term is loosely defined, and its boundaries are debated, DH refers to an area of scholarly activity at the intersection of computing or digital technologies and the humanities disciplines (Drucker, 2013). These methods are increasingly implemented into curricula and research in higher-educational institutions. They can stimulate new ways of thinking in interdisciplinary and multidisciplinary fields and can also serve as a teaching tool to explore new content and to support new digital learning initiatives.

Employing DH as a teaching tool, digital humanities pedagogy is often seen in terms of smart classrooms, learning management systems, and enterprise-level software solutions, usually falling under the purview of “classroom technology” (Varner, 2016). In addition to serving as teaching tools, DH as digital skills is also taught to students of STEM majors, as well as those majoring in the humanities who require groundings in digital tools.

Although DH tools produce new opportunities in pedagogy, they also present emerging challenges. Involving multiple disciplines and professionals with different skill sets, DH expertise cannot reside within a single department. Different expertise is distributed across academic departments which do not communicate with each other, but all communicate with librarians. This way, academic libraries and librarians can usually work as a bridge connecting the departments in universities. Nowviskie (2013) proposed
a collaborative team approach with roles for scholars, “technologists”, and librarians. Librarians in the academic libraries, with their own interdisciplinary expertise and connections across campus, are well suited to collaborate and lead the way in DH instruction and engagement (Rosenblum, Devlin, Albin, & Garrison, 2015). Academic libraries with large collections and budgets can afford to focus on the role of DH in their services. Aimed at providing training and instruction of DH expertise as well as offering digital tools and innovative methods for humanities research, digital humanities pedagogy has increasingly been provided in academic libraries to improve students’ information literacy as well as support for the curriculum and research.

As DH assumes a larger role in the academic library, librarians are encountering increasing opportunities and expectations to provide DH instruction as part of their pedagogy relating to information literacy (Mourer, 2017). They must have some pre-existing knowledge and practical resources. Their knowledge and assets are useful for working with their researchers to better connect patrons to resources both within and outside the library for developing DH scholarship or collaborating in creating projects (Lorang & Johnson, 2015). This way, they can better collaborate with the researchers to serve the students.

Previous studies have mainly focused on case studies in a single institution (Mihram, D., & Fletcher, C., 2019). This paper will extend these studies by examining the digital humanities and DH-inflected pedagogy in academic libraries in the Research Triangle Region, which is home to ten colleges and universities, and seven community colleges. The aim of this research is to focus on the three major research universities — Duke University, NC State University, the University of North Carolina at Chapel Hill
(UNC) — and compare them with a non-research university, North Carolina Central University.

The following questions will be considered: How are librarians involved in digital humanities pedagogy? What tools are mainly employed in DH instructions? What kind of skills does a DH librarian need? How to define the term “digital humanities librarian”?

To address these questions, semi-structured interviews with DH librarians at academic libraries in Research Triangle are conducted.
2 Literature Review

2.1 Digital humanities pedagogy as a collaborative practice in universities

There is no defined scope for the discipline of “digital humanities,” which is a wide concept and can refer to scholarly activities in many fields. According to Varner (2016), DH could be studied in terms of several subcategories, including online social networking, text mining, data analysis, data visualization, digital mapping, digital libraries and repositories, digital publishing, and digital pedagogy.

Emerging technologies within DH are increasingly combined into university classrooms. The DH tools employed in instructions are valued for their potential to make routine tasks easier or more efficient. However, as Varner (2016) brought up, the question about how to creatively and critically incorporate technology into assignments in ways that truly enhance students’ engagement and encourage them to confront how technology impacts the work they do has been considered more in cross-discipline conversation among faculty.

Unlike traditional humanities research, DH scholarship is not a solitary affair. It is a collaborative practice taking many digital forms, all concerned with “building” things by creating knowledge collaboratively through the application of humanities computing. This collaborative practice is seen in digital editions and databases, digital toolmaking, crowdsourcing of scholarly projects, the exchange of ideas through social networks, and the creation of on-campus DH workspaces (Iantorno, 2014).
Within the collaborative DH pedagogical team approach proposed by Nowviskie (2013), scholars, technologists, and humanities subject librarians each bring a unique approach: the scholar, along with the content knowledge; the technologist, with the necessary technological skills; and the subject librarian, as well as the overarching understanding of DH research. In a study discussing the pedagogical principles of digital historiography, Sternfeld (2012) addressed an extended field beyond historians which includes archivists, librarians, information specialists, computer scientists, engineers, scientists, and linguists.

2.2 Roles of academic libraries and librarians in digital humanities pedagogy

Librarians can provide the bridge between research scholars and technology specialists in the creation of various types of digital projects and different models of collaboration and throughout all stages of project development (Presnell, Ladd, & Gibson, 2015).

In an effort to integrate DH into classroom instructions and course work, which requires a collaborative team approach, academic libraries have been increasingly involved in DH pedagogy in higher education, and are better positioned than many other departments in the university to contribute to the field.

With multi-discipline academic collections and databases, academic libraries can support DH pedagogy and DH project development by providing academic resources and digital tools. Academic libraries with large budgets can also afford to focus the role of digital humanities in their services. In addition, the use of digital collections and the data-driven nature of DH — its engagement with publishing and dissemination of knowledge, copyright and intellectual property, file formats, metadata and preservation, and
managing and structuring data — are a natural alignment with the goals, activities, and professional expertise of librarians in academic libraries (Rosenblum, Devlin, Albin, & Garrison, 2015).

Other than the resources provided by academic libraries and their convenient connections with other departments, the high-level educational background allows librarians to be professional working in close liaison with different parties within the institutions of higher education in ways that are unexpected from other faculty on campus. Academic librarians work fluidly across fields, departments, and units as specialists to support the academic community in a variety of capacities, such as providing research consultation, teaching research methodology, and assisting in course development. The ability to navigate between these academic spheres proves an invaluable advantage when accommodating an inherently interdisciplinary field of study like digital humanities (Langan & VanDonkelaar, 2015).

In the active participation of academic libraries into DH pedagogy, a subject librarian acts as a translator between the technical and metadata librarians and the scholars working on DH projects. Having a basic understanding of available content management systems or databases, the skills and local resources technologists provide, and the ways all of these can be leveraged to answer a faculty member or student’s research question will lead to more successful collaborations (Presnell, Ladd, & Gibson, 2015). Mourer (2017) provided an elaborate and practical pedagogical path for subject librarians to plan, instruct, and evaluate a course with a significant DH component. Subject librarians can establish a role for utilizing the university’s digital repository as a way to cultivate relationships among researchers (students), faculty from academic
departments, and the library. By communicating with the faculty members and their
library colleagues, the subject librarians can determine how to integrate the DH content
and the digital tool into the instruction. Depending on the needs of the course, they can
also seek support from a Digital Humanities or Digital Scholarship Center on campus or
other potential resources, which can be a libguide, a website, the university repository, an
existing course or workshop, or information technology staff within the library.

Borovisky and McAulay (2015) presented a methodology and rationale for
collaborating with faculty in DH curriculum development and classroom instruction.
Through analysis, they identify two key elements that contribute to the success of a
course. The most important factor is that the subject matter is the central concern of the
course rather than the digital methodology. The second factor is that the course should be
located in the library, both physically and intellectually.

2.3 Skills DH librarians require

As DH assumes a larger role in universities, librarians and other DH specialists on
campus are encountering increasing opportunities and expectations to provide DH
instruction as part of their pedagogy relating to information literacy (Mourer, 2017). They
must have a core of knowledge and practical resources for working with students and
researchers to better connect patrons to resources both within and outside the library for
developing DH scholarship or to collaborate in creating projects (Lorang & Johnson,
2015).

A DH librarian must have an active role in each stage of a project’s life cycle.
Skills such as selection, acquisitions, cataloging, access, preservation, online systems
development, and digitization, “often found in the backrooms of our libraries” (Case,
2008), are crucial to the success of digital humanities projects. Libraries have been identified as resources where faculty and students can learn from librarians and specialists the skills necessary to complete DH projects, such as text encoding, metadata creation, and preservation and long-term sustainability (Green, 2014).

2.4 DH tools being employed in pedagogy

Adeline Koh (2014) described four important types of DH projects in university pedagogy, which are digital mapping, text analysis, multimedia websites/online exhibits, and Wikipedia editing. Varner (2016) took a close look at these four kinds of class projects involving undergraduate students and elaborates on the frequently used tools in these four fields.

As a powerful digital mapping software, Esri’s ArcGIS offers comprehensive functions for users to georeference (which means to relate a scanned map or aerial photograph to geographic coordinates in a geographic information system) and add layers of information to maps, allowing users to explore the social, environmental, economic, and political aspects of a place. However, on the other hand, given its steep learning curve, this tool may be overkill for many DH projects in class assignments. Compared to ArcGIS, lightweight tools like Google Maps, History Pin, CartoDB, and TimeMapper can be more easily incorporated into class assignments. These tools can be useful for both history classes and cultural studies classes. In a mapping project created by Gerry Carlin and Mair Evan, students are assigned to use Google Maps to label places in James Joyce’s *Ulysses* and add information about the places. This assignment could encourage students to dig deeper into the text of the novel as they seek out geographic details and help them understand the city’s spatial relationships to the text (Koh, 2014). Being web
applications that can be freely accessed through Internet browsers, these tools do not require programming skills and deep geography knowledge to interact and work with. Some interesting projects can be created using these tools including mapping important places in a novel, placing historical events on top of contemporary geography, digitally “pinning” and organizing images onto a map and creating virtual tours through places. (Varner, 2016)

The history of text analysis can be traced back to 2000 when Franco Moretti first used the term “distant reading” in his article. Moretti states that distant reading allows scholars to focus on more kinds of units than texts, such as devices, themes, tropes or genres and systems compared to “close reading” which focuses on specific chapters, passages, and sentences in single texts (Moretti, 2000). Some relatively straightforward text analysis research involve simple word counts and frequency comparisons. More complex techniques in this field such as topic modeling, name-entity recognition, or sentiment analysis are also more commonly employed nowadays (Varner, 2016).

Typically, text analysis projects require programing skills, but emerging tools such as Voyant and Mallet are making such techniques more and more accessible by nonprogrammers. Voyant performs basic word counts and simple visualizations, such as word clouds and frequency comparisons, with a very friendly interface. In comparison, Mallet facilitates more elaborate processes including statistical natural language processing, document classification, cluster analysis, information extraction, and topic modeling.

As the World Wide Web provides new and easy ways for people to share information with the rest of the world, more and more instructors in universities use
multimedia websites and online exhibits to present student work. Some instructors incorporate blogs into their courses to encourage students to discuss outside of the classroom, one example being WordPress blog where students can post, comment, and connect to other resources. Other classes have also used tools such as WordPress for digital publication of student assignments. This kind of publication allows students to embed different types of media into their work as well as link to other resources. As a third kind of course-based website assignment, online exhibits are usually seen in history or cultural studies classes. With tools such as Omeka, students are able to work with archives and other primary sources and use them to tell a story. Built around digitized items instead of web pages or blog posts, Omeka is different from other open-source content management systems (CMS) and is good for organizing collections and highlighting individual items within them. This tool asks users to describe each digital item using Dublin Core and then assign them into collections. These items can then be used in exhibits and contextualized with content written by students. Although tools like WordPress and Omeka usually have free versions available, many universities have officially adopted at least one for their community members to use. (Varner, 2016) In addition to the two tools mentioned above, Scalar is another popular open-source DH publishing platform for media-rich projects. (Tracy, 2016)

With the development of Wikipedia, crowdsourced digital encyclopedias are under the growing attention of scholars with their huge content size, ubiquity, and improving trustworthiness (Mesgari, Okoli, Mehti, Nielsen, & Lanamäki, 2015). Though some professors are claiming that they don’t allow their students to cite it as a source,
others have encouraged their students to be editors of Wikipedia. Wikipedia editing therefore has become an innovative form of class projects.

2.5 Experiences of DH pedagogy collaborating with academic libraries

Many scholars have undertaken case studies to observe the collaborating pattern universities use to facilitate DH pedagogy and build effective collaboration between librarians and academic departments.

The Ithaka report *Sustaining the Digital Humanities: Host Institution Support beyond the Startup Phase* outlines three common models found at institutions with established DH programs: service model, lab model, and network model. This report explores how these models are employed to support DH pedagogy on their campuses of four universities. Workshops organized in these universities bring together scholars, technologists, librarians, and administrators from across the campus in a highly decentralized manner. Questions such as “what it means to ‘publish’ or ‘disseminate’ one’s work” are also discussed, and it is suggested by many campus roundtables with library staff and faculty that materials should be posted in a campus repository (Maron & Pickle, 2014).

Case studies have illustrated subject librarians’ roles in digital humanities pedagogy. Mostly their knowledge in humanities subjects can help students identify core resources. Langan and VanDonkelaar (2015) described a case study at WMU where momentum for a centralized DH initiative found its source and purpose in a cohort of vocal graduate students who turned to subject librarians for guidance. Through this unexpected collaboration, subject librarians were able to provide much-needed and
realistic DH learning opportunities for graduate students (Langan & VanDonkelaar, 2015).

In another case study for a course taught at the Research Commons of the UCLA Library, the subject knowledge — Ancient Egypt — was the focus while DH methods were a way to engage the subject matters. Also, both the subject librarians and DH librarians supported the course, where the non-DH librarians contributed a lot in selecting right resources to use and guiding students to do online research (Borovsky & McAulay, 2015).

The 2012 edition of Debates in the Digital Humanities recognized the fact that pedagogy was the "neglected 'stepchild' of digital humanities" partly because grants in the humanities are geared more toward research with quantifiable results rather than teaching innovations, which are harder to measure (Gold, 2012). To better solve the imbalance, case studies for courses taught with DH tools and methods have provided successful samples for instructions in various humanities disciplines.

Among different types of class assignments, the four kinds of DH projects mentioned in the previous section are particularly common and ripe for library collaboration. In course-based website assignments which include many moving parts, librarians can guide faculty through planning the entire life cycle. The Wikipedia Edit-a-thon, having increasingly taken place at educational institutions or been developed as class projects, is an event where people meet to edit and improve Wikipedia focusing on a specific topic. Varner (2016) illustrated several ways how libraries and librarians can be involved in Wikipedia edit-a-thons. Libraries can be perfect venues for the event, especially when the participants are students from different classes. Librarians who are
active Wikipedia editor can show people who are not familiar with the process how it works. In the preparation phase, librarians can help in developing a list of resources the participants may refer to in advance and during the event, librarians can work together with the participants on finding verifiable information that Wikipedia requires (Varner, 2016).
3 Methods

Semi-structured interviews offer the measuring abilities of a structured interview, while allowing for significant flexibility to pursue new topics as needed. As they are able to provide reliable, comparable qualitative data (Cohen, 2006), semi-structured interview methods are well suited to the exploratory nature of this research study.

As persons who play key roles in digital humanities pedagogy occurring in academic libraries, librarians working at university libraries in the Research Triangle Region of North Carolina are in an ideal position to provide valuable first-hand information from their own perspectives. In order to learn about the basic settings and resources for DH instruction in the academic libraries, and to address the question of how librarians provide services to help support DH pedagogy, eight total semi-structured interviews were conducted with library staff employed by four universities in the Research Triangle Region of North Carolina (two participants from each university). These universities included three research universities (Duke, NC State, UNC), and a non-research university (NC Central).

3.1 Recruitment of participants

To identify potential participants for the interviews, the staff directories of each university library were visited to look up the librarian or specialist with the title which seemed most likely to indicate a role in DH work and pedagogy. Other than digital humanities, other terms in the title such as digital scholarship, data visualization, GIS, research and instructional services, may also indicate DH-related pedagogy or work.
Because a person’s work content cannot always be told from their titles, the snowball sampling method was also employed through known contacts to recruit participants known to have experience and knowledge of DH pedagogy.

Once potential participants were identified, they were then contacted by email to see if they would consent to participating in the study. The aim and the subjects of the study was stated in the email (see Appendix A for recruitment script). If they agreed to take part in the study, a time and place was then set up to schedule an interview.

3.2 Interview questions

The interviews centered around ten guiding questions (see Appendix B for guiding questions) to allow for fundamental comparisons on a basic set of themes in information analysis, but interviews ultimately remained open and flexible.

The first question aimed to uncover the subjects’ educational backgrounds and work experience before their current position. The second to sixth questions aimed to learn about ways the subjects are involved in DH pedagogy, tools they employ, and resources the libraries provide to support DH pedagogy. The remaining questions centered around the subjects’ own understanding of the definition and qualification of a librarian involved in DH pedagogy, and the collaboration between librarians and digital humanists from across the campus.

3.3 Information analysis

Interviews were audibly recorded under consent by the participants, and additional notes were taken by the researcher during the meeting. Audio was transcribed after each interview. After multiple reviews of the data gathered, participant responses in the transcripts were then coded based on eight significant themes induced from the

The next section will be organized based on these eight themes.
4 Findings and discussion

The semi-structured interviews provided a detailed picture of how librarians support digital humanities pedagogy and revealed several broad findings related to librarians’ attitude towards digital humanities work happening within academic libraries.

4.1 Ways librarians involved in DH pedagogy

The interviews showed that teaching workshops, visiting classes, and doing consultations with students and faculty are the most common ways that the participants are involved in digital humanities pedagogy. In this section, teaching workshops and visiting classes are categorized together as instruction.

4.1.1 Instruction

Four participants indicated that they teach workshops in the library, and most of the workshops they do are teaching the use of tools that can be utilized in digital humanities work. Participant #3 teaches a series of Python workshops which are open to the entire community. Though they are not explicitly focused on the digital humanities when advertising the workshops to the people in humanities disciplines, the workshops are really focused on textual data and using Python for text analysis. Participant #2 talked about their colleague who developed and ran a series of digital humanities workshops on harvesting data, scouting identity websites, GIS maps, XML text and coding, 360 videos, and so on. “It's sort of the set of things you might expect a digital humanities person to be focusing on,” said Participant #2. Participant #5 sometimes teaches a series of workshops to an internal audience, for example, to the library staff.
Other than teaching the use of technical tools and programming languages, Participant #2 indicated that they sometimes lead workshops on scholarly identity for a humanities class with a digital humanist in the library, where they usually spend an hour or two with the class, talking about ideas, tools and practices. One participant also noted that their colleagues sometimes do workshops on GIS.

Visiting classes is another form in which librarians do pedagogy. Six out of the eight participants give lectures to classes about digital humanities related topics or demonstrate how to use certain digital tools.

Participant #5 goes to classes and does introductory talks about digital humanities on occasion, but more often he does pedagogy based on tools or research approaches in digital humanities, usually about mapping, creating digital archives with tools like Omeka, or doing digital publication on platforms like Scalar, which is generally about a genre of digital scholarship coupled with the tools that can help make that happen. They explained that most of their pedagogical tasks are “co-curricular rather than curricular,” because a lot of the classes they teach are a requirement of RCR, which stands for Responsible Conduct of Research credit for graduate students at Duke. They stated that in the past there were not many RCR sessions that were geared towards people in humanities, so they tried to solve that problem in part by offering digital scholarships and digital humanities RCR sessions.

Participant #2 goes to a class about five to ten times a semester. In terms of the humanities, usually faculty invite them to talk about copyright, authors’ rights, scholarly identity, as well as tools and practices that a humanist particularly uses to build online presence. They also noted that departments like the College of Design are more likely to
care about the copyright issue, while the scholarly identity side has been related to a wide range of people from almost all the academic departments across the campus.

Participant #4 is sometimes invited to classes to talk about project planning in general. Participant #6 often teaches the critical thinking behind a tool, discussing questions such as “why do you use a tool,” “what are its limitations,” and “what does it allow users to do.” Sometimes they also teach ethical issues related to data or research in general, or approaches to finding, retrieving, and using information. Participant #6 indicated that they mostly work with classes from English and Comparative Literature, American Studies, Religious Studies, Jewish Studies, or History.

New to their current position, Participant #3 has not done any instruction yet. But they expect that they will do that kind of work as their colleagues have next semester. They will have sessions on Open Refine and sessions on Tableau.

4.1.2 Consultations

All of the eight participants do consultations on their current position, but their subjects and topics vary from one another.

There is one out of the eight participants who mainly does consultations with students, while five of the participants do consultations either with students or with faculty. One participant does not do any consultations now on their current position, but also shared some experience of the consultations they did on their previous position with faculty and undergraduate students.

Participant #1 usually has students doing their thesis or dissertations ask questions about how to work on those humanities projects. Usually, the students have collected or found some data and may have an idea in mind, but they don't know what tools to use to
make a map or to get a bunch of visualizations out of the data. Following the recommendation of a tool, the next question is always about how to use the tool. Thus, Participant #1 usually meets with students multiple times to first introduce the tool, and then do demonstrations and guide them to use it. Participant #5 mentioned that students need help with work like text analysis, requiring texts, running topic modeling and so on. Participant #8 works with students around identifying the best resources to include in digital humanities projects and suggests digital tools as well.

Four Participants stated that they work with graduate students more frequently than undergraduates. Participant #4 indicated that the questions from graduate students tend to be very specific, such as the best tool to use for a certain project, which require a great deal more tool-specific knowledge or understanding of the method that they are trying to apply:

“With graduate students, they are much more curious, especially if they are earlier on in their career and I think they're learning their methodology simultaneously to try to understand what's possible. (...) We learn a great deal as we are answering and exploring the questions with them.” (Participant #4)

Questions from undergraduate students tend to be more general and usually are driven by the faculty members wanting them to add some digital humanities component to their projects or thesis. With those questions, the librarians’ work is to help them understand what is possible and feasible in both the idea generation and also scoping. Participant #5 also indicated that it is often hard to create a digital humanities project from scratch as an undergraduate student because they are still learning the methods and foundational knowledge of the given discipline, and might not have the “bandwidth” to handle a project. They are often seen on a large project team doing things like chronicle materials as part of their class.
Participant #3 often works with graduate students from different science departments and does consultations that come to them specifically about once a week. They sometimes meet directly with graduate students and a faculty member to talk through different techniques, tools or methods. Sometimes they also work with faculty members to think about how their class might engage with digital humanities and how they would be able to support that. Compared to their previous job in another university, they get a little bit more on the technical side and less range with consultations, mainly from what tools and techniques to use, to helping people who already know what they need to do to write codes.

Their department also provides consultation request forms and has a group of six or seven consultants who are split between the two main libraries on campus, providing data science consulting and technical support for people working on statistical programming. Many of the consultants are from different engineering disciplines or computer science majors, and all of them have some technical skill within Python or R, and machine learning. Students who just have technical questions about tools like R may stop by or walk in to meet with one of the consultants rather than ending up all the way with a librarian.

Different from many of the participants, one participant indicated that they usually work with undergraduate students, who are mostly honor students who study in the University Honors Program of NC Central University. Those students usually need help with their thesis paper specifically, which for honor students is capstone thesis. Because they are quick in their own curriculum, they have to do lots of extra work, which also makes them frequent visitors of this participant. The participant also works with a
few master students who would like to put their research both into the institutional repository and the dictational database. The participant estimated that they receive inquiries once a week, which is not that often because a lot of time, people do not know about the resources the participant’s department has. Also, since the university has some other departments doing digital humanities work, those particular departments may have more inquiries compared to the library.

When asked about the frequency that they receive questions from students, Participant #5 said it is pretty often since the consultations can range from a short conversation after a workshop, to a longer-term partnership on a research project. They indicated that the mentorship with graduate students who actually work in their department is also an important part of the consultation work they do. Their department employs about one to eight graduate student assistants who work with them on digital scholarship projects so that the students can improve their own professional skills in doing DH work and can help other researchers complete their projects. Participant #5 and their colleague meet regularly with each of the student assistants, usually on a weekly basis, to talk through the work they are doing and to help them think strategically and critically about matters of professional development:

“We’ve worked with students on how to parse job descriptions, and thinking through the kinds of skills that they will need as they go on the job market, how to present things out as they apply for certain jobs, especially in libraries, outside of the traditional tenure track.” (Participant #5)

In terms of consultations with faculty, Participant #1 usually helps them when they are looking to do some sort of visualization in their class but without any ideas of what to do, or they do have some ideas but do not know how to do them. They also talked
about their collaboration on doing consultations and helping faculty design class projects with another librarian working on other disciplines:

“So I become sort of teaching them, and they can teach their students. And it's usually to either do a lecture on basic data visualization, or it’s to demonstrate it using tools like Tableau. It’s usually one of those two things. And then I do work with them if they ask, I don’t want to be too pushy (...) If they want them to do an assignment, we’ll talk about different options, things that I’ve seen work well in the past.

Now if it's specifically humanities faculty, then they're going to talk to one of my colleagues more likely than they would talk to me. Usually the faculty that sits down with me is coming from the Social Sciences or Health or Geography. But my colleague, she works with English faculty and History faculty, and when that happens and that faculty wants to use a tool that maybe she's not familiar with, then we’ll combine our efforts, we’ll do a joint consultation together and talk about what we can do in the class. She has much more experience with designing curriculum than I do, with designing class projects.” (Participant #1)

Participant #8 usually has faculty members who teach a course and look for help with identifying literature, materials or resources that can be used in the course. They work with the faculty on designing projects in and around the faculty’s work as well.

Other than the faculty directly coming to the library, Participant #4 stated that faculty who are interested in incorporating digital humanities into the classroom would usually go to a separate organization on campus that specifically task with working on pedagogy and providing support for faculty and make a request of doing a digital humanities project closely followed by the faculty members’ course. If the tool that their request involves is not currently supported at the university, the organization will redirect the faculty to Participant #4’s department at the library.

Other than many similar kinds of questions to those mentioned above, Participant #5 also does consultations with people who need specific help with how to share information or disseminate scholarship including a set of audio or video, or people who have legal questions about licensing, the terms that govern access to materials or
databases. There is a Copyright and Information Policy consultant at their library who does a lot of work in that area, and Participant #5 has also been through copyright consultant training, so he is able to handle these questions to some extent as well.

As a professional in legal aspects, Participant #2 does approximately five-hundred consultations a year, which are either one on one or with a small group and are mostly focused on copyright, authors rights, contract and privacy. They indicated that a majority of the consultations are through emails or phone calls, and no more than a hundred are people coming to their office. Faculty members or staff usually come to them and ask questions like “I’m going to publish an article, can we look at this publication agreement and try to understand what it means and what we want to change?”, “I’m starting a new digital scholarship project and I need to think about the privacy in the copyright applications,” or “I'm creating a new type of teaching, asking my students to use Twitter, how does that work and what should be noticed when sharing information in a public way?” What Participant #2 does is to navigate legal issues through consultations.

Participant #2 also works with the libraries, helping them make decisions about library policy or campus policy, which is like a sort of institution serving work. For example, if there is a question about who owns copyright in the work that is made on campus, Participant #2 will be the person who talks to all the parties and helps them make decisions under the written policy. They expressed themself as “the lawyer in the libraries” because their work is like “having a lawyer to help with individual and institutional decision making.” Also, as part of their textbook program, Participant #2 thinks about pedagogy in their disciplines and sometimes meets with folks and talks about the legal aspects of digital humanities pedagogy and open education.
In addition to teaching people how to use the tools, Participant #7 indicated that they also work with students and faculty on putting their research into different formats or helps the students on getting their research from their recording to the institution repository, in order to make them accessible to more people.

Only one participant indicated that they mostly work with faculty. Participant #6 usually collaborates with faculty who are interested in doing something other than writing papers on their class, helping them with the phases of their class assignment building:

“I do a lot of meetings with those faculty, discussing the scope of what they would like to do, helping them think through what they want their students to learn and get out of it, and then deciding whether or not there’s a good digital project that can be done in an amount of time that they are hoping to do, that can meet the goals that they're hoping to meet.” (Participant #6)

Participant #6 meets with four or five different faculty multiple times each semester. Usually the faculty wants to do something different and needs help with deciding what exactly to do and whether they need a digital platform. “And a lot of times my job is to say I don't think you need to do that. I don't think you need all of the bells and whistles.” Said Participant #6. They used an example to illustrate how they think an ideal consultation would work:

“For example, let’s say, a professor comes with a set of postcards, and they’re like, ‘I’d like students to digitize these postcards and create an exhibit.’ That can be cool, but students can also just feel like that's just extra work on top of writing a paper, like you basically just want me to write a paper. And so helping this faculty member sit down and think, well what is it actually that you want your students to do? Do you want them to learn about describing a collection, do they need to learn about metadata? (...) So what they really want their students to do is to communicate their result in an image-based way. So it’s like to just help them rethink a little bit of the assignment and make them more intellect critical of the tools that they are using and kind of aware of the process used that they often do without thinking about it. That's the best part of digital humanities to me. It's an opportunity to make people aware of the processes that they automatically do in their mind and kind of be critical of these processes.” (Participant #6)
Similar to Mourer’s question, “What can digital humanities offer your students that a traditional information literacy instruction session or assignment would not?” which is proposed as the first question to be asked by the subject librarian when consulting with a faculty on digital humanities pedagogy (Mourer, 2017). The process Participant #6 uses to help faculty members critically think about their design of class assignments does help the librarian understand the faculty members’ goals of integrating digital humanities components into their instruction. On the other hand, it also helps the faculty members clarify their goal behind the “cool thing” and focus on what they actually want their students to learn, instead of how different the form of the assignment is.

Among the four or five faculty members that Participant #6 meets and discusses a class planning with, about two would come to the actual direction of planning, and Participant #6 sometimes redirects them to the Digital Research Services or the Media Lab based on their needs. In those cases, Participant #6 considers their role as a “concierge.”

4.1.3 Other ways

Four participants (3458) out of the eight reported working on supporting projects:

“Mostly what I do is look to see how we can be involved in more digital humanities projects and I work on projects.” (Participant #4)

They work on a funding project which supports faculty and students to work on projects. They also support individual students who want to do something novel, for example:

“It’s the student who may want to publish elements of their dissertation in a different way, or they want to connect with different audience for a part of their research. So it’s just an element of their dissertation project that goes a little bit
outside of what they're normal, and the thesis committee or dissertation committee will support.” (Participant #4)

Participant #3’s department works to support faculty-driven research projects which could involve graduate or undergraduate research assistants by doing some amount of training of those students. However, they thought that their work was still in the very early stages during the libraries since they did not really have that scale as a production service yet. Participant #5 stated that they have been responsible for maintaining the technical infrastructure for writing customizations to the code of a project website, “like migrating up from Drupal to WordPress, anything that involves the moving parts of the technical conventions.” They used this example to express one way in which they partner with a project long term.

Participant #7 coordinates the institution repository and does research on freely available tools in different fields, looking at accessibility levels that the university provides or those they can access. Participant #8 supports projects in a way helping with their institutional repository on preserving the projects in research that’s being done around digital humanities.

Participant #2 stated that they also do work that is public facing, for example, going to conferences, doing research, and getting grants:

“I do things you might think a professor is doing, in that sense. So I'm sort of a weird mix of a lawyer and a professor, which is a lot of fun.” (Participant #2)

They also indicated that when hosting consultations and small workshops, they do some internal work as well, guiding the library’s practice on different issues, guiding folks to consultations, and leading workshops:

“I'll work with our special collections to think about gifts or I'll work with our administration who’s considering a new policy on sharing resources, and I’ll talk
about the copyright application. So sort of one in house counsel attorney will do in that sense.” (Participant #2)

Different from participants from other universities, both participants from NC Central University indicated that they have been invited to help planning or attend different conferences held by organizations like the Digital Humanities Collaborative of North Carolina.

**4.2 Tools academic librarians employ in DH pedagogy**

Tools that the participants were using vary quite a lot. Three out of the six participants mentioned programming languages such as CSS, HTML, JavaScript, Python, and R:

“Now I continue to use a lot of HTML and CSS and JavaScript. Those are tools that are common in web design but they’re also very common for data visualization.” (Participant #1)

Two participants mentioned teaching Python workshops mostly for text analysis, one of which used a Repl.it to teach programming:

“Teaching programming I use Repl.it, I use that to teach Python, mostly for text analysis. I teach people how to do things like write document classifiers using Python, and the natural language toolkit.” (Participant #5)

Voyant is a kind of light tool that three of the participants had been usually employing in their work or teaching students to use for text analysis:

“Digital humanities work is how you teach people to do great digital research, who may not have technical experience of programming languages. So in that case we need to look at where the tools are available to people and how do we facilitate their use that open up the types of research that we’re wanting to help create, as people are just getting into it just learning about it just trying to get taught. So Voyant as a purely graphical no code necessary tool for text analysis, it is fantastic.” (Participant #3)
Mallet for text mining is a tool which requires the user to do “a little bit of command line work,” since it is Java-based. “But it's still pretty much a low technical barrier to get people on the topic of modeling.” (Participant #3)

Kumu had been employed by one of the participants for network analysis.

One participant mentioned using HathiTrust as a text analysis capacity. Another participant used Internet Archive and some other research databases. They also saw their libguide as the university’s library database and utilized those a lot to help find information with regards to the various topics that are being explored.” (Participant #8)

In terms of tools utilized for mapping, three participants mentioned having used story maps either in StoryMap JS or ArcGIS:

“A lot of that light lab stuff is super easy to use like Timeline JS, StoryMap JS. They are really excellent tools that are well-supported, well-developed and anybody can use.” (Participant #5)

“So ArcGIS Online is a really big tool. Lately people have been really interested in using a feature called Story Maps. It’s ArcGIS Story Maps. And that tool is extremely easy for people to use, very easy to tell a story with, and it really allows you to use content from anywhere all kinds of content, so images, videos, just everything, to sound. And you can take your audience on a journey across the map so you have different locations on a map and you can say you know you can contextualize the content for each location, so you know, bringing in video at this location, or you know, talking about, you can bring in text and tell a story about things that happened at one place, and show video for that. And you know, you can use interactions, so that the audience also has control over where they’re going. They can click on different things and make different things pop up, and things like that. So yeah, it's a really cool tool that's gotten really popular lately.” (Participant #1)

The participant having employed ArcGIS a lot also explained the difference between the desktop software for ArcGIS and ArcGIS Online. The former does have a steep learning curve and is overkill for class assignments, while the latter is a much more simplified version, though also powerful:
“ArcGIS Online, you can also use it on any computer anywhere, you don’t have to have a really nice big PC and go to a lab to use it. ArcGIS Online is meant for an audience that doesn't know about GIS that much, so that the people who use it don't have a steep learning curve. You’re absolutely right that the desktop software for ArcGIS like ArcGIS pro, ArcGIS desktop, those programs are much more difficult to use.” (Participant #1)

Timeline JS mentioned above had been also employed a lot by two of the participants.

Tableau, a tool for data visualization, was often used by two of the participants:

“Because we're seeing a lot of people, now even in the humanities, starting to collect their own data, and once they collect the data and they have it in something like Excel, it's kind of like ‘Okay, what do I do next? How do I make sense of this?’ And Tableau is such an easy program to use. If we didn't have Tableau for data visualization, I would be teaching everybody how to write code instead, to produce data visualizations, which would be much much harder.” (Participant #1)

One participant introduced Palladio as a tool that can do both mapping work and network analysis:

“Palladio is a tool that was created by a digital humanities group at Stanford many years ago, which opens up a lot both mapping work as well as some network analysis, and so that working with tabular data. Again, without needing to be able to code.” (Participant #3)

Platforms for showcase work or publishing tools such as Omeka, Scalar, and WordPress is frequently used by three of the participants in their work:

“In terms of publishing, we look at things like Omeka, or WordPress and talk about, and we’ve done some with Scalar as well. And talk about like why would you choose these tools, what are the affordances or the strengths, what are the limitations, we often also try to analyze them, all kinds of theory predictable ways like ask them questions like what are the technical constraints of this tool, is it cloud based, does it connect to a specific operating system, does it work well with one of the other. And then we’ll ask questions like how well does it work with collaborations, well that’s always something I’m asking with digital humanities projects. My assumption is that you are going to work with somebody else. So how do you share information, and then… Oh so some of those tools I mentioned with publishing like Omeka WordPress Scalar.” (Participant #4)

“I love Omeka for doing digital archives and exhibits.” (Participant #5)
One participant mentioned Adobe Spark as a tool that can be either utilized like a webpage or PowerPoint:

“You can use it in multiple ways, and you can publish it as well. So I will tell people about it, but that’s also a way that people can get their research out there.” (Participant #7)

One participant mentioned that platforms including Colab Notebooks on Google Cloud servers and Azure Notebooks on Microsoft Azure Cloud system had facilitated their teaching effectively because instructors don’t need to “set up the language and infrastructure on everybody’s individual computer” using those tools in workshops:

“So in the context of a two-hour workshop, you are not spending 30 minutes getting everyone set up. You are able to just jump in and start working with Python, which is really very convenient.” (Participant #3)

Several tools for management were also mentioned in the interviews. One participant mentioned using Asana and Trello for project management; and Tropy for image management and image annotation:

“And then we’d also talk about file management and file sharing, because that is consistently kind of coming back to the question like how are you documenting your work, how are the people collaborating. That’s a really important part of making sure that the project is sustainable. (…) I do not mainly employ instruction, but I know that there once we refer to our things like note taking tools, like helping people think about how do they share and manage information, but we’ve also looked at image annotation, image management, as well as text analysis tools, and then some text mining tools.” (Participant #4)

However, one participant also stated not using any of the tools mentioned above applied in specialized DH projects:

“Because I'm not very high-tech. It’s probably like Google Docs or something, very low tech like that, and Google Slides, that kind of thing. I don’t do much with technology.” (Participant #2)
Participants also shared their thoughts and criteria when choosing a tool to use or to teach students to complete certain tasks, mentioning that they always tend to use tools that are easy for people to access and with a low technical barrier:

“We choose the tools that we're teaching based on what their needs are and what their level of technical expertise is. So we are aiming for something that is easy for people to get involved with quickly and for which self-support is a realistic goal. We don’t actually introduce things that are going to require constant support from us, not because we don't want to work with people but because really there are just two people in my department, and we don't really have the bandwidth to do constant hands on support. We want to teach tools that are easy for people to get up and running with, and that people can kind of support themselves with.” (Participant #5)

“(We use) anything that is available, that the university provides, and that I hear about that is free and accessible online. Someone says this is free and accessible and easy to use and will make your life easier and helpful, and I will utilize that.” (Participant #7)

4.3 Resource libraries provide for DH pedagogy

For the question of what resource the libraries provide for digital humanities pedagogy, participants might have different understandings to the word “resource.” Generally, their answers defined library resources from four aspects: departments and staff, technology or equipment, online resources, and other aspects (basically including email listserv and events or programs). Some online resources may also have a physical space, but they are categorized as online resources because most users utilize them in the form of a website.

4.3.1 Departments and staff

When asked about the resources provided to support digital humanities pedagogy by the libraries, participants talked about both departments and staff within the libraries or outside of the libraries which they collaborate with.
Within the Duke libraries, the key departments that are supporting digital humanities work are Digital Scholarship and Publishing Services, and the Center of Data and Visualization Sciences (CDVS). CDVS offers a lab that is geared toward statistical analysis, data cleaning, data visualization, and has a lot of expertise in GIS and historical mapping as well.

Duke does not have a single center that does digital humanities work. Instead, there are multiple groups doing different types of work involved with digital humanities. Both participants from Duke indicated a center for scholars publishing in the libraries which was started last year called ScholarWorks1. This center helps scholars who are interested in pursuing digital dissemination of their work and brings together people from different departments. Increasingly looking to provide more of the public-facing advisement and education around creating digital humanities work, the organization helps people think through legal and ethical questions as well, for example, “what does it mean to crowdsource,” “what sort of permission should people be asking for individual to give contact,” “how to credit other people appropriately when working with them?” This group points to sites, suggests contacts as resources to give students ideas to do their digital humanities projects, and also share their web address, email address and ask people to send those questions. Beyond consulting and answering questions, the ScholarWorks Center hosts events and workshops on a variety of topics, where they bring people in to talk about their process, motivation, challenges of doing digital projects and the lessons they learned.

1 https://scholarworks.duke.edu/
Participants from NC State thought that the Data Visualization Department was an important resource that they have within the libraries, because “a lot of things that we would think of in terms of digital humanities happens in data and visualization.”

At UNC libraries, Digital Research Services on the second floor of Davis Library offers open labs and workshops in Python, mapping, and text analysis all year round, which the participants considered as the best place for people who want to do specific work using these tools. There is also a department for digital archives in Wilson library working on digitizing collections and making exhibits related to special collections. However, one of the participants stated that given the tons of resources at UNC, it is more of a problem that there are not as many staff or librarians to make sure people can always access the resources that are available.

Participants from NC Central University considered the Research and Instructional Services Department to be most instrumental in helping faculty members with various digital humanities projects by assisting them in identifying resources to help with their particular research agendas, providing resources for class development, and providing assistance with various technologies. They also thought of the Government Documents Department as well, because a lot of the government data is important when telling stories and is helpful for people to find articles, research, and images when doing digital projects. One of the participants also mentioned the Information Technology Services in the library as the resource that can help people utilize the software applied in their course and publish digital projects using Adobe software.

Participants from UNC also mentioned that librarians sometimes collaborate with the Digital Innovation Lab, which is under the administration of the Department of
American Studies to help people figure out the digital humanities project they are trying to do.

NC Central University has the Department of Mass Communication, where there is a digital humanities lab which also has inquiries related to digital humanities. According to one of the participants, the Research and Instructional Services at the library may not have as many inquiries as the Department of Mass Communication, but they work on different inquiries. The Undergraduate Research Journal Committee at NC Central University helps students with publishing their research.

4.3.2 Technology or equipment

In terms of technology and equipment, Duke libraries have a computer lab in DH that is run by the Center of Data and Visualization Science, providing some non-standard software that individuals could use to do different aspects of digital humanities work. There is also an office of Research Computing that can provide virtual machines.² The Duke immersive Virtual Environment (DiVE)³ is a stereoscopic projected room and enables people to do 3D visualizations. The Digital Scholarship and Publishing Services in the library used to offer a specialized computational environment for DH. There were a few computers in a space called the Murthy Digital Studio in Bostock Library, but nobody actually used them for the purpose of doing DH work. A group had spent a lot of time updating the software and talking to the IT people about maintaining those machines, but it seemed that there was not a good return on investment. To explain that,

² https://oit.duke.edu/what-we-do/services/research-computing
³ https://digitalhumanities.duke.edu/space/duke-immersive-virtual-environment-dive
one of the participants from Duke said that because people can do most of the stuff that they want to do in DH on their laptop without any specialized computing environment, the resources they thought they have are mostly staff and departments instead of those high-tech facilities.

Outside the library on the campus, a participant noted that there is a kind of high processing technology in the Wired Lab at Duke, where there is three-dimensional annotation either creating a three-dimensional environment or annotating and visualizing objects three-dimensionally. They stated that that work requires very specific computing and it benefits from an environment where that kind of computing can be done with assistance, so that “at this particular moment, that work is hard to do.”

NC State University libraries provide Technology Lending service where users can check out devices including resources for extended reality, audio production equipment, cameras, Beta program (a space housing a number of new and emerging experimental technologies), gaming devices, Makerspace devices, as well as laptops and chargers. When asked about the most popular device being requested to lend, one of the participants thought that it should be the laptops and chargers, following the textbooks, the top circulator at the library.

There is a makerspace in each of the two main libraries, but they are of different kinds. One of the participants from NC State explained that the one in Hunt library is a sort of service point where users order something, and it is created there. But the Hill Makerspace is designed to be a place where librarians do a lot of workshops, events and programming. “It's what you would think a makerspace would be.” The participant talked about a faculty member who did a semester of course on literature and aesthetics of
Steampunk. They used the Makerspace to make costumes and related creation about Steampunk, which is a great example that shows how this faculty member partnered with the Makerspace with a neat way to do their class assignments. The game studios both in the Hill and Hunt libraries are really good technical resources that people are able to use when they are thinking about digital scholarship or digital humanities beyond the sort of data driven work and computational work. The Digital Media Lab is another exciting space at NC State library where there are workstations with audiovisual editing software, scanners, video and audio editing decks, an enclosed studio with a green screen, and four music booths. The lab also offers workshops and consultations.

UNC libraries now have computer labs as well as classroom space for instructors to teach at the library. Facilities such as Liquid Galaxy and portable screens were said to be “extremely useful” in digital humanities pedagogy. Liquid Galaxy is a panoramic multi-display Google Earth viewer at Davis Library, the main library of UNC. The Liquid Galaxy has been used for classes that come in the library and tours that stop by and visit. The librarians in Digital Research Services also use it to show digital exhibits and photography exhibits. The portable screens are large screens that the librarians can use for digital poster exhibits and hands-on instructions or consultations with students in using some tools. Instructors and faculty usually use them to set up a big digital poster exhibit at the end of a class, and they are available for students to use as well. One participant also mentioned that there was once a social computing room at the library which was a big room with screens on all sides, however had been taken down just a few days before the interview.
The NCCU Fab Lab was mentioned by one of the participants as “digital humanities in a different way.” It is a digital prototyping platform where people can create something with digital humanities.

**4.3.3 Online resources**

Bass Connections at Duke provides a funding structure as well as a new educational model that brings students and faculty together to work on projects, making it easier for students from different disciplines and humanities faculty to do projects that maybe have a digital humanities component. The projects do not necessarily always relate to an individual’s research project or a class project that the faculty is directing, but many of them are related to the fact that there is a way for these projects to emerge. So that tends to be tied back to a faculty member in some way, and thus the Bass Connections projects almost always have faculty members who are proposing and running them.

Project Vox is a digital publishing project that the participants partner with long term. It is an open educational resource that provides materials about the work of early modern women philosophers. This project was trying to solve the problem that women philosophers are largely underrepresented in the standard teaching texts for undergraduate philosophy courses. The project tries to make visible the work of those

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4 https://www.nccu.edu/cas/fab-lab
5 https://bassconnections.duke.edu/
6 https://projectvox.library.duke.edu/
women philosophers and provide instructors and students with materials to learn and to be incorporated into courses and projects.

Duke also has a digital humanities guide which was originally created by a subject specialist long before and various people, including student interns, have added to it. The participants considered it as a nice starting point for people to explore digital humanities. There is also a collaboratively developed website for Duke that creates a kind of one stop, an overview of a lot of the digital humanities projects that are happening at Duke.7

Delta and Open Incubator of NC State University were mentioned by both participants from NC State. The Open Incubator programs that they have been doing recently is “kind of a mix of a workshop in a consultation.” It is a structure of five-week program for folks to come in with a project that they want to develop, and the librarians partner with them to identify open intervention by thinking about how the project could be approved or made more powerful and impactful through somebody’s expertise that the libraries have in terms of scholarly sharing, author’s rights, etc.

Participants from NC State also indicated that they just created a partnership with the data repository called Dryad9 and are planning to do workshops on how to use Dryad. Librarians are going to talk about scholarly communication and open culture aspects of it, as well as the technology and data.”

7 https://digitalhumanities.duke.edu/
8 https://www.lib.ncsu.edu/open-incubator
9 https://www.lib.ncsu.edu/do/data-management/dryad
One of the participants explained that there are a lot of things that would be called
digital humanities somewhere else, but people in NC State tend to put them under Citizen
Science. Delta is one of their examples of this kind of resource. Delta, which stands for
Distance Education and Learning Technology Applications,\(^{10}\) is a program that the
participants are working with using hypotheses to have students of a pedagogical piece
and that of a research piece come together in different ways. This program aims to foster
open pedagogy and the integration and support of learning technologies in NC State’s
academic programs.

The participant also introduced a more humanities-focused and more recent
example, the virtual Martin Luther King project.\(^{11}\) The creators of this project found an
early example of Dr. King’s speech while visiting North Carolina before he made his
famous *I Have a Dream* speech. They recreated his speech through VR and people can
walk into the space and move the mouse around. They can feel like Dr. King is right
there if standing right in front of the podium and can even hear sounds like papers
rustling when in the back. They have also built a fair amount of pedagogy around that in
different ways, such as collective sound experience, simulation experience, users’
creative protest, which all aim to guide users through eventually. So it’s a sense of
recreating historical events using visualization technology in different ways.

One participant from UNC thought the best online resource within the library was
the digital humanities guide, Digital humanities at Carolina, which was created by a

\(^{10}\) https://delta.ncsu.edu/

\(^{11}\) https://vmlk.chass.ncsu.edu/
former librarian. The guide documents lots of recent digital projects as well as the tools involved in digital humanities projects. The Digital Humanities Collaborative of North Carolina is another website that the participant recommended as a good place to start for students who are looking to explore digital humanities related work. Because digital humanities is inherently collaborative, this website provides a series of free institutes that people can go to and learn about digital humanities.

Both participants from NC Central University mentioned their institutional repository NC Docks, where Docks is short for Digital Online Collection of Knowledge and Scholarship. One of the participants said that when working with a Duke fellow on a digital humanities research using story maps and sampling maps, a lot of their newspaper archives in NC Docks had been quite helpful. The libguide is another type of platform where people can utilize resources. They also have their digital archive which NC Central University has collaborations with digital NC.

They also mentioned Adobe software as an accessible resource for people to use, as well as several ESRI products, such as GIS training courses that are available at ESRI’s Virtual Campus.

4.3.4 Other aspects

Email Listserv is also a kind of resource that academic libraries can provide for digital humanities pedagogy. A participant from Duke said that they had been trying to
use their listserv collaboratively with other groups on campus as a way to share events, opportunities, and information that are relevant to the Duke Community around digital humanities. They have been trying to raise awareness and indirectly educate students about different ways that digital humanities work goes through events and programs, which are another kind of resource.

A participant from NC Central University mentioned that they have a library liaison program. Subject librarians in different disciplines get information from databases that are specific to history, STEM, or other disciplines. Each librarian has an email listing of the folks who are in their departments so that they are able to share subject information specifically with those faculty members in certain fields.

4.4 Backgrounds and Work experience of librarians

Six out of the eight interview subjects indicated that they have a master’s degree in Library Science. One participant did a certificate in digital humanities during the master’s year in part because they were interested in public humanities. Participant #1 also indicated that they decided to get a Library Science degree because they were interested in data and information:

“I wanted the opportunity to start doing more work with data and information, and look at the way that people interacted with information, without sort of starting from scratch and going into computer science.” (Participant #1)

Six out of the eight participants had worked in the library before working in their current position, and one had worked in an archive. When asked what brought them to their current position, most of them agree that their previous work in library made them interested in the work and helped them succeed doing their current work:

“I was also a technical editor of the William Blake archives there. I feel that the William Blake Archive was in a lot of ways the most valuable part of my grad
school experience, because it gave me a lot of the experience I needed to succeed at my current position.” (Participant #5)

One participant who had worked at two different positions in library had different feelings about the past work experiences:

“Following receive of my master's degree in Library Science and after working for a couple of years, I went back to school to get a doctorate, thinking that I would teach, looking for different kinds of work, because I wasn't so excited about the work I was doing in librarianship. And in the process of getting that doctorate degree I ended up doing part-time work in the libraries but in a department that was working in digital collaboratives with other libraries and working on creation of digital libraries. To be quite honest, doing that work on the side was what really brought me to my current position. That was what exposed me to different types of projects, digital humanities work.” (Participant #4)

All the six participants have a background in humanities, including English, Literature, History, Drama, Journalism (New Media), Law, Philosophy (Religious Studies), Anthropology, Sociology, and Education.

Most participants felt that their humanities background has a cultural link to many of the programs they do at work. One participant however explained that they actually relied heavily on technologies and digital tools when pursuing their Art degree, which therefore could also be seen as a technical background:

“My bachelor’s was in fine art, and my focus was on what they called at the time, they called it computer art. But it’s basically graphic design using Adobe Illustrator and Adobe Photoshop and working with websites and things like that.” (Participant #1)

In terms of technical background, four participants out of eight had ever worked as technologists either in libraries or other places, who still have technical work as an important part of their current work. Their roles as technologists in the past varied from web designer and developer, digital humanities or digital scholarship developer, social science data and software librarian, technical editor, to software engineer, and programmer in different areas.
Five participants had worked in school or university before their current job, including working part time. Such work experience has also, to some extent, helped them succeed in their current position where they work with students heavily. One participant has teaching experience both at a high school and a college library, where they got to look at literacy issues which they had already been interested in.

When asked whether they think humanities background is important for a DH librarian, two out of eight participants strongly agreed that a humanities background or at least experience with or understanding about humanities research is essential, while four participants felt that a DH librarian doesn’t necessarily need to have a background in humanities. The other two participants held a neutral and open attitude to this question.

The two participants who think a humanities background is needed to be a DH librarian position believe that because of the specific research modes and methods used in humanities disciplines, it’s important to “think like a humanities researcher” to do digital humanities in a focused manner:

“I think if it’s for someone who’s gonna specifically say that they are digital humanities librarians, I think so. I think you need to have experience and a humanistic discipline. Now what that humanities discipline is, (…) I don't think that matters as much. But I do think that there are particular ways that researchers and students in humanities ask interpretive questions and there are specific types of data that people in humanities regularly work with. And there are specific modes of publication that people in humanities work with, and different research practices that people in humanities work with. And if you don't know those things, I think it’s hard to be a great librarian in those fields. (…) If you are sort of working on a broader level in research data services, if you are working in computational social science, I think there’s a ton of social scientists who could do a lot of digital humanities work. And it will just make a lot of sense but they maybe will never call themselves digital humanities librarians. They might be a data services librarian; they might be a digital research librarian.” (Participant #3)
One participant who thought people without humanities background may be also
good at doing what a DH librarian do, however, also emphasized that they had benefited
a lot from their humanities background:

“But I started when I got to college that I rather spend four years studying poetry
basically than taking computer science courses. So I didn’t take any CS courses, I
just studied English literature. (…) I’m glad that I did. I think it has made me
better at my current job and better as a practitioner of the digital humanities.”
(Participant #5)

On the other hand, four participants did not think that a DH librarian had to have a
humanities background mostly because they did not find their humanities background
helpful or indispensable at their current position:

“Although I do have a background in art and it certainly helps in terms of
visualization thinking about how we see things and how we relate to a visual
world and environment, I can't say that my knowledge in our history or things like
that has been important, an important part of this job.” (Participant #1)

“A lot of the things that are needed in order to understand, do and teach digital
humanities don’t necessarily require you have formal training in humanities or
these particular areas. Let me say this, they’re a lot even pick up from my
experience, but there’re different ways that digital humanities librarianship can
play out in a particular institution. So I mentioned, you might be more on the side
of scholarly communication like open access and understanding how do you
publish different forms, or legal and ethical aspects of sharing information online
and electro property or privacy. That’s one area of expertise that’s good to have.”
(Participant #4)

“I don’t think you have to have a humanities background, I think you should be
able to basically embrace the technology that are available, be able to collaborate
with the library or with whatever department that can assist you with whatever the
project is. but I don’t think having a specific focus on a major or degree in
humanities is essential.” (Participant #8)

When asked about the importance of technical background, six out of eight
participants emphasized the importance of acquiring technical skills, which is discussed
in the next section.
Three participants expressed their opinion that both humanities and technical backgrounds are important:

“I do think that the specific background in humanities is important in this area but how do you technically apply a tool or approach based on the method, that’s important to this particular individual kind of work they are trying to do.” (Participant #4)

Participant #5 thought that a humanities background is more important because when people have learned a programming language, they have picked up a lot of knowledge about the structure of data and computation generally, and about other programming languages. In their opinion, having learned a kind of programming language will already be very helpful for people to have concepts that are translatable into other environments. But working with humanists requires people to understand the ways of thinking regarding humanities questions, which needs people to have scholarly training in humanities:

“You have to be able to talk to humanities researchers in language that they can understand. You have to understand what questions they are asking and why. And I think you have to have at least some sense of intellectual history in a specific discipline. You don’t have to be a generalist in the humanities, but I think the humanities tend to be so interrelated in the questions that they’re asking and the things that they’re studying, that just having a good background in history, English, or religion, or art history, I think that makes you a good person to talk with, regardless whatever discipline is the person you are consulting with is working in. You have a sense of intellectual landscape and of the way that questions get asked and explored in the humanities. You know, in humanities, answering the questions is not necessarily the goal, and solving problems may not be the goal. Creating problems might be the goal. Problems attire people’s assumptions about a certain piece of history or something like that. So I think having that kind of scholarly training is probably more important than technological piece. You have to be open to the technology and ready to explore it, ready to get in there and get your hands dirty. But I think that having just a background in the technology is probably not as helpful as having a background in the humanities.” (Participant #5)

Participant #6 also agreed with the importance of humanities backgrounds for a digital humanities librarian, but since these kind of backgrounds are more common in
librarianship than backgrounds in programming, they expressed the ideal librarian in their mind as a mix of humanities and technical expertise:

“In all cases, I think an ideal librarian perhaps would have a background in the humanities or have interest in the humanities and a set of skills that were very technical.” (Participant #6)

One participant without technical background mentioned that with emerging environments where computing can be done with assistance from proficient programmers or powerful tools, people can do more data intensive or digitally intensive research, freeing themselves from figuring out the technical problem. Instead, they can try to figure out “why would I do this and how would I do this”:

“I don’t have the visualization background and data background. I mean I could take the time, but to me this is where a lot of people are able to connect more immediately with digital humanities, and it’s a low barrier. And so in that environment we have found people are not necessarily needing a high-tech space, what they are needing is a better understanding of an earlier state, how do I do this in a way that I can remember what I do, document them, and be able to build on it for something else. How can I do rapid prototyping of an idea, then to get more findings to do something else.” (Participant #4)

Two participants expressed their opinion that neither humanists nor technologists should be excluded from digital humanities work since people from these disciplines can actually cooperate well in digital humanities work:

“People whoever have an open mind. Because digital humanities is mixed both within humanities and technologies. Being a librarian, you don't need a spectacular background back in the day and then you can come with anything, we welcome everybody to librarianship. But then you start to read the job description and know you really need a tech degree, right? So you don't want to send anybody out, right? So I would think that if you have the skills or if you have the persistence, you should be able to do that particular area in the field.” (Participant #7)

One participant also shared their thoughts while recruiting graduate assistants doing DH related work, which might somewhat reflect their perspective toward this question:
“We have excellent interns from the masters of Engineering Management program a few years ago for example. But most of our interns come from humanities programs. I would say that's necessarily a prerequisite, like being enrolled in a humanities program. I think that people who benefit the most from these experiences are humanities scholars. But the old question of recruitment is a difficult one because we want people to feel comfortable with technology, with getting a hand dirty and breaking things. We want them also to have at least some understanding of what humanities scholarship is all about. But we also don't want to scare people off, like we don't want to write a job description that includes so many technical skills that nobody's ever going to check off the entire list, and people might see it and just think, well this is not for me, when in fact, that person might fit a great deal from working with this.” (Participant #5)

**4.5 Skills a DH librarian requires**

When asked what skills are important for a DH librarian, six out of eight participants mentioned technical skills. Two participants thought that having technical skills are crucial to a librarian doing digital humanities work:

“I think having basic web skills. It doesn't have to be really deep. Because everything is online now, everything goes on a website or uses an online app, or something like that.” (Participant #1)

“I'm inclined to say that you need to be able to write code, or you need to be able to actually carry out the types of research that you want to support or teach people about. So if you're working more in critical making and what your role in the library as digital humanities specialist is maybe to help facilitate people's use of the makerspace and of different visualization technologies, then having technical skill there, that's what you need to do. If you're trying to support a really broad range of what people are doing with digital humanities and I think you probably need to be able to write some amount of code and some language whether R or Python. Because a lot of advanced digital humanities research and a lot of tools and packages in the techniques, in the methods are using code and if you don't actually know how to code, then there is always going to be a little bit of black box.” (Participant #3)

Three participants also expressed their thoughts that having technical skills is not necessarily a prerequisite for being a digital humanities librarian, but it is helpful:

“Not necessarily, but if this person has great expertise in programming, that will help them in their own position of techniques assistantship so much the better. But I think it’s dare to say we are less concerned with specific technical ability than we are with a specific kind of orientation toward technology and humanities.” (Participant #5)
“I come to think that for the most part they’re people as a team effort, so people can bring all kinds of things to it but I’d say if you’re applying to digital scholarship for digital humanities jobs, they’re probably going to want you to have programming. It’s specific in digital humanities and digital scholarship, it is very helpful if you know programming languages. So if you know Python, if you know Java, or R, it’s very helpful. (…) I think people now really rely on people with programming backgrounds.” (Participant #6)

“It’s quite helpful or if you don’t have a technological background, if you have the capacity to learn the technology, that’s good too.” (Participant #8)

Some participants also emphasized the importance of technical background when talking about their own specific position and work. A data visualization librarian thought that web background is really helpful to their current role because “A lot of data visualization, especially interactive visualization and animated visualization is done on the web.” (Participant #1)

Two participants mentioned communication skills. One of them thought that teaching experience or communicating experience is probably required for a DH librarian whose important part of work is teaching information literacy. The other one talked about communicating with humanists who don’t have much experience with technology:

“If you are a DH librarian, you'll probably need a lot of skill at helping students and patrons feel confident in themselves, knowing how to make someone be patient with themselves, because very often you're working with students who are just not good, you know, they've decided that they are not good at technology. They decided that they don't know how to do this, and you have to convince them that they are, that they do know how to do this, they can do it, you know, that can be challenging but also really rewarding.” (Participant #1)

Three participants mentioned that a DH librarian should have an open mind and be open to technology. Because things are ever changing and evolving, they always need to learn a new skill, and be willing to teach themselves:

“Honestly the number one skill is basically being open and wanting to understand and know how to use new technology. So just being open to new technology is really the skill that you must have, because there is always something new. (…) It’s always something new to learn so just being open to technology, open to
professional development to learn about what's going on, in terms of digital humanities but the main skill honestly is just have an understanding of what's available and how to best use that particular software.” (Participant #8)

Three participants indicated the importance of research skill, which is usually related to having an understanding of research methods in humanities:

“I think you need actual practical research experience in a project using digital methods, whether that's you've been on a project in history where you’ve taken a role as a student or as a researcher. Not having learned about it, so it’s actually being able to do it. And I think that's incredibly important because in order to really talk meaningfully with faculty, graduate students, and undergrads who are trying to think about their research. I think it’s difficult to be able to help them and to really understand what they're doing unless you’ve also been doing it.” (Participant #3)

“Where I think it's more important that you have some specific exposure to a training in humanities is really in the specific methods that you are going to use, or how certain tools are applied within humanities. It is important to understand how humanists are going to look at an object, what they're going to find important, and what sorts of methods are prioritized in humanities.” (Participant #4)

“My educational background actually complemented what I do in my current work very well, because as an English major, a lot of these we have to do research, and so that heavy research background was helpful especially when I was in Library Science, which is very research oriented. And then now working as a director, and previously as the head of Instructional Services, (...) documenting histories, reviewing information, developing scholarly output, it all meshes together.” (Participant #8)

One participant talked about networking skill, with which librarians can build a liaison with other departments and people with expertise, as well as find grants and funding for projects:

“Being able to connect with other people on campus, having very good networking skills is very important in this field since it's emerging since it’s new. I think it helps to be able to write proposals and do grant writings. In this field, since people are always looking for funding for digital humanities projects.” (Participant #1)
And Participant #8 talked about interdisciplinary collaboration, which is similar to networking skills used between academic departments as well as being open to either technology or other disciplines.

Participant #4 indicated management skills including project planning, file and data management, and understanding of how to work with data as important skills to have to be a digital humanities librarian.

Participant #5 mentioned problem solving skill when interviewing with people, as well as the level of initiative to take general direction about the project and run with it:

“Are they good at solving problems on the round of looking up solutions to problems with technology? The kind of questions we ask in these interviews is like: describe a time when you had to look for that kind of solution, (...) what’s your process for thinking through the situations when you get stuck, how do you collaborate with other people. We are looking at things that tell us a person has a lot of potential to succeed with digital scholarship, not necessarily that this person has great expertise in programming or something like that.” (Participant #5)

To some librarians who are doing specific kinds of DH work, they also thought some other skills are crucial:

“Being able to tell a story to an audience is very helpful for both data visualization and of course, digital humanities specifically.” (Participant #1)

4.6 Teaching materials sharing

When asked whether they share their teaching materials for their digital humanities pedagogy and where they put them, three participants stated that they always put their teaching materials online, where they are publicly accessible, or where at least the students at their university can access those materials. All three participants had a couple different places to share their different kinds of materials.
One participant from UNC has a lot of their slides on infographics and visualization concepts shared on the SlideShare website, and has many of their workshop videos shared on their own YouTube channel which is named after their department, UNC Libraries Research Hub, so that it can be found by students easily. Their department also teaches workshops on Python and R, some of which talk about text analysis and digital humanities projects, and those teaching materials are extensive and are available in two different places. Teaching materials for a weekly workshop on how to program in R are shared on the R Open Labs website, where there are ten weeks in total. The materials for the five-weeks Python workshop are shared on a separate webpage which can introduce people to the whole programming language. The participant noted that they just started the Python workshop this semester and are planning to expand it to ten weeks with instructions on different things people can do on Python. However, they also noted that not all those teaching materials are set up on the library’s website but are only linked to and put on the calendar of the library’s website when there is an event at the library.

Both participants from NC State have some fixed ways for sharing their teaching materials. The first librarian teaches either at their own institution or in another university. They stated that when they teach in one of the workshops at their library, they create Google slides and share them with the NC State students who all have Google
Campus and can easily access those materials. On the other hand, when they teach at other universities, they use the university’s own course management system to share the teaching materials, which is also the place where students expect to find them.

The Scholarly Communication Notebook that they are currently creating with some colleagues is going to be an openly licensed textbook for teaching the discipline of scholarly communication and in order to make it publicly available, they put it in the Open Science Framework.\(^{19}\) The book itself is still in development so they shared a gathering that they hosted as well as their grant materials on the OSF site, which can all be downloaded. Each person in the project has an OSF page that is linked, and the projects they have done are presented on the page. There is a WordPress website that they use to provide information, and the final product goes in OSF.\(^ {20}\) They also use Humanities Commons sometimes,\(^ {21}\) where they have the Core Repository which they also deposit materials in.

The second librarian from NC State, who works on a more technical side, indicated that in the libraries, some of the materials are on a Github repository, and other materials are in Google drive. They expressed the expectation of having a better standardized central location for all the materials and making them all accessible to people with different capacities, “making sure that we have a PowerPoint presentation that could be read by screen readers, or that the PDF could be read by a screen reader for

\(^{19}\) https://osf.io/m9gbq/

\(^{20}\) https://lisoer.wordpress.ncsu.edu/

\(^{21}\) https://hcommons.org/
someone who has visual impairment.” They also do not have all the materials accessible from the library’s website and they are wanting to work on centralizing the access. In their opinion, the materials are currently “findable, but not as easily as they should be.”

The two participants from NC Central University indicated that they share their materials mainly on their library’s page of their university website through libguides, and share the new resources they purchase or an open resource they will promote at faculty meetings through social media. Some other channels of materials sharing that are not publicly accessible include directly giving materials in print, such as the Pathfinder handout, to the students during the time where they are teaching in front of them. They also expressed the expectation to do more teaching from the libguide because it would be available to the students every time they need it.

The remaining three participants stated that they do not have a centralized place for putting teaching materials now. One participant from Duke tends not to share their teaching materials because they tend to be interactive when teaching and thinks that their teaching materials cannot stand on their own. When they share them, they tend to put them in the place where themselves use them, and create and share a link to the students. The other participant from Duke also stated that they usually disseminates the teaching materials to local audiences:

“What usually happens is that I teach a workshop or a series of workshops and afterwards I'll send out my slide deck and a Google doc handout to students so they leave with the instructional materials that are used for the presentation as well as the list of resources, a glossary of key terms or list of key pieces of software.”

However, they do think that having those materials available in a centralized place would help, and noted that their department website would be a good place for compiling materials and sharing them out.
For the one participant from UNC, they do not share their teaching materials in any capacity in part because “a lot of the teaching was kind of done very personalized on a personalized case-by-case level.” In the meantime, there are some aspects of their teaching materials that they hope to make public—for example project charters for new classes that come—that provide norms and expectations, such as how many times they are going to meet with the class, and how long the project will last.

4.7 Expectations for current collaboration and services

As an interdisciplinary field, digital humanities always requires people with different expertise to collaborate. To learn about the collaboration of digital humanities pedagogy happening between librarians within academic libraries and faculty in other departments or other parties on campus, participants are asked about some exciting class projects that they have been working on, and how the current collaboration can be improved.

When asked how they think their collaboration with people from other departments can be improved, two participants indicated the lopsided collaborations that usually happened in their work. Participant #1, who works mainly on the technical side, indicated that in the current collaboration cases, it is always the humanist that comes up with an idea and goes to the technology specialist for service and within this relationship, the humanist is in charge of the project, and the technologist seems to be just providing the service. The participant expected that this dynamic would change so that technologists can get more out of the collaboration which would be “their” projects rather than only the humanist’s project:

“What we’ll find is that for someone in the humanities who has a digital humanities project that they want to do, often they are the ones coming to the
technology specialist with the idea that this is their project, and they're in charge of everything. And the technology specialist is there to provide a service to them. That's a relationship that isn't always good. The technology specialist in that case doesn't always get a lot out of that relationship, especially if the humanities expert or the scholar is seeing this as being their project. If the relationship is instead approaching the way where this is our project, we’re both working on this, we’re both interested in this and we both want to know. Then that of course is going to be a very different dynamic, but I see that dynamic less often.” (Participant #1)

Participant #2, from the perspective of a humanities librarian, also expressed their concerns about the same issue that existed in the collaboration between faculty members and librarians. They indicated that all contributions should be valued in a collaborative digital humanities project:

“So one of the things that we can do is really value library expertise more than we do. I think there's often a sense that librarians are the helpers, that faculty are doing the real work and the librarians just kind of help them do their work. (…) Faculty members have a great idea, librarians have technical skills, other librarians have community building skills. Those are all people who have expertise that should be valued. And I think because librarianship is sometimes understood as a service profession, the librarian and the faculty member sometimes both come in expecting for, oh you’ve got a project you're doing as a faculty member, and I the librarian will help you do your project. But it is in fact our project, and all contributions should be valued in that way. I think solving the language issue that we talked about the humanities versus science, cuz it’s common practices in a lot of different ways. It’s just we’ve got this barrier that separates people far too often.” (Participant #2)

Participant #2 also talked about the tenure issue where people would seldom value non-book scholarship:

“There still aren't a lot of humanists who will get tenure because of a digital project. It’s still the case more often that you do your cool project, you write a book about your project and you get tenure on the book, even though the project was really the impressive effort and the passion as well. Cuz like I made this cool thing, this is the evidence of my intellectual effort and creativity. Now I have to go write a book about it too, and that's why I'm going to get graded on. I think that’s frustrating to people. And part of it is that we don't know how to evaluate and value non-book scholarship a lot of the time.” (Participant #2)

Other than some concerns that seem to exist in many institutions, participants also indicated some aspects that can be improved specifically in their library.
One of the participants from Duke stated that they would expect a clear structure for developing long-term digital humanities projects, and have people know clearly what kind of support would be provided by the libraries:

“One thing that I would like to see is a clear pipeline for developing projects. That’s an intentionally broad statement. It would be really nice if there were a known and widely used project proposal process, for example, and if the libraries can offer different tiers of support, like basic support, or maybe longer-term support, or really long-term support, contingent upon annual reviews by a group of library staff, faculty, administrators, like having some kind of system in place like that, it could make a positive difference in the way that the projects are brought into libraries and are supported long-term. And that’s kind of a really broad structural thing, because I think that a lot of the collaborations that we have undertaken have been a lot more ad hoc. that’s not to say they haven’t been successful. So I’ll think about ways that the collaborations among researchers and library staff could be improved, I think mostly about those sort of long-term things that have to do with understanding the level of support that the libraries can offer, and what that support looks like. (...) It’s a large scale for structural things that would be nice to have. We are now functioning well about it but I think knowing how projects are supported in the long term and being clear with everyone involved about that kind of support would be universally beneficial.”

One of the participants from NC State was concerned about establishing better workflows for collaboration between departments within and outside the library:

“I think the thing that would be helpful here is to establish better workflows for how we gather together experts across the different departments and units of the libraries when we are working on supporting digital humanities research projects. So I think that’s a matter of workflow and of how you put a team together and how you build up a structure that makes a project successful. Especially over a long term. I think that if I pick one thing that will help us the most, and I think that figuring to having all that clear will help us the most.”

One participant from UNC expressed their expectations of having closer relationships and more collaboration with other departments working on digital humanities pedagogy on campus:

“We would love to have an even closer relationship with the Digital Innovation Lab. It is specifically for the digital humanities and they have consultants there that will help people with their digital humanities projects as well. Very often we refer people back and forth. And I think it would be cool to have more of that type
of thing happening both inside and outside the library and just having a closer partnership with them to make it part of something that we really do.”

When asked the distribution of consultations between the library and the Digital Innovation Lab, the participant indicated that the Lab tends to work with more students from specific humanities departments and work more with faculty, while the library works with students from all over campus:

“The work that comes from the Innovation Lab is coming from within the English Department, especially since the person who runs the Digital Innovation Lab now, he’s in the Department of English, so you see a lot of that work coming from there. Whereas a lot of work here comes from all over campus from people who don’t know about the Digital Innovation Lab, and so will come to us and we’ll help them with things we know how to help them with like doing analysis, doing data visualization, and all these tools that we teach them how to do. The lab has a different set of tools and a different set of expertise. They have more of the expertise coming from the humanities as opposed to the technology over there. They work also with a lot more faculty, whereas we work more with the students. But we also work with faculty. That’s why I said I’d like to work closer with them, so maybe we can cooperate on some more things and there’s less overlap or less reproduction of work, I guess.”

They also stated that in order to be able to better support digital humanities pedagogy, the library would better fill the vacancy of the digital scholarship librarian position where the former staff left last year. After filling this position, they noted, there will be someone who can work on developing teaching modules that can be applied in different classes related to digital humanities:

“Once that person is hired, they would be responsible for involving new technologies and new ideas, and to have even something like teaching modules or learning modules that we can bring to these different humanities classes about doing digital humanities projects. And I think that at the Undergraduate Library, they have a Design Lab and this Design Lab comes up with modules for these different areas like presentations, magazines, websites, stuff like that. I think it will be really cool to have that or different types of digital humanities projects.”

Similar to a broadly applicable teaching module, the other participant from UNC indicated creating a good structure for courses:
“So having a form that builds out every time so that students and faculty are signing a memorandum of understanding for what it will be doing. Having the documentation policies and assessment and promotion, then be able to take what people and students have done and highlight it. I think just structure can be better and that I’m learning a lot from my colleagues in the Digital Research Services Department who’re building a lot of that structure. I’d say that’s the thing that we really can improve on, and that would help conversations with faculty and students.”

One of the participants from NC Central University indicated that there is always a need to do more collaboration and partnership and stated that they are planning to do more workshops in regards to digital humanities. The other participant expressed their expectations of more investments to more research tools and technologies:

“There are so many great technologies, innovations out there that we don't have access to. The Digital Humanities Lab is the specific lab that they have made investments in technology cameras, various equipment, scanners, things of that sort. So I just think that access to more things like that as far as the databases and the tools are fine. But I just think that having the equipment so you can digitize, starting things, having the software so you can manipulate and better create projects. There are tools that I know that we don’t have access to, that are part of other schools’ digital humanities program. So a better investment in technology will be helpful.”

4.8 Understanding to the terms

The subject of this study is defined as digital humanities librarian, but this title actually does not exist in any of the libraries involved in the interview, though two of the participants mentioned that they have a former colleague who was using this title. Therefore, to learn about the understandings from the perspective of people who are working on digital humanities related pedagogy within academic libraries, participants were asked how they define a digital humanities librarian in the interview.

One participant expressed their opinion that as a broad interdisciplinary field, digital humanities pedagogy requires people with different types of expertise to collaborate, to work together to provide service:
“You really need a group of specialists within the digital humanities field. You do need people who have more expertise in the humanities side and the humanities subjects as well as people who have more expertise in the technology and the tools. (…) So finding a person with the background in everything is what they call Unicorn. It’s really hard to do. So I think you really need more than one person to provide that type of service, at least in a way that’s gonna be helpful to most people.” (Participant #1)

Some participants think of the term “digital humanities librarian” as a collective title of several different tasks that librarians are doing:

“I tend to find that when people are referring to digital humanities, they mean, in general, how do I use tools in different ways to do my work. If you ask me what the titles are, I would say digital scholarship librarian, open scholarship librarian, sometimes scholarly communications librarian does some of the work of digital humanities. You’ll also find very specialized positions that are working in digital humanities, so someone doing digital mapping, or GIS, or mapping specialists might be doing a lot of digital humanities work.” (Participant #4)

Some participants tried to describe and illustrate what a digital humanities librarian is like and should be doing. Participant #8 addressed the importance of the skill of being able to work across different disciplines and collaborate with various departments. Given that this field is technology rich, they also emphasized that people working in this field have to be able to follow the technology:

“Digital humanities librarian, someone that is willing and able to collaborate in an interdisciplinary space that is technology rich. So it’s someone who’s familiar with, they can follow the technology as well as how these technologies could be used across various disciplines to address their research. In addition to being collaborative working with the library, the librarian works with various departments, working and training, being able to do those one on one or group training. So a trainer or collaborator or someone who is technology savvy.” (Participant #8)

Participant #5, again, addressed the importance of having both humanities and technical backgrounds as being a digital humanities librarian because those backgrounds prepare a person for communication among different stakeholders. They also thought that
part of the work at this position should be collaborating with traditional subject librarians on collecting resources that are related to digital humanities:

“I would see a DH librarian as someone who is both well versed in the aim of humanities research and also has some kind of technological background. (…) Those together are going to make you a good liaison among different groups. Librarians are really well-positioned to be really good at DH. They have a really broad view of the local research landscape and are communicating among a lot of different stakeholders. I think that’s been a natural fit for most digital scholarship projects. (…) I feel that background is part of making someone good at translating among different stakeholders, like talking to technologists about humanities research questions and talking to the humanists about the limitations of technology, are the way your technological choices affect the outcomes of your research. And I think that’s an important part of DH librarians’ job. In purely practical day to day terms, I think that being part of project teams even just as an observer or informal adviser would be an important part of that work, you know, joining department meetings for example, to hear what kind of research is going on; being part of graduate student communication channels to… again, librarians already are in this position so that’s why I think DH librarian as a position makes a lot of sense. But I think this person would be in graduate student communication channels, you know, aware of what people are interested in and also able to recommend you research on various digital scholarship methods to support and recommend specific tools for different types of scholarship and to offer those kinds of one-on-one consultations and instruction. (…) I think that a part of the collection work would be to collaborate with librarians who are traditional subject specialists in, like English for example, and recommend specific purchases or… have to facilitate the conversation around what DH resources might be most relevant to English art history for example. So I think traditional librarianship could happen as part of this position, but it’s merely down the boundaries of something like the collection for DH, it can be a little nebulous. So I see it as collaborative as most librarianship is and as digital humanities certainly is.” (Participant #5)

Some participants tended to be holding a critical attitude to the term “digital humanities librarian,” but their reasons are actually quite similar to the people who think digital humanities pedagogy requires collaboration among different disciplines and expertise. Participant #2 expressed their thought that what term people actually use should not matter a lot, but the stuff “digital humanities” should actually include both people in sciences and humanities, and they can learn from each other. “It’s often language that makes people feel excluded.”:
“I think you'll see different terms for it. My former colleague was called a digital scholarship librarian. She is very much a digital humanities librarian. So you can see digital scholarship, digital humanities, and global interdisciplinary studies, you'll often see something like digital humanities attached to a subject specialist role or a department head role. Or there's a sense that there are some dedicated digital humanities librarians, but much more often the DH person, that's one of the roles that they're playing in that way. And my previous colleague is a nice example of that. She talks about digital scholarship and digital humanities as being interchangeable, that they’re different words for the same set of practices or skills. (...) Another colleague of mine did a seminar talking about open science in the Netherlands and there's a term he brought back, “Wissenschaft”, which basically means the making of knowledge, that encompasses both the humanities and the sciences. So English puts it as science, but it's about sort of every systematic academic study in every area from humanities to art to religion. Nobody here would say wissenschaft or digital wissenschaft, but it's our shorthand for that thing, that every other term excludes somebody. So that's how we've been wrestling with that. (...) I think my former colleague is an interesting example. Her work had been very much on the humanities. When she got here, she sort of had to get used to a very stem-focused institution. And so now she was able to go to another place and say, I've done deep work in both those spaces. I can address both of those areas and support both of those types of practices in a good way.” (Participant #2)

Participant #6 thinks of the term “digital humanities” as a humanist question combined with some digital methods. Therefore, they think that within the field that this specific term refers to, there are a lot of specialists contributing in different ways, and it makes sense that there would not necessarily be such a person with the title “digital humanities librarian”:

“So my former colleague did have that title, but I really think it’s almost misleading one way or another, because the thing about digital humanities is that it isn’t like a separate field really. I think of digital humanities as a humanist question that you're asking, something about meaning making, perception or history or portrayal or patterns in text, and then you are using methods that are traditionally for social sciences or for, using a digital method. And to me it makes more sense that there are more functional specialist people that work in mapping, in data visualization, that can help humanists ask these questions and then there are humanists that have some knowledge of these things that can help translate.” (Participant #6)

Participant #3 expressed their thoughts that there are positives and negatives about the title within a library system, because for people who are interested in “digital
humanities,” having this position in the library provides a finding aid for them. However on the other side, for people who are doing humanities research using digital methods, they may not think that they are doing digital humanities and may not consider librarians with that title as a resource that will be helpful to them:

“As what is digital humanities, I think the best thing we can do is to take a really capacious answer, and in some way, any humanities research that uses a digital component. I don't personally think we need to define any further than that. (…) There’s a lot of technical skill that is just part of research in the social sciences and a lot of other disciplines. And it's been a sort of an add-on and some humanities disciplines and so we've given it an extra name, digital humanities. But it has become an increasing norm that even in the humanists field, much research includes some sort of digital component work including computational component or mapping component or visualization component or presentational component that’s digital. So I think it matters less and less that we’re calling these things digital humanities except insofar that it’s a strategic or tactical term that either fits attention or lets people find your service more effectively. At the level what that means for digital humanities librarians or people called digital humanities librarians I think would be the usefulness of the title still. For people who are interested in digital humanities and they heard about it and it's a new thing to them and they’re looking for resources, if they see some in the library that’s called digital humanities or digital scholarship librarian, they know who to talk to. So I think in some ways, the title is a finding aid for people to become more accessible for people in the community. The downside of it is a lot of humanities scholars don’t think that they are doing digital humanities even if they might be. And so when they look at that title and might say, oh this person is a digital humanities librarian, how could they actually help me in a new way.” (Participant #3)

Though holding different attitudes towards the title “digital humanities librarian,” all participants expressed their opinions that given the interdisciplinary nature of digital humanities, no one person can have all the expertise needed and the work would always need a group of people to collaborate.
5 Limitations

Given the limitation of the methodology and questions asked in the interview, and the ever-changing and evolving situations, this study is not able to reflect the digital humanities pedagogy in the four academic libraries from all aspects. This paper also does not present all the valuable information that the interview subjects provided. The opinions expressed by the interview subjects cannot represent all other librarians within the library involved in digital humanities pedagogy, though they also reflected some of their colleagues’ work in the interviews. Due to the time-consuming nature of interviews, researchers were not able to reach out to or invite all the potential subjects to take part in this study. Further work on this topic can be undertaken with more potential subjects who are doing different digital humanities pedagogy work, for example, GIS librarian, music librarian, and etc.

Focusing on pedagogy only within academic libraries or of that provided by librarians, and given the different organization structures of different universities, the findings of this study cannot present the whole picture of digital humanities pedagogy within the universities. For example, as mentioned in 4.3, NC State has a makerspace which is not mentioned in other universities, which doesn’t mean that there are not any makerspaces in other universities. They may have similar departments outside the library, or the participants did not consider them to be resources supporting digital humanities pedagogy. Limited though this study may be, the findings can still, to some extent, reflect
the collaboration between librarians and other departments across the campus on digital humanities pedagogy.
6 Conclusions

Through semi-structured interviews conducted with eight subjects from four academic libraries in the Research Triangle Region of North Carolina, this study aims to give an overview of how the four libraries support digital humanities pedagogy and provide practical experience for academic librarians working in this area and future studies.

This study defines the subject as digital humanities librarian, which is a title that does not usually appear in academic libraries, although many librarians are actually doing digital humanities related work. Though having different attitudes towards the term “digital humanities librarian,” all the interview subjects tend to agree that as an interdisciplinary broad field, digital humanities always requires people with different expertise to collaborate. The term “digital humanities librarian” can be deemed as a collective title for all the librarians doing related work within the library.

Ways that librarians in these four academic libraries are involved in digital humanities pedagogy include instructing in workshops within the library or in a class in academic departments, doing consultations with faculty and students, supporting projects by helping connect people in different departments, providing technical support, or doing trainings, maintaining institutional online resources, attending conferences, and guiding workshops and consultations within the library. Doing instruction and consultations are the most common ways that librarians are involved in digital humanities pedagogy.
In terms of tools utilized in digital humanities pedagogy, programming languages like Python, R, JavaScript, CSS, and HTML are frequently used and taught by librarians in projects and workshops, usually for text analysis and web development. Voyant for text analysis, StoryMap JS for making story maps, Tableau for data visualization, and Omeka, Scalar, and WordPress for digital publishing are tools that are usually recommended by librarians with low technical barriers. The interview subjects indicated that they tend to teach and suggest tools that are easy for people to access and use.

The resources that the four academic libraries provide for digital humanities pedagogy mainly include departments and staff, technology or equipment, online resources, email listserv and events or programs.

In terms of backgrounds, humanities background or at least some training in humanities is important to digital humanities related work mainly because having the understanding of humanities research methods is helpful when communicating with humanists. Also, technical backgrounds may not be necessary to a digital humanities librarian, but they have to be open to technology, and learning some basic programming or web skills is usually helpful for them to understand the concepts of data structure and communicate with technical specialists. A digital humanities librarian is also expected to have some skills in communication, research, networking, management, problem solving, as well as an open mind.

This study focuses on the academic libraries in a specific area, and mainly explores the ways librarians are involved in pedagogy and the resources that are currently available. Though having attempted to ask some questions about creative ways librarians can teach information literacy or digital literacy skills using digital humanities tool, and
the interview subjects’ expectations for the DH work in their libraries and the collaboration they are involved in, their answers have not been further discussed in this paper. As the interview subjects have provided various examples in teaching digital humanities methods or doing class projects, and given the insightful perspectives of the librarians working on digital humanities pedagogy, further studies on teaching information literacy or digital literacy using digital humanities tools, and the improvements that can be made to current DH pedagogy would add more inspiring ideas as well as practical thoughts to this emerging field.
Bibliography


Appendix A: Email recruitment

Subject: Invitation for an Interview about digital humanities pedagogy

Dear Mr./Ms. XXX:

This is Wuyan Yao, a Library Science student at UNC. I am now conducting interviews as part of my master thesis which aims to figure out the methods and resources academic librarians use to conduct DH pedagogy in the Research Triangle Region. As a librarian supporting digital humanities related research and projects, you are in an ideal position to provide the valuable first-hand information from your own perspective.

Therefore, I was wondering if it would be convenient for you to accept the interview.

The interview takes around an hour, and mainly involves your responsibilities at work, the tools and resources employed in your work, the organization of your department, your academic background and the skills needed for your position.

If you are willing to participate in this study, please suggest a day and time that works for you and I'll do my best to be available. If you have any questions, please do not hesitate to reach me at yaowuyan@live.unc.edu or 919-525-9231. I understand that you’re busy, and I would be happy to meet anyone in your department who’s familiar with the content, or even just a few names you think I should talk to.

Thanks very much and I look forward to hearing from you,

Wuyan Yao
Appendix B: Interview questions

1. What’s your educational background? Or what did you do before and what brought you to your current position?

2. How are you involved in digital humanities pedagogy? Have you been invited to give a lecture to a digital humanities related class or introduce the digital humanities resources in the library for a class visiting the library?

3. How often do you receive inquiries or consultations from students regarding DH related questions? What are most of the questions like? Could you give some examples of the most frequently asked questions?

4. Could you briefly introduce the resource that the library provides for students to do DH projects or DH research?

5. What tools do you mainly employ in DH instructions?

6. Where do you put your teaching materials? Do you share them?

7. How can librarians creatively utilize these resources to teach digital literacy skills? Could you use an example to explain?

8. What kind of skills do you think a DH librarian need? Or, what skills are essential to be a DH librarian? Do you think knowledge or background in humanities is necessary for a digital humanities librarian?

9. What aspects of the current DH pedagogy and collaboration that you are involved in do you think can be improved?

10. How do you define the term “digital humanities librarian”?