2017

Beyond the One-Shot: Intensive Workshops as a Platform for Engaging the Library in Digital Humanities.

Nicole Kong
Purdue University, kongn@purdue.edu

Susan Powell
University of California - Berkeley

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Beyond the One-Shot: Intensive Workshops as a Platform for Engaging the Library in Digital Humanities

Shortened title

Beyond the One-Shot: DH Intensive Workshops

Abstract

This article explores how librarian participation as instructors in week-long intensive classes—a common workshop format in Digital Humanities (DH)—can advance a variety of library objectives, while also uniquely supporting the DH community. Intensive workshops fall between the one-shot session and credit course formats more commonly found in library instruction. Drawing on case studies from Geographic Information Systems (GIS) instruction at DH institutes at the University of California Berkeley and Purdue University, the authors explore the origins of librarian involvement, course topics, pedagogy, and library services. Based on their instruction experiences in the DH summer institutes and student surveys, the authors argue that intensive instruction workshops provide a good potential platform for library involvement in Digital Humanities.

Keywords

digital humanities, pedagogy, intensive instruction, information literacy, libraries

Authors

Susan Powell[a] and Ningning Nicole Kong[b]
[a]Library, University of California Berkeley, Berkeley, California, USA; [b]Purdue University Libraries,West Lafayette, Indiana, USA

Introduction

The summer intensive is a common format for Digital Humanities (DH) pedagogy and presents many opportunities for librarians to engage with patrons involved with DH research and teaching. This article explores how DH intensive instruction can advance library services, while also uniquely supporting the DH community. Using case studies from Geographic Information Systems (GIS) instruction at DH institutes at the University of California Berkeley and Purdue University, it describes how two librarians have leveraged the intensive workshop format to integrate library services into DH training. Over the past ten years humanities has taken a spatial turn, with a renewed interest in the relationship of geographic space to humanist questions (Bodenhamer, Corrigan, and Harris 2010). Methods of critically evaluating information sources and representing complexity, ambiguity, and context are embedded within humanities GIS instruction, just as they are in other DH fields. Therefore, although the specific examples come from GIS instruction, many of the conclusions are applicable to librarians involved with other topics in DH.

The DH intensive workshop offers a time commitment that falls between the one-shot instruction session and the credit course formats more commonly found in library instruction. The distinctive format of intensives allows librarians to advance the objectives of core library missions in exciting ways. Unlike the one-shot it offers opportunities for more in-depth content and hands-on practice; unlike a credit course it is flexible and can be easily adapted to incorporate cutting-edge topics. Library services, such as reference, collection development, outreach, and other forms of instruction (including course support) can all be improved through the interactions among librarians and DH intensive workshop participants, even if the focus of the intensive instruction is limited to some skill or domain, like GIS and spatial humanities.

Intensive instruction enables librarians to integrate library services into the classroom in a unique way and reach a diverse audience of faculty, graduate students, and staff. Librarians can

incorporate library learning objectives such as information literacy and data handling into traditionally tool-focused and method-focused learning of DH summer intensives. In addition to lecturing, librarian instructors can use the lab exercises to reinforce concepts. This integrated approach gives librarians the space to move beyond solely skills-based learning outcomes to more advanced, situated knowledge.

This article draws on existing literature on library support for DH and the prevalence of DH intensive workshops to set the stage for examining librarian instruction in DH intensives. The case studies provide specific examples through which the authors will explore the origins of the librarians' involvement, potential audiences, formats, course topics, depth of instruction, and library services for DH intensive instruction. The article argues that intensive instruction workshops can be used effectively as a platform for library support for DH and offer some insights into using them effectively.

Literature Review

Librarians and libraries have a deep history of participation in Digital Humanities. In recent years the synergies among libraries, librarians, and the digital humanities have caught more attention (Golomb, Braunstein, and Hartsell-Gundy 2015; Sacco 2015; Vandegrift and Varner 2013; White and Gilbert 2016). The ongoing discussions have primarily focused on various ways that libraries can best support DH, whether through physical spaces (Schaffner and Erway 2014), project support (Vandegrift and Varner 2013), new skill sets for librarians (Vedantham and Porter 2015), instruction (Borovsky and McAulay 2015), or greater institutional support (Posner 2013). The consensus appears to be that there are many ways for libraries to support DH and there is no one single model; rather, each institution should figure out works best for their environment.

Instruction is one important component of a library's support for many disciplines across campus. To support DH, some librarians have explored course-integrated instruction (Borovsky and McAulay 2015). The examples described in the library literature about DH typically involve a

librarian or librarians collaborating with a faculty member to design and teach a course, as with Borovsky and McAulay's experience at UCLA (Borovsky and McAulay 2015). What has been missing from this conversation are the acknowledgment and assessment of librarians' short-format instruction interactions in DH, such as non-course integrated workshops and week-long intensives. In recent years, there are many short-term humanities workshops or camps emerging, such as "The Humanities and Technology Camp" (THATCamp) started from 2008, National Endowment of Humanities funded summer programs, and humanities workshops hosted by many universities' humanities centers. These short-format instruction sessions present unique opportunities for librarians to engage with DH pedagogy without requiring the commitment and potential bureaucratic hurdles of a semester-long course. This paper contributes concrete examples of how librarians have used these short-format DH instruction formats—specifically summer intensives—to support DH on campus.

Many scholars have noted the relative lack of scholarly literature about pedagogy in the Digital Humanities (Brier 2012; Hirsch 2012; Bonds 2014). What literature exists tends to focus implicitly on ways of integrating DH concepts and methodologies into semester courses for undergraduate and graduate students (Brier 2012; Hirsch 2012; Bonds 2014). Iantorno notes that, "Just as pedagogy has begun to receive more consideration in print and online, workshops and other events examining how scholars can incorporate DH in the classroom have increased," (Iantorno 2014, 141). Despite increased attention on DH pedagogy, formats that have long been central to DH knowledge transmission—including workshops and summer intensives—have not been explicitly addressed in the literature. These shorter format sessions share some of the same concerns encountered in longer format semester courses, but they also have unique considerations that must be addressed. This article contributes to the DH literature a needed perspective on the limitations and benefits of teaching DH through short-format summer institute workshops.

Academic librarians are intimately acquainted with the frustrations and limitations of the "one shot" sessions—difficult to assess, limited by the course instructors' syllabus and assignment, and repetitive to teach. Recent publications have called for rethinking the one-shot format, either by employing flipped instruction techniques (Obradovich, Canuel, and Duffy 2015; Loo et al. 2016; Rivera 2015) or shifting towards a model in which librarians are more collaborators in instruction rather than service providers (Bowles-Terry and Donovan 2016). Bowles-Terry and Donovan call for librarians to "gain a new perspective on their teaching… [by stepping] outside of everyday instructional practice," (139). Although librarians may teach credit-bearing courses at some institutions, this option is not available to all librarians. The intensive format offers librarians an opportunity to re-imagine and explore their role in academic instruction. In order to offer guidance for other librarians who are considering new ways to engage in instruction, this paper examines the experiences of two librarians who have taught DH summer intensives

Background

Purdue University case:

Purdue University's Summer Institute—a National Endowment for Humanities (NEH) funded institute for Advanced Topics in the Digital Humanities—took place in summer 2016. The three-week Institute was designed to offer twenty early and mid-career Africana/Black Studies scholars, graduate students, librarians, and archivists from institutions across the country an opportunity to think critically about the relationship and intersections between Africana/Black Studies and the spatial humanities . To that end, the institute was concerned with helping participants to think spatially, to internalize the concept of space, and to develop spatial literacies in their scholarship and practice. The primary focus of the institute was on how to use geo-spatial

technologies to enhance the narrative and analytical traditions of Africana/Black Studies. Participants were admitted through a competitive application process.

Spatial thinking skills and spatial literacy were emphasized in this DH institute because space is considered integral to the field of Africana Studies (McKittrick 2006), and scholars in this field have not had the benefit of sustained discussions and training in spatial humanities. The relative absence of Africana studies in spatial humanities is likely due to Africana scholars' unfamiliarity with the field of spatial humanities and their lack of time and resources to learn about technologies such as GIS. Thus, this institute was designed to provide the concepts of spatial humanities and technology training, as well as discussion opportunities to get the scholars started with their projects in this domain.

Nicole Kong, the library's GIS specialist, collaborated in this NEH grant application as a co-PI because it fits the mission of the library's GIS service to provide geospatial information access and technology support across disciplines, and because of the library's history of supporting spatial humanities at Purdue University (Kong, Fosmire, and Branch 2016). The institute was co-directed by Dr. Kim Gallon, an assistant professor of history at Purdue University, and Dr. Angel David Nieves, an associate professor and co-director of digital humanities initiative at Hamilton College. As Kong has worked with the College of Liberal Arts and the Center for African American Studies in many previous spatial humanities teaching and research projects, such as offering workshops, credit courses, and project collaboration, the NEH proposal was a natural collaboration. In addition, the library's space provides a wonderful place for scholars to start the conversation in these areas. The training sessions were designed to be offered at the Purdue University's library classroom, which is a state-of-the-art active learning facility ranked the 11th out of the 30 most impressive business school libraries in the United States ("30 Most Impressive University Business School Libraries" 2017). The Library features an open concept plan that allows participants to easily collaborate on projects. Since the computers in the learning space have GIS software

installed, scholars have a chance to learn and use the software before they decide if they need to install it on their own computer.

The three-week institute at Purdue University was organized with different kinds of activities in each week. The first week began with a thorough introduction to digital and spatial humanities and the debates over the significant absence of race in the field's scholarship. The institute co-directors invited many speakers in spatial humanities around the country to present their works in the first week. Participants reviewed a genealogy of spatial humanities projects, including maps, and heard from key spatial humanities scholars and practitioners. The second week was focused on hands-on spatial thinking activities and trainings in spatial information and technology led by Kong. Then, in the third week, the institute worked with participants individually or in small groups to help them resolve theoretical and practical problems with their own data. Kong's major involvement in this institute occurred during the second week when the concept of spatial information and technology was introduced and in the third week as a consultant with the participants resolving their project-specific questions.

The learning objectives for the second week's library instruction were focused around improving the spatial thinking skills, information literacy skills, and technology skills in spatial humanities. In designing the syllabus, Kong worked with the two institute co-directors to select five major topics about the spatial information and technology which are related to learning spatial humanities from the library GIS perspective: 1) Introduction to GIS research methods; 2) All around spatial information; 3) Identifying and collecting data for spatial humanities; 4) Data visualization and web mapping; 5) Spatial inquiry and data curation. For each topic, the Purdue University organizers not only prepared instructions with a variety of examples to teach participants about the concept, but they also prepared one or two hands-on exercises to allow enough practice opportunities for the participants to grasp the skills on their own. In addition, they designed group

discussion time on each day, so that participants could have time to reflect upon the concept learned during the instruction and exercises in their own research projects.

Since the participants were from different institutions nation-wide and have different status in their career development, it would be beneficial to know their background and expectations for the institute when designing the instruction contents for each topic. Thus, the Purdue University organizers designed a background survey to collect the participants' information before they arrived. The information of interest included questions developed from components of spatial thinking skills (Lee and Bednarz 2012), as well as participants' major information sources, digital and technology background and trainings, and their expectations for the institute. The feedback was very helpful for preparing relevant content and exercises for the participants.

University of California Berkeley case:

DH at UC Berkeley has rapidly gained momentum over the past several years. For many years scholars had been working on notable individual projects, and an informal network of scholars existed, including graduate students, librarians, faculty, and technologists. Graduate students established the DH working group in 2011 in order to help provide some mutual support. The campus has held an annual DH Faire on a somewhat regular basis since 2013, which brings together the campus DH community for talks, posters, and conversation. More recently the campus received a grant from the Andrew W. Mellon Foundation, and, with additional support from the Office of the Vice Chancellor for Research, formed "Digital Humanities at UC Berkeley." The initiative is a partnership between the Office of the Dean of Arts and Humanities and Research IT in the Office of the CIO.

One component of the Mellon grant provided funding for hosting a summer institute to expand opportunities for DH skills training at UC Berkeley. The inaugural week-long Digital

Humanities at Berkeley Summer Institute (DHBSI) took place in August 2015, and it was held again in August 2016. Although contingent on funding, the hope is to make the DHBSI an annual event.

UC Berkeley holds their week-long summer institute in mid-August during the week before classes begin for the fall semester. DHBSI is free of cost and open to any UC Berkeley graduate student, faculty, or staff. Participants are selected through an application process. The organizers' goals are for participants to learn DH skills and concepts that they can incorporate into their research, as well as build relationships within the campus DH community by incorporating lectures open to all participants, time for informal conversations, and various keynote addresses. The calendar of umbrella DHBSI activities—often variable due to the speakers' schedules—limits the number of teaching hours for the individual tracks and can make the teaching schedule inconsistent from day to day.

Participants in the UC Berkeley summer institute enroll in one of a handful of focused "tracks" that introduce a DH methodology, such as text mining or network analysis. The summer institute's organizers wanted to include a GIS-focused track. Powell, only recently arrived at UC Berkeley, had connected with the DH working group early on to determine what types of GIS workshops would be appreciated by the DH community, and had gained some recognition teaching GIS workshops on campus. The summer institute's organizers were familiar with Powell and her work, and invited her to co-teach the GIS track with Patricia Frontiera, the Academic Coordinator at a data intensive social-science resource center on campus.

In 2015 the DHBSI had approximately fifty total participants, with six participating in the Geospatial Analysis track. The following year's numbers were similar: approximately sixty total participants and again six in the Geospatial track, with a mix of faculty, staff, and graduate students. The timing of the summer institute during orientation week made it difficult for some participants to commit fully to the classes, which led some potential students to withdraw at the last minute and

others to begin the course but not complete it. The DHBSI is held in a classroom building on campus, which allows for the different tracks to meet separately in smaller rooms and come together in a large lecture hall for the all-institute talks and discussions. Since these classrooms have only a projector and screen, students must bring their own computers.

The co-instructors for the BDHSI GIS track employed a mix of lectures and hands-on activities in their workshops. In 2015, the first year of the DHBSI, the instructors approached the GIS track with a focus on the geospatial *analysis* component. Their objectives for the class were to provide a solid introductory understanding of basic geospatial concepts (essentially for the students to know the common pitfalls and have the vocabulary to talk about them) and introduce the possibilities of GIS through examples of analysis tools, including spatial queries, spatial statistics, and overlay analyses. Based on student feedback, conversations with DH researchers throughout the following year, and instructor self-reflection [see citation removed for review purposes], the instructors significantly revised the course objectives and syllabus for the 2016 DHBSI. For the second iteration of the course, the instructors' objectives still included an introductory understanding of basic geospatial concepts, but with a secondary focus on data creation and presentation rather than analysis. The instructors also attempted to bring more cohesiveness and depth to the concepts presented in the course by simulating a "real" DH project— incorporating related datasets and using the hands-on activities to answer questions that might occur in a DH project.

Due both to the course's technology requirements and the diversity of participants' backgrounds, the instructors conducted a pre-institute survey to gather information about participants' personal laptops, as well as their experience and comfort level with different types of geospatial technologies and concepts. Participants were asked to rate their comfort level with GIS and mapping platforms like Esri's ArcGIS, the open source QGIS, various web mapping platforms, and mapping through programming. Because many students either did not have laptops suitable for

installing ArcGIS or did not want to install it, the instructors offered alternative options. The library provided laptop loans of one week for interested students. In 2016, Powell and Frontiera partnered with the campus Research IT department to provide participants access to a remote desktop with GIS programs pre-installed.

Librarian objectives:

In addition to the broader goals of our DH summer intensives, the librarians brought a specific set of skills, perspectives, and objectives to their involvement. In both case studies presented here, the engagement of librarians as active contributors in the institutes created the potential to give participants a greater appreciation for the contributions that librarians might make. From the librarian's perspective, they hoped to achieve a number of objectives through this intensive instruction in addition to general student success.

First, they expected that librarians' participation would help scholars recognize libraries' continuous support for digital humanities across institutions. Although, as noted above, libraries and librarians have been deeply engaged with the digital humanities for long time, scholars new to DH might not be familiar with this connection. Librarians' participation created opportunities for discussions of the ways in which the library and librarians support and participate in DH. The librarians hoped to use the intensive to build stronger connections within the campus DH community and to showcase the library as a resource for campus DH research and teaching support and collaboration.

Second, the summer intensives provided an opportunity for the librarians to teach information literacy skills and research data management practices. In the specific case of spatial humanities discussed here, the DH summer intensives were a great place to integrate instruction about spatial information literacy, including how to search, create, evaluate, and visualize the

information. The embedded consultations and group discussions also provided a potential space for conversations about data management best practices for both working with data and for preserving the information for long-term archival purposes. The librarians hoped that these extended interactions would allow participants to move beyond the mere skills-based knowledge typically possible in a one-shot instruction session in order to more fully grasp the situated context of the tools within spatial humanities research.

Third, the librarians viewed these interactions as opportunities to expand out of their typical networks and learn from the DH community.They hoped that it would offer time to listen to the challenges in digital humanities and gather feedback for possible services that the library could provide for the community. The preparation itself for teaching the class, the interactions over the course of the institute, and the post-institute feedback and reflection all presented valuable occasions for gaining a better understanding of the current state of DH research and teaching. The librarians hoped that it would provide an opportunity to learn how much humanities scholars could benefit from an intensive instruction session, what GIS topics interested them, and how library services could be developed to offer an intensive but flexible learning module for digital humanities scholars. The discussion that follows explores the successes and challenges of both the general goals of the DH summer intensives and the librarian-specific objectives.

Discussion

Successes:

The intensive GIS workshops for digital humanities at both institutions were overall very successful based on the positive feedback received and the participants' research development that occurred during the learning period. Each institution conducted general evaluations at the end of

each summer institute. These evaluations confirmed that the instructors had met the participants' general goals for the institutes.

At Purdue University, some GIS specific questions were asked in the evaluation (the evaluations at UC Berkeley asked only general questions). Figure 1 shows a comparison of survey results before and after the workshop. The participants' understanding about the spatial information and technology were greatly improved after the week-long learning. Before the workshop, most of the participants indicated that they knew how spatial information and GIS technology could help in their research as well as the data sources for their projects. However, they did not feel confident enough to use the technology and software, or analyze the spatial information. After the workshop, they not only had developed a deeper understanding about the spatial information and technology that they already knew, but also experienced significant improvements in using the technology and tools, showing greater confidence to analyze their spatial information. At the project consultation phase by the end of the workshop, many participants had developed solid plans about the next step of their project development, including spatial information collection strategies, data management plans, spatial analysis plans, and the project outcomes in respect to using geospatial information. Although not quantified, anecdotal and personal feedback from the UC Berkeley institute indicated similar improvements in participants' confidence, knowledge, and skill.
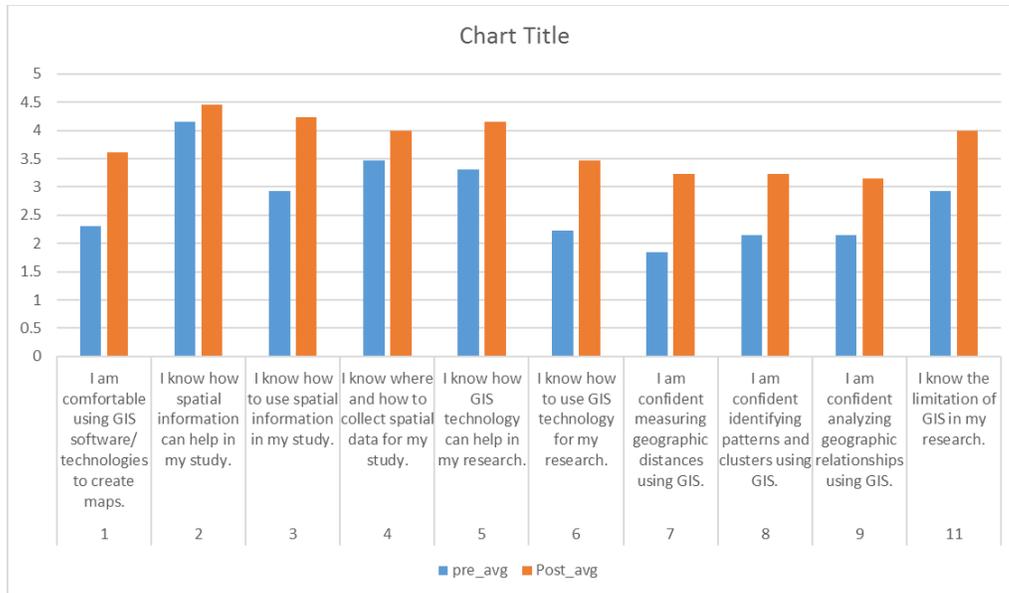
Figure 1. Self-identified pre/post workshop skill levels

During the GIS workshop week, the participants gained basic knowledge about spatial information, particularly related to digital humanities, as well as initial software skills that help them use the information effectively. The one week's focused intensive instruction allowed the instructors to include many detailed topics that go beyond the one-shot class visit or workshop. Due to the time constraints of spatial humanities one-shot workshops or class visits, students are typically only given a brief introduction to spatial information and simple examples of how GIS could be used in digital humanities. Although one-shot instructions are helpful to introduce to students the possibility of using spatial information in their projects, they are not enough to teach students practical strategies about how to integrate this information into their research. With the expanded time frame of an intensive workshop, the librarians were able to introduce the spatial information data model, data collection and database design, visualization, data processing, and curation as a full set of knowledge. They were also able to build in discussions during the workshop so that students have opportunities to think in more depth about how spatial information can help in their research. Through such an intensive training, students were able to develop more in-depth

understanding about the spatial information and generate more thought about applying spatial information into their digital humanities projects.

In addition to providing more time for introducing a fuller set of topics, the intensive workshop setting also helped students to build skills and vocabulary, and become more comfortable with the mapping technologies. The combination of instruction and hands-on exercise style of the workshops worked well for the participants to learn technology on their own. In contrast, one-shot classes only provide one chance for students to try out the software; it is not unusual for students to forget the skills within days after the class. The intensive instruction model provided students a focused and continuous learning experience to learn about the software over the course of several days. Some common software skills, such as building a map from multiple layers, checking the map's attribute information, etc., were used repeatedly in daily exercises during the week. The repetition helped students learn and remember those skills more successfully.

As with developing knowledge of spatial information and skills for effective tool use, understanding spatial humanities research design requires more in-depth training than can be conveyed through one-shot sessions. This point is well-illustrated by the results of a survey that Kong conducted at Purdue University. To help instructors understand the most relevant and useful GIS topics for digital humanities, after the Purdue University institute Kong surveyed the participants about different topics covered during the week. The participants rated the importance of each topic in their research projects on a scale between 1 and 5. Figure 2 shows the results of this survey. The "introduction and create your own GIS layers" topic is one that GIS librarians often teach in one-shot classes. According to the Purdue University summer institute participants, although this was considered an important topic for their overall research (it was ranked fifth out of the fifteen topics) there were still topics they considered more useful. These higher ranked topics include GIS research method and data collection design, hands-on web GIS skills (CartoDB and story maps), and spatial data visualization. Although these are great topics for digital humanities

students to learn, they often cannot be introduced in a one-shot class because they need to be built upon the basic understanding of the spatial information. Other topics that were ranked after the "introduction" topic were also considered important in participants' digital humanities projects, because they all received the importance value well above three. Again, without an intensive instruction model, librarians may not have the opportunity to introduce these topics to humanities students.
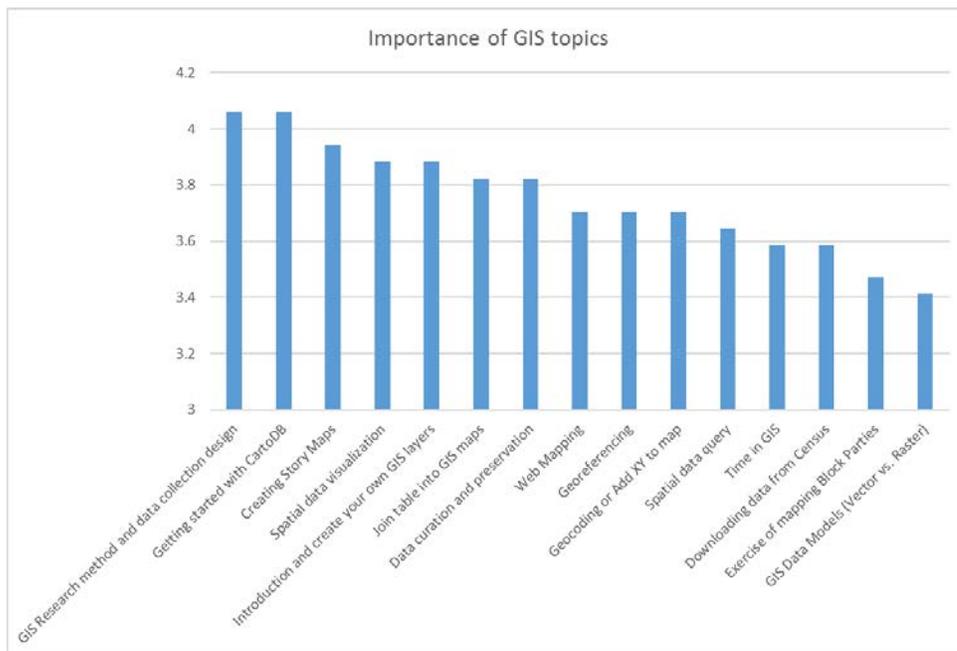

Figure 2. Importance of GIS topics

The intensive workshops provided a successful platform for introducing concepts of research data management (RDM), without necessarily calling it out as such. Although the participant interest conducted by Purdue University suggests that researchers also understand the value in RDM, as "Data curation and preservation" received an average importance score of ~3.8 out of 5, students may be intimidated by what they perceive as a complex and arduous process of managing data. Students and researchers also may not realize all of the aspects involved in RDM. Librarians understand the value of RDM to researchers and appreciate the broad range of

considerations that underpin solid data management practices. By integrating discussions of data management best practices into lectures on GIS and hands-on skill-building activities, the librarians were able to introduce students to RDM concepts without overwhelming them. For example, Powell included a lecture segment on how to choose an appropriate file format and a group activity on constructing a data model. The intensive format allowed the flexibility and space to incorporate these RDM concepts into the workshop and ensure that students gained familiarity with them. The DH intensive format provided an opportunity to integrate RDM into students' basic understanding of working with GIS and spatial data. Students' verbal feedback affirmed that they felt more comfortable with managing spatial data after the workshop.

Compared to a semester-long credit course, the intensive instruction allows a more flexible and dynamic way to interact with students. Limited by the departmental requirements, schedule conflicts, and research progress, humanities students sometimes do not have the time or freedom to take a semester-long course in order to learn about GIS. The summer institutes provided them with opportunities to learn GIS in more depth in a relatively short time period without the pressure of credits and grades. This model opened the door for many humanities students who may not be confident about learning technology. Also, a summer institute does not necessarily require the instructors to teach a subject in a systematic way, so that instructors can have more flexibility to integrate cutting-edge technology and research trends into the instruction and discussion.

In addition to providing a convenient and effective learning space for participants, DH intensives also provide unique teaching opportunities for librarians, whose semester-long credit course teaching opportunities are often limited by time and/or institutional restrictions. For example, teaching in the summer institute gave Powell opportunities not available in the course of her typical work, including developing a syllabus and creating a connected set of hands-on activities. She found this work to be both rewarding and challenging. The lectures and activities

from the intensives also provide ready-made material that can be re-worked and integrated into one-shot workshops over the following academic year.

Each of the institutes offered consultation time for participants to discuss their project-related questions with the instructors. The one-to-one consultation opportunity is very important for digital humanities students to plan out more practical steps to further their research. During these consultations the librarians observed that many students were able to take advantage of these discussions to set up their detailed data collection and analysis plan, choose their preferred software or tools, and propose the tentative outcomes from their digital projects. Through these consultations, students gained new or greater understanding of the library's role in supporting digital humanities. Many students followed up with the librarians after the summer institute when they needed help in their spatial humanities research.

Because the UC Berkeley workshops were composed solely of UC Berkeley students, faculty, and staff, the DH intensives allowed the librarian to establish participant relationships that extended beyond the timeframe of the workshop. Therefore, the intensive provided an excellent networking venue and increased the visibility of library services on campus. An example outcome of this was that several graduate students and staff followed up after the workshop with reference questions related to GIS data sources and use. In another example of how the intensive succeeded in promoting library services, a faculty member participant in the GIS intensive referred students from their course to the library for assistance in digital mapping projects. As a result of the librarians' participation in the DH intensives, patrons are more aware of library services, thereby increasing the value of the library and the quality of researchers' work.

Challenges and Limitations:

Learning GIS and spatial analysis methods for digital humanities is a step-by-step process. Even a semester-long course is not sufficient to teach every needed skill for humanities students, and one intense week's workshop could not be enough to cover every related topic that the participants need in their different projects. When teaching GIS for the humanities students, three basic skills are needed to get them started with their spatial projects, including spatial thinking skills, data skills, and technology skills (Kong, Fosmire, and Branch 2016). In many one-shot instructions, librarians are able to introduce the basic concept of spatial information and examples of spatial humanities projects, thus teaching the spatial thinking skills. The intensive workshops were able to expand the learning contents from spatial thinking skills to data and technology skills, but still not at a sufficient level for many participants comparing to a semester-long course.

The authors were interested in exploring the barriers participants might have in their future spatial humanities research after the workshop. In Purdue University's post-workshop survey, the participants were asked among the three basic skills, what are the most difficult parts that prevent them from using GIS (they could choose multiple skills ifneeded). Table 1 shows the percentages of participants indicating their potential barriers of using GIS. More than 70% of the participants indicated that they need to learn more about GIS (or technology) skills in order to use it in the future. A one-week workshop was enough to get them started to use some general tools, but in order to fulfill their specific project requirement, they need to learn more specific skills in a particular GIS area, such as spatial analysis, web map development, etc. One third of the participants felt that they were confident enough to dive into their spatial humanities projects right after the institute. About 27% of the participants felt that they lacked the spatial thinking skills to further their research in the spatial humanities. Part of this reason is because some of the participants' projects were not necessarily spatial related projects. Although they were hoping that GIS could be the tool to help them when registering for the workshop, it might be difficult to apply

the research method in their selected topic. About 13% participants thought that data collection

might be a challenging part for their research. Many humanities studies need historical information

which might not exist in a digital format. Even if some historical information exists in databases

such as a census database, it takes researchers time to explore and learn about those complicated

databases. More library information literacy instructions could be built around these information

access issues to address the digital humanities researchers' needs.

Table 1. Potential barriers of using GIS.

Comments	Percentage of participants
Barriers in technology skills	73.33%
Feel confident	33.33%
Barriers in spatial thinking	26.67%
Barriers in information access	13.33%

Although the intensive format helps participants put concentrated focus with peers on how

spatial information is related to their research, the format is also somewhat limited compared to a

semester-long course, especially if students do not apply the skills and knowledge in their own

research after the workshop. Time-wise, one-week's intensive instruction offers students a

comparable amount of lecture time to a three-credit course. Instead of stretching these lecture

hours along a full semester with supplemental time for labs and homework, however, the

instruction and activities are all compressed within one focused week. This means that the effective

lecture time falls far short of a full semester course. Limited by the one-weeks' time frame, the

intensive instruction format does not allow enough practice time for students to learn from, such as

homework and reading assignments. DOES THE PRECEDING SENTENCE MAKE SENSE? Since all of

the learning happens in one week, we found it difficult to strike the right balance between time

spent on concept instruction and skills training. If too much time is spent on concept instruction, it

would be hard for students to learn hands-on skills so that they can use the GIS on their own. Otherwise, if too much time is spent on skills training, it can be difficult for students to understand why they need to use those skills, and how they might integrate the spatial concept into their research. A good intensive instruction workshop requires a deliberate design to balance the time spent between concept teaching and skills training. Yet even when this balance is reached, the total amount of material able to be covered in an intensive workshop falls short of what can be taught in a semester-long course.

The difficulty of the balancing act between concepts and skills was compounded by the fact that participants had many different starting points. Some of the participants had a good understanding about spatial humanities and were ready to use the GIS technology in their research, while others were just beginning to learn about spatial humanities and were at the stage of exploring opportunities if GIS could help in their research. With such a combination of participants, it was challenging on the instructor's side to design a balanced teaching module that could benefit everyone. The instructors observed that exercises and discussions during the instruction week were a good opportunity for students to learn from each other, especially for beginners to learn technology jargons and spatial thinking skills from their peers.

Participants at UC Berkeley in both years indicated that they were either "Satisfied" or "Very Satisfied" (4 and 5 out of 5, respectively) with the course. The average was 4.75 in 2015 and 4.2 in 2016. The instructors attribute the satisfaction drop between 2015 and 2016 to a variety of factors, including the revised instruction plan, classroom dynamics, and technological difficulties. As seen in an anecdotal account from UC Berkeley, even seemingly simple things like the classroom set-up can have dramatic impacts on the quality of interactions among participants: in 2015 class was held in a seminar room with a single central large table, whereas in 2016 the classroom was set up with rows of tables facing the front lectern and screen. In 2015 the sense of camaraderie and

engagement among participants seemed much higher than the following year. The instructors suspect the classroom layout strongly contributed to this difference.

Finally, the intensive workshop opportunity is dependent on funding availability in both cases. Since the workshop is not part of the curriculum requirements, it is not guaranteed to occur every year. Thus, the libraries will not be able to incorporate continuous instruction plans into this teaching format.

Conclusion

Our experiences planning and teaching GIS and spatial humanities at Digital Humanities summer intensives have led us to appreciate the opportunities they present for us as librarians, as well as the challenges. We enjoyed the process of working with our peers at our respective institutions to develop the curricula and engage with the rapidly evolving tools and methodologies of digital spatial humanities. We contributed our expertise and distinctive perspectives as librarians to the courses in order to help participants gain knowledge about concepts perhaps not typically included in DH instruction, including research data management and data literacy. We were also able to use the intensive workshops as a means for advancing other goals we have as librarians. Our participation in the workshops raised the profile of the library, provided opportunities for building connections across campus, and helped us stay current in trends in DH research.

The summer intensive workshop format is not without its challenges, though, as we discovered. As with any teaching experience, much depends on the students themselves, and it can be difficult to be adequately flexible in order to accommodate for students' different starting points in a one week session. While participants generally benefit from the intensive focused learning of the institute format, in order for them to fully become proficient and adept in the covered concepts

and skills, continuing work may be necessary. [The instructors] recently established a GeoMatters working group at UC Berkeley in part to address this gap. Although targeted broadly at spatial concepts and tools with no specific disciplinary focus, this working group model may provide continuity that will help students succeed beyond the intensive workshop.

Despite some challenges, we feel that our experiences confirm that librarians have much to gain from teaching in Digital Humanities summer institutes. Additionally, our experiences and perspectives as librarians contribute to the overall success of the institutes. Although, as with any integration of libraries and DH, the individual cases will necessarily vary depending on the unique concerns and situation of the institution, we recommend librarians consider intensive instruction as one potential avenue for involvement in the Digital Humanities.

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