



A Survey of Student Employment and Geospatial Services in Academic Libraries

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Abstract

Student employees are often vital members of an academic library's workforce, though the extent to which they contribute to library geospatial services has not yet been explored in a systematic way. The present study was designed to address this gap through a survey of academic library professionals involved in employing students to provide geospatial services. Topics addressed in the survey include department staffing, student employee responsibilities, funding and compensation for student positions, and the perceived benefits and challenges of employing students to provide geospatial services. Data generated through survey responses indicate potential differences in the types of responsibilities performed by graduate/professional and undergraduate students, enhanced productivity and collective wisdom as library benefits, professionally relevant experience and transferable skill development as student benefits, and common challenges across institutions. By providing a baseline understanding of student employment practices in library geospatial services, this study offers actionable information for current practitioners and can serve as a foundation for future scholarship on supervisor and student employee experiences.

Keywords: Academic libraries, Student employment, Map libraries, Geospatial services, GIS services

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Introduction

The development and proliferation of geospatial services in academic libraries has been referred to as “a third paradigm shift” in map and geospatial librarianship ([Bidney & Piekielek, 2018, p. 68](#)). Bidney and Piekielek (2018) note that substantial variation exists in how geospatial services are being implemented across institutions, creating an opportunity for academic library professionals engaged in these services to “share with one another what we are doing, what is working, and, perhaps more importantly, what is not working” (p. 67). With this call in mind, I designed the present study on a relatively unexplored topic in the map and geospatial librarianship literature, student employment and geospatial services in academic libraries.

Student employees are often vital members of an academic library’s workforce, but their contributions to geospatial services, and the similarities and differences in these practices across institutions, have not been examined in a systematic way. The present study addresses this gap by describing practices, benefits, and challenges associated with student employment and geospatial services in academic libraries, through the perspectives of current, past, and prospective supervisors. For the purposes of this project, “geospatial services” is broadly defined and can include the management and use of print and digital collections of maps and other geospatial information resources; use and support of geospatial data, methods, and technologies for research and teaching; and library-based geospatial education and outreach.

The main research questions addressed through this study are:

1. What responsibilities do students employed in library geospatial services typically perform?
2. How are these positions funded, and how are the students in them compensated?
3. What are the perceived benefits of this work for both student employees and the library?
4. What are the most challenging aspects of employing students in library geospatial services?

By addressing these questions, this work provides actionable information for map and geospatial library professionals to use in developing and enhancing student employment opportunities at their own institutions.

Literature Review

The topic of student employment and library geospatial services (alternatively referred to as GIS services) could be characterized as often mentioned but understudied. There are four main categories of publications in which references to student employment in library geospatial services are generally found: 1) research about planning, implementing, or supporting library geospatial services across multiple institutions; 2) reports about planning, implementing, or supporting library geospatial services at specific institutions; 3) reports about specific projects related to library geospatial services; and 4) papers that directly or indirectly focus on student employment. The

first three categories form the bulk of the literature, and student employment is usually briefly discussed but is not an explicit focus of these works.

Starting with the first category – research about planning, implementing, or supporting library geospatial services – Soete (1997) provides “reports from the field” for 20 Association of Research Libraries (ARL) institutions. Of these, four – Penn State University, University of Connecticut, University of Minnesota, and University of Washington – mention GIS staffing by student employees or interns. In a survey of ARL member libraries in which 64 respondents reported providing GIS services, Davie et al. (1999) suggest that staffing for these services typically included a librarian, a support staff member, a graduate assistant working 10 hours per week, and a student worker also at 10 hours per week, though only 10 respondents (15.6%) reported staffing by graduate assistants and 14 (21.9%) reported staffing by other student workers. Salem (2005) revisited the topic of GIS services in ARL libraries and reported an increase in staffing by graduate student assistants but a decrease in staffing by other types of student workers between 1999 and 2005.

Kinikin and Hench (2005) conducted a survey of GIS services in smaller academic libraries in which 22 respondents indicated their library supports GIS and five (22.7%) reported part-time staffing by students with some knowledge of GIS. Holstein (2015) carried out another survey of GIS services in ARL libraries, indicating they are typically supported by two professional staff and three student employees based on data gathered from 54 responses. However, details about the percentage of respondents employing students (and whether they are graduates or undergraduates) are not provided for this survey, making it difficult to discern broader trends about student employment in library geospatial services across this first category of publications.

Many publications in the second category – reports about planning, implementing, or supporting library geospatial services at specific institutions – can be found in the literature from the mid-1990s through the 2000s and contain references to student staffing. Cline and Adler (1995) note that part-time student employees were trained to use ArcView as part of the initial staffing model at Penn State. Cobb (1995) suggests that one benefit of establishing relationships with departments offering GIS courses is that they may become a source of highly qualified student employees. In launching GIS services at North Carolina State University, Argentati (1997) indicates that “while part-time, temporary staffing arrangements with graduate students had been successful to a degree, they could not offer the necessary continuity or depth for the high quality of GIS and data services desired” (p. 464), contributing to a proposal to hire a full-time spatial and numeric data services librarian. Lamont and Marley (1998) offer thoughts on the different types of responsibilities student employees might undertake based on their disciplinary backgrounds, such as library graduate students improving a website or geography undergraduates creating tutorials.

Several papers during this period make brief mention of student employees as part of GIS services teams, with responsibilities related to technical assistance, reference assistance, and data processing/delivery (Derksen et al., 2000; Olson, 2004; Pinnell, 2004; Znamirowski, 2003). Weimer (2005) notes the different responsibilities of student workers providing map/GIS support at Texas A&M University, with undergraduates

completing tasks such as scanning, georeferencing, and simple map creation and a graduate assistant focused on more advanced technical support and expanding the team's web presence. Garza (2006) describes an interesting model at Rice University's GIS/Data Center in which a professor or department doing a long-term research project will hire at least one student assistant, with the center serving as the student's place of employment while supporting those projects. In discussing staffing related to Cornell's map & geospatial information collection, Kibbee (2008) comments that "the nature of student assistantship is evolving, and we increasingly depend on them for GIS help, map design, and scanning/plotting of maps" (p. 61).

A subset of this second category emerges in the early to mid-2010s, reporting on the evolution of library geospatial services at particular institutions and with additional perspectives on student employment. Sare et al. (2013) indicate that a hands-on portion of their student employee interview "has improved the quality of our hires, and therefore allowed us to extend the complex GIS inquiries responsibilities to our student workers" (p. 126). Four of the five institutions profiled in Scaramozzino et al. (2014) mention student employees as part of their staffing model, with comments about providing walk-in reference and technical assistance, carrying out consultation and project work, supporting co-funded positions between the library and academic departments, and the value of such positions in gaining real-world experience. Suh (2016) notes that two graduate research assistants are part of the Data Services Group at George Mason University, with one providing support for GIS and the other for statistical and qualitative analysis. Guss (2016) describes a studio model for academic data services, including GIS support, at New York University, noting that the unit has "benefited over the years from employing student consultants from a range of programs with a wide variety of experiences and expertise, and their insights have often been the impetus for new or expanded services" (p. 20). Considered together, publications from this second category provide insight about tasks student employees may carry out in library geospatial services and suggest that as those services have continued to evolve, so too have the breadth and depth of potential student responsibilities.

References to student employment in the third category of publications - reports about specific projects related to library geospatial services - become more prevalent throughout the 2010s, though there are some earlier examples in the literature (e.g., Larsgaard & Carver, 1995; Michel et al., 2005). Stieve et al. (2010) hired a library and information science intern, who worked approximately 20 hours per week for a year to support a map cataloging project at Brown University. Mattke (2012) and McAuliffe et al. (2017) discuss the contributions of student employees in making the University of Minnesota's historical aerial photograph collections more discoverable and accessible, including georeferencing and mosaicking portions of the collection. Fortin and Mueller (2013) describe a collaborative historical GIS project at the University of Toronto, in which grant funding was used to hire students to help with digitizing maps, vectorizing features, and inputting metadata.

Hall (2017) notes the contributions of student workers to scanning Sanborn fire insurance maps at Dartmouth College, while Laddusaw and Littlejohn (2019) discuss employing a museum studies intern on a project to inventory and digitize a World War

II map collection at Texas A&M University. In an example from Michigan State University, Kiser and Smeltekop (2018) discuss ways student employees can contribute to the metadata aspects of map scanning projects, such as cross-checking catalog records for scanned and paper maps and manually editing MARC records. Some examples of how student employees might support library geospatial instruction include creating bibliographies of the paper maps utilized in instruction sessions (Raynes & Heiser, 2019) and creating a tutorial documenting how the R programming language can be used for processing a large climate dataset (White & Powell, 2019).

Publications in the three categories described above provide valuable information about employing students in library geospatial services and the types of contributions they might make, but these are usually only briefly mentioned rather than explored in depth. Publications in the fourth category delve deeper into various practices by directly or indirectly focusing on student employment and library geospatial services. Ricker (2006) discusses ways that effective mentoring can advance library GIS services, including outlining a 10-point framework used for mentoring graduate and undergraduate student assistants at the University of Maryland. Macfarlane and Rodgers (2008) discuss the development of a GIS internship program at Middlebury College, in which interns ran instruction sessions, provided consultation support, helped with lab maintenance, and produced reports suggesting areas for future library GIS services. Hswe et al. (2017) offer perhaps the most in-depth treatment of student experiences in their case study of an engaged scholarship model at Penn State. The authors discuss the roles and responsibilities of a pair of geospatial interns, perspectives on the internship experience from the mentors and interns themselves, the value of such an approach for digital scholarship pedagogy, and recommendations for others considering an engaged scholarship model at their own institutions (Hswe et al., 2017).

Bankston et al. (2022) describe a mixed methods analysis of the Maps and GIS Services desk at Texas A&M University, noting that student employees are part of the team staffing this service point. While the focus of their study is on user activities rather than student worker experiences, the model outlined by Bankston et al. (2022) also provides insights into the environment in which student employees are operating, the interactions in which they engage, and the expertise needed to fulfill their responsibilities, and could be adapted for this purpose in other contexts. Other recent works highlight the contributions of student employees in advancing various library geospatial projects, while also offering those students scholarly communications experience and credit through co-authorship opportunities (Davis et al., 2023; Tuijl-Goode & Toro, 2021). By reviewing and synthesizing the relevant literature, I hope to have demonstrated that though references to student employment and library geospatial services are not uncommon, this is also not a topic that has been a focus of study in its own right. The present study aims to change that and highlight student employment as an area that is appropriate for both research and practice among map and geospatial library professionals.

Methods

An online survey was designed to gather data about the practices and perspectives of library supervisors employing students in geospatial services. The research protocol

and associated documentation were submitted to The Ohio State University's Institutional Review Board, and the research was determined exempt from IRB review. Survey responses were collected using Qualtrics between March 22, 2022 and May 31, 2022. Information about the survey was distributed through the following communication channels to reach a broad audience of academic library professionals responsible for supervising student employees in geospatial services:

- American Library Association Map and Geospatial Information Roundtable (via ALA Connect)
- Association of College & Research Libraries College Libraries Section (via ALA Connect)
- Association of College & Research Libraries Digital Scholarship Section (via ALA Connect)
- Association of College & Research Libraries University Libraries Section (via ALA Connect)
- Big Ten Academic Alliance Geospatial Information Network email list (private)
- Geolibraries online discussion forum (geolibraries@groups.io)
- Geonet email list (Geonet@PRINCETON.EDU)
- GIS4LIB email list (gis4lib@u.washington.edu)
- MAPS-L email list (MAPS-L@LISTSERV.UGA.EDU)
- Research Data Access & Preservation Association email list (discuss@rdapassociation.org)
- Western Association of Map Libraries email list (waml@u.washington.edu)

Based on the timing of survey distribution, respondents were asked to self-identify in one of the following categories:

- **Current:** I have supervised student employees providing geospatial services at my current institution during the 2021-2022 academic year.
- **Past:** I have supervised student employees providing geospatial services at my current institution within the past five years, but not during the 2021-2022 academic year.
- **Prospective:** I have never supervised student employees providing geospatial services at my current institution, but I hope to hire students in the future.

A total of 35 complete responses were received, 29 from current supervisors, three from past supervisors, and three from prospective supervisors. A list of the institutions from which responses were received is provided in [Appendix A](#). For further analysis, responses from current and past supervisors were combined, as both of these groups shared the common experience of supervising student employees at some point. Responses from prospective supervisors were excluded from further analysis due to the small sample size.

A copy of the survey instrument used in this study can be found in [Appendix B](#). The survey included sections related to department staffing, student responsibilities, funding and compensation for student positions, and open-ended questions on perceived benefits and challenges. Frequency counts and percentages were calculated for quantitative data related to responsibilities, funding, and compensation. The

response options for questions about student responsibilities (Table 1), funding (Table 2), and compensation (Table 3) are provided below. These tables also include descriptive short codes for each of the options presented in the survey. The short codes are used for reporting survey results so Tables 1, 2, and 3 can serve as a reference when interpreting the frequency count and percentage data in the Results section that follows.

Table 1. Codes and definitions for the types of student employee responsibilities presented in the survey (Respondents could select all that applied)

Responsibility Codes	Responsibility Options in Survey
CatalogProc	Cataloging/processing support for collections (e.g., data entry, physical processing of maps)
UserCollab	Collaborating on external faculty, staff, or student-led research projects (i.e., directly responsible for performing project tasks)
UserConsult	Consulting on external faculty, staff, or student-led research projects (i.e., answering questions or demonstrating project tasks)
LibCollab	Collaborating on library-led projects (e.g., application development, digital scholarship, physical/digital exhibits)
LibConsult	Consulting on library-led projects (e.g., application development, digital scholarship, physical/digital exhibits)
Metadata	Creating/editing metadata for maps, GIS data, or other geospatial information resources
OutreachComm	Creating/maintaining content for outreach and communications (e.g., blog posts, social media, library websites)
Instruction	Delivering instruction (e.g., workshops, one-shot sessions)
ResourceDev	Developing/updating instructional resources (e.g., tutorials, LibGuides)
MapDigitize	Digitizing/extracting vector data from scanned maps
MapGeoref	Georeferencing scanned maps
GeneralTech	Maintaining/supporting general technologies (e.g., lab software/hardware)
AdvancedTech	Maintaining/supporting advanced technologies (e.g., GPS equipment, Drone/UAS equipment)
MapScanning	Scanning maps
Shelving	Shelving and other stacks activities for physical collections
PhysicalStaff	Staffing a physical service point (e.g., computer lab, reference desk)
VirtualStaff	Staffing a virtual service point (e.g., chat service, organizational email)
OtherResp	Other responsibilities (please describe)

Table 2. Codes and definitions for the options for funding student employee positions presented in the survey (Respondents could select all that applied)

Funding Codes	Funding Options in Survey
LibBudget	Library operating budget
WorkStudy	Federal work study
OneTimeFund	Special one-time funds
Grants	Grants
DonorFund	Library endowments or donor funds
CampusUnit	Contributions from another campus unit or academic department (please describe)
OtherFund	Other funding (please describe)

Table 3. Codes and definitions for the options for compensating student employees presented in the survey (Respondents could select all that applied)

Compensation Codes	Compensation Options in Survey
Wage	Hourly wage
Stipend	Fixed stipend
FullTuition	Full tuition/fees
PartTuition	Partial tuition/fees
CourseCredit	Course/Internship credit
ProjectCredit	Project credit (e.g., authorship, acknowledgment)
OtherComp	Other compensation (please describe)

For qualitative analysis of open-ended questions, survey responses were exported from Qualtrics as a CSV file, de-identified, and imported into NVivo (Release 1.7.1) for coding. Saldaña (2016) describes coding as an interpretive act in which a researcher-generated word or phrase (i.e., code) is used to assign “a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (p. 4). The descriptions below for the coding methods used in this study derive from *The Coding Manual for Qualitative Researchers* (Saldaña, 2016).

For data management purposes, I used attribute and structural coding methods. Attribute coding is used to document basic descriptive information about a dataset, for example, noting whether respondents were current, past, or prospective supervisors, and if they employed graduate/professional students, undergraduate students, or both. Structural coding applies a code to segments of a dataset associated with specific research questions (e.g., library benefits, student benefits, challenges) to categorize comparable segments for more detailed analysis.

During the first cycle of coding, I used descriptive and in vivo coding methods. Descriptive coding is used to summarize the topic of a segment of qualitative data with a word or phrase (e.g., capacity, training). In vivo coding is used to create codes based on the actual language used by research participants (e.g., “collective wisdom”, “ephemeral workers”), and these codes will appear in quotation marks when discussed further. During the second cycle of coding, I used pattern coding to assign “meta-codes” to group similarly coded data from the first cycle and identify themes appearing across survey responses (Saldaña, 2016, p. 235).

Results

Of the 32 responses received from current and past supervisors, 22 reported having one full-time faculty or staff member in their department with geospatial services as a primary job responsibility. Two reported having less than one full-time professional focused on geospatial services, while eight reported having more than one full-time professional with these responsibilities (ranging from 1.5 to 4). In terms of student employees, 14 respondents indicated they typically employed both graduate/professional and undergraduate students, 11 employed undergraduate students only, and seven employed graduate/professional students only. For the analyses reported below, the sample sizes are 21 for respondents employing

graduate/professional students and 25 for respondents employing undergraduate students.

Among respondents who supervised graduate/professional students, the number of students typically employed ranged from one to six, with the most common response being one (n=13) and the average being 1.9. Supervisors reported that graduate/professional students worked an average of 14.4 hours per week, with a range of six to 20 hours. Among respondents supervising undergraduate students, the number of students employed ranged from one to eight, with the most common response again being one (n=9) and the average being three. Supervisors reported that undergraduate students worked an average of 10.9 hours per week, with a range of two to 25 hours.

Table 4 provides information about the responsibilities that graduate/professional (GP) and undergraduate (UG) student employees commonly engage in when providing geospatial services. The most common responsibilities performed by graduate/professional students include consulting on external projects (UserConsult, 85.7%), consulting on library-led projects (LibConsult, 71.4%), developing/updating instructional resources (ResourceDev, 66.7%), collaborating on library-led projects (LibCollab, 61.9%), creating/maintaining outreach content (OutreachComm, 52.4%), and staffing a physical service point (PhysicalStaff, 52.4%). The most common responsibilities performed by undergraduate students include staffing a physical service point (PhysicalStaff, 68%), creating/editing metadata for geospatial information resources (Metadata, 60%), georeferencing scanned maps (MapGeoref, 60%), cataloging/processing support for collections (CatalogProc, 52%), scanning maps (MapScanning, 48%), and shelving activities for physical collections (Shelving, 48%). Examples of "other" responsibilities described by respondents include organizing in-person and remote GIS-related events (graduate/professional students) and simple map repair after training by preservation services (undergraduate students).

The percent difference field in Table 4 (GP% - UG%) is a simple measure of the extent to which performance of specific responsibilities may be skewed towards graduate/professional students (more positive values) or undergraduate students (more negative values). With the exception of staffing a physical service point, the responsibilities most commonly performed by graduate/professional students also tend to be skewed toward that group, with percent difference values ranging from 16.4 to 53.7. The same is true for the most common responsibilities of undergraduate students, with percent difference values ranging from -12.4 to -33.7 reflecting skew toward that group. Across all responses, there were no responsibilities exclusively performed by graduate/professional students or undergraduate students, and percent difference is an admittedly crude measure, but there is some indication in these results that student employees of differing ranks are carrying out different types of responsibilities related to library geospatial services.

Table 4. Survey results for responsibilities carried out by graduate/professional (GP) and undergraduate (UG) student employees (See Table 1 for code definitions)

Responsibility Codes	GP Count (n = 21)	GP Percent (%)	UG Count (n = 25)	UG Percent (%)	Percent Difference (GP% - UG%)
CatalogProc	8	38.1	13	52	-13.9
UserCollab	10	47.6	5	20	27.6
UserConsult	18	85.7	8	32	53.7
LibCollab	13	61.9	8	32	29.9
LibConsult	15	71.4	10	40	31.4
Metadata	10	47.6	15	60	-12.4
OutreachComm	11	52.4	9	36	16.4
Instruction	9	42.9	4	16	26.9
ResourceDev	14	66.7	11	44	22.7
MapDigitize	9	42.9	11	44	-1.1
MapGeoref	10	47.6	15	60	-12.4
GeneralTech	5	23.8	7	28	-4.2
AdvancedTech	2	9.5	3	12	-2.5
MapScanning	6	28.6	12	48	-19.4
Shelving	3	14.3	12	48	-33.7
PhysicalStaff	11	52.4	17	68	-15.6
VirtualStaff	7	33.3	5	20	13.3
OtherResp	1	4.8	1	4	0.8

Table 5 provides information about funding sources for student employee positions in library geospatial services. For both graduate/professional (GP) and undergraduate (UG) students, the library operating budget is the most common source of funding, with federal work study being another significant source of funds for undergraduate positions. That said, respondents indicated a variety of other funding sources, including special one-time funds, grants, and library endowments or donor funds. Several respondents indicated funding for student positions was contributed by other campus units, with examples including the Geology department, Environmental Conservation department, Tutoring Center, and a university GIS fellowship program. One respondent described obtaining “other” funding for student positions through their participation in professional experience courses.

Table 5. Survey results for funding sources of graduate/professional (GP) and undergraduate (UG) student employee positions (See Table 2 for code definitions)

Funding Codes	GP Count (n = 21)	GP Percent (%)	UG Count (n = 25)	UG Percent (%)
LibBudget	19	90.5	23	92
WorkStudy	5	23.8	15	60
OneTimeFund	4	19.1	3	12
Grants	2	9.5	3	12
DonorFund	2	9.5	4	16
CampusUnit	2	9.5	3	12
OtherFund	1	4.8	0	0

Table 6 provides information about compensation practices for graduate/professional (GP) and undergraduate (UG) student employees in library geospatial services. Respondents indicated the primary practice for compensating undergraduate students

is an hourly wage (96%), with project credit (16%) and course/internship credit (4%) the only other options selected. Practices for compensating graduate/professional students were more variable with each of the different options selected in some cases, but with hourly wage (81%) still leading the way by a wide margin.

Table 6. Survey results for compensation practices for graduate/professional (GP) and undergraduate (UG) student employee positions (See Table 3 for code definitions)

Compensation Codes	GP Count (n = 21)	GP Percent (%)	UG Count (n = 25)	UG Percent (%)
Wage	17	81	24	96
Stipend	4	19.1	0	0
FullTuition	2	9.5	0	0
PartTuition	1	4.8	0	0
CourseCredit	2	9.5	1	4
ProjectCredit	3	14.3	4	16
OtherComp	0	0	0	0

Themes for library benefits that emerged from analysis of open-ended responses include enhanced productivity, “collective wisdom,” and connection (Table 7). Regarding enhanced productivity, respondents frequently noted that student employees increase their capacity to provide services, including serving more users, completing work faster, or making progress on projects that had been on hold. Respondents also frequently referenced some form of task delegation, such as students addressing the day-to-day needs of the department or answering basic questions, allowing full-time staff to focus on more advanced user needs and project work. A number of responses indicated that student employees help to expand the “collective wisdom” of the department, by bringing their own unique perspectives to services and projects, sharing their technical and academic knowledge, or enhancing supervisors’ mentorship and advising skills. Several respondents mentioned that employing students helps them to stay in touch with user needs or connect with particular departments.

Table 7. Themes, subthemes, and representative quotes from survey responses about library benefits related to employing students in geospatial services

Theme	Subtheme	Respondent Quote
Enhanced Productivity	Capacity	“Without my student employees, I would not have the capacity to do nearly as much research consultation, teaching, or professional service. Basically, getting tenure would be a far tougher road.”
Enhanced Productivity	Delegation	“Having a student help with consultations, data requests and drop-in hours relieves a huge burden and allows the program to move forward with other programmatic initiatives such as developing a geoportal, expanding our web content and workshop offerings.”
“Collective Wisdom”	“Fresh Perspectives”	“As the only full time person providing geospatial services in my library, I appreciate having someone else to bounce ideas off of and to bring fresh perspectives.”
“Collective Wisdom”	Professional Learning	“We always learn something new from each of our students - whether that be a tip/trick/workaround in the software,

		feedback on workshops and other instructional materials, improving our mentorship and practices.”
Connection	--	“Students also have good connections with liaison departments that differ from my role as a librarian.”

Themes related to student benefits gained by working in library geospatial services include professionally relevant experience and transferrable skill development (Table 8). Responses about professionally relevant experiences typically focus on how these positions allow students to apply and enhance their classroom knowledge in a work setting and help them to expand their professional networks, including drawing on their supervisors as references when applying for jobs. Regarding transferable skill development, respondents mentioned that student employees gain customer service skills through assisting users with a wide range of technical and research questions, collaboration skills through involvement in project teams, and instructional skills they may not otherwise develop through their academic programs.

Table 8. Themes, subthemes, and representative quotes from survey responses about benefits student employees gain by working in library geospatial services

Theme	Subtheme	Respondent Quote
Professionally Relevant Experience	Knowledge Application	“They learn to use what they’ve learned in classes to accomplish a wide variety of tasks (much broader than it is possible to expose them to in coursework).”
Professionally Relevant Experience	Network	“Develop work relationships with myself and GIS instructors on campus (i.e. expanding professional network).”
Transferable Skill Development	Customer Service	“Working with patrons, gaining interpersonal relationship experience with a wide array of faculty/students/general patrons.”
Transferable Skill Development	Projects	“They learn professional skills including customer service, project management, as well as a deeper GIS knowledge through project work.”
Transferable Skill Development	Teaching	“The graduate college at our institution does not provide instructional experiences for their students. We are able to provide venues for teaching and undergraduate student support for grad students in GIS that they would be unable to get in their academic department.”

Respondents pointed to some common challenges related to time commitment, recruiting and hiring, and logistics (Table 9). In terms of time commitment, many supervisors noted that initially training students can take a lot of time, especially when students are hired with different levels of GIS experience. Frequent turnover was a challenge noted for student recruiting and hiring and discussed in relation to time commitments as well, in that it directly impacts the frequency and time needed for training new employees. Respondents also noted some general logistical challenges, such as students’ varying availability and the need for flexible scheduling, along with inconsistent budgets and wages that are often not competitive with other available hourly positions.

Table 9. Themes, subthemes, and representative quotes from survey responses about challenges related to employing students in geospatial services

Theme	Subtheme	Respondent Quote
Time Commitment	Training	“Depending on the student, it can often take more time to teach someone to do a task than to do it myself. This is definitely the case when I've employed LIS students without geospatial experience. I view this as a service activity... they do good work, but it takes a LOT of time on my part to train/supervise and come up with appropriate projects.”
Time Commitment	Scoping and Managing Work	“The main challenge was pairing students with appropriate tasks, which included assigning students tasks that they would be able to complete given their specific skills sets (e.g. is this question/task too advanced for student X?) and that they would be able to complete within a given time frame (e.g. can student X complete this task by the time that a researcher needs it?).”
Recruiting and Hiring	Qualifications	“Students came in with wildly varying levels of GIS knowledge/skills.”
Recruiting and Hiring	“Ephemeral Workers”	“The relatively short-term nature of their positions means that I cannot make long-term plans to utilize their unique skill sets.”
Logistics	Availability and Scheduling	“Scheduling my time around theirs (again, as a solo librarian in a space open to the public, I often rely on their time to create my own schedule).”
Logistics	Budget and Pay	“Low-pay for student workers (they deserve more)/ merit increases are inconsistent.”

Respondents were also asked for any additional information they wished to offer about employing students, with some interesting tips deriving from these comments.

Regarding hiring and retaining students, one respondent stated:

“I have had the best luck by seeking recommendations from faculty who teach introductory GIS courses and hiring students early and keeping them for several years. This means not all my students are experienced, with someone in training at any given time but it is the best method I've found.”

For strategies related to connecting with and ensuring continuity among student employees, another respondent commented:

“One of our struggles in the beginning was ensuring continuity among our students throughout the year. When COVID started, we created a 30-min once-a-week meeting for all student employees and staff to join in and connect. We will continue doing this even when we are fully back in person. This 30-min connection has strengthened our group, and resulting services.”

Another respondent indicated how full-time staffing changes may also impact their approach to employing students, noting that, “We are actually hoping to hire fewer students in the future to do reference/consultations and instead focus student work on

special projects. We can afford this luxury due to the fact that our team is actually growing.”

Finally, given the timing of the survey (March – May 2022), respondents identifying as current supervisors were asked to elaborate if any of their answers may have substantially differed prior to the onset of the COVID-19 pandemic. Several respondents noted that they have not been able to hire and train as many student workers due to being short staffed or experiencing budgetary changes. Some respondents mentioned difficulties in managing student work remotely and dealing with the transitions between on-site, remote, and then a return to on-site work. Others remarked that the initial shift to remote work and the ongoing “virtualness of library services” has appealed to student hires, by promoting their participation in various types of digital projects (e.g., georeferencing, metadata creation) and allowing them to gain additional skills and experiences relevant to their careers.

Discussion

One of the main research questions for this study focused on what responsibilities student employees in library geospatial services typically perform, and results indicate some potential differences depending on rank (see Table 4). Common responsibilities performed by graduate/professional students, such as consulting and collaborating on projects, developing instructional resources, creating outreach content, and staffing a physical service point might be appropriately characterized as “public-facing” responsibilities. While undergraduate students were also commonly involved in staffing a physical service point, many of their other typical responsibilities, such as cataloging/processing support, creating/editing metadata, and scanning and georeferencing maps, might be generally thought of as “behind-the-scenes” work.

While this pattern is apparent across the full sample of survey responses, a closer look at individual responses shows the reality is more nuanced. When examining only the 14 responses that indicate employment of both graduate/professional and undergraduate students, supervisors describe a mix of approaches. Seven of these responses (50%) point to an approach where student employees carry out similar responsibilities regardless of rank. Four (28.6%) suggest an approach where responsibilities are mostly differentiated based on student rank, while another three (21.4%) point to a more balanced approach where some responsibilities are differentiated by rank and others are performed by both graduate/professional and undergraduate students. The nature of varying responsibilities and different approaches can be seen in respondent comments as well. For example, one supervisor noted that, “the types of things I have my GIS student do vary wildly depending on the skills and interest of the student employee.” Another respondent indicated, “We don’t distinguish between grad students and undergrads. We hire map assistants and GIS techs. The techs need a certain amount of coursework meaning I can’t typically hire them until they are juniors.”

It is not my intention to imply that the types of responsibilities student employees perform should depend solely on their rank, and the results of this survey indicate that supervisors are approaching this in different ways. Rather, I hope calling attention to

potential differences in responsibilities carried out by graduate/professional and undergraduate students will motivate supervisors to critically reflect on how these results may correspond with student employment practices in their own contexts. This could include evaluating the knowledge and skills student employees may be gaining depending on the responsibilities they commonly perform, and how these relate to both the supervisor's and student's goals for their employment experience.

Another research question focused on funding and compensation practices for student employee positions, and these results point to a potential disconnect in the ways that student employees (especially graduate/professional students) receive project credit in addition to other forms of compensation (see Table 6). While some of the most common responsibilities performed by graduate/professional students involved consulting and collaborating on projects and creating instructional and outreach content, few respondents indicated that project credit (e.g., authorship, acknowledgment) was a common practice for either graduate/professional (14.3%) or undergraduate positions (16%). This result offers another opening for supervisors to reflect on student employment practices in their own contexts, including providing appropriate opportunities and credit for student contributions and examining how collaboration principles developed in other contexts may similarly apply to student employment in library geospatial services (e.g., [Di Pressi et al., 2015](#)).

Many respondents indicated the time commitments associated with training and scoping/managing projects are among the most challenging aspects of employing students in library geospatial services. While training and scoping projects will be highly context dependent, these common challenges also point to an opportunity for increased resource and best practice sharing among map and geospatial library professionals. Resources such as student position descriptions, training materials, and project documentation could be helpful to practitioners at other institutions who might adapt these materials for their own purposes or be inspired to develop student employment opportunities based on what they have learned. This idea fits with other ongoing resource sharing efforts in the map and geospatial library community, and the nascent Instruction Materials by and for GIS Librarians and Practitioners (IMGIS) hub may be an appropriate locale for disseminating resources to advance student employment practices as well ([Slayton et al., 2023](#)).

When discussing how the library benefits from employing students in geospatial services, respondents frequently pointed to enhanced productivity and broader perspectives. Benefits noted for students focused on applying classroom knowledge and developing transferrable skills. These results may not be particularly surprising, but I believe they also raise opportunities for future research about student employment in library geospatial services. For example, a limitation of the present study is that it only includes the perspectives of supervisors. Future research could benefit from integrating the perspectives of student employees as well, including evaluating how perceived benefits of employment align between supervisors and students. Map and geospatial library professionals may also benefit from evaluating student employment practices in relation to other studies in the broader GIS professional development literature, including perceptions of "hard" and "soft" skills needed by entry-level GIS

professionals ([Wikle & Fagin, 2015](#)) and the perceived value and best practices of GIS internships ([Craig & Wikle, 2016](#)).

Future research about student employment in library geospatial services should also engage with the growing body of literature on library student employment and high-impact practices. Kuh ([2008](#)) describes a series of “high-impact practices that educational research suggests increase rates of student retention and student engagement” ([p. 9](#)), with some examples including collaborative assignments and projects, undergraduate research, service learning, and internships. Six characteristics identified for these practices that make them highly effective include: 1) a considerable investment of time and effort; 2) extended opportunities for faculty and peer interaction; 3) experiencing diversity; 4) frequent formal and informal feedback; 5) integration, synthesis, and application of knowledge in different settings; and 6) connecting student experiences and perspectives with their broader communities ([Kuh, 2008](#); [Mitola et al., 2018](#)). In a systematic review of this topic, Mitola et al. ([2018](#)) state that:

“...the academic library literature most typically reports practical guidelines for structuring student employment programs to enhance library productivity. While these kinds of publications are useful for practitioners, our review highlights a missed opportunity in the literature to more fully explore or emphasize the student success aspect of student employment. Libraries and student supervisors might be aligning student employment with High-Impact Practices, but as a profession, we are not writing about this as a goal in and of itself” ([p. 362](#)).

While the present study has focused more on practical information about student employment for map and geospatial library professionals, I hope it may also serve as a foundation for future scholarship that examines and advances these student employment practices in terms of how they can contribute to student success.

A limitation of this study is the small sample size available for quantitative and qualitative analysis (n=32 survey responses from current and past supervisors). This was not entirely unexpected as map and geospatial librarianship is a relatively niche area of the profession, and the number of individuals identifying as current, past, or prospective supervisors is a smaller subset of that group. While this may affect the overall generalizability of the study’s results, it is useful to consider the snapshot of student employment practices provided through this work as a measure for future comparison and a prompt for deeper engagement with this topic.

Finally, I think it is important to note my own “insider/outsider” position as a point of additional context for the study. While I am an academic library professional responsible for providing geospatial services, I have minimal direct experience as a student employee supervisor and would consider myself in the “prospective supervisor” category. A desire to learn from others to inform my own approach to student employment was part of the reason I wanted to carry out this work. If my own lack of experience as a student employee supervisor has shown through in this discussion, I hope readers will see that as a conversation starter and invitation to share

their own perspectives with the broader community of map and geospatial library professionals.

Conclusion

In this paper, I have synthesized the current literature on the topic of student employment in academic library geospatial services. Through a survey of library supervisors, I have shared perspectives on department staffing, student employee responsibilities, funding and compensation of student positions, and the perceived benefits and challenges of employing students in geospatial services. These survey results offer actionable information for map and geospatial library professionals to develop and enhance student employment opportunities at their own institutions. By providing a baseline understanding of contemporary student employment practices in library geospatial services, this study can also serve as a jumping off point for best practice sharing and future research on other aspects of supervisor and student employee experiences. Though the scope of student work will differ, the perspectives offered through this study may also be relevant to the practices of library professionals employing students in other areas, including digital scholarship, research data services, and science and technology librarianship more broadly.

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Appendix A. Institutions represented by survey respondents

Boston College
Brigham Young University
George Mason University
Indiana University
Lafayette College
North Carolina State University
North Dakota State University
Northeastern University
Northwestern University
Oklahoma State University
Penn State University
Rutgers University
Simon Fraser University
Smith College
Southern Illinois University, Carbondale
St. Lawrence University
State University of New York at Buffalo
Texas A&M University
The Claremont Colleges
Università di Padova (Italy)
University of Arizona
University of British Columbia
University of California San Diego
University of Cincinnati
University of Georgia
University of Massachusetts Amherst
University of Michigan - Ann Arbor
University of Nevada, Reno
University of North Carolina at Chapel Hill
University of Notre Dame
University of Texas at Austin
University of Toronto
University of Wisconsin-Madison
University of Wisconsin-Milwaukee

Appendix B. Survey instrument

Student Employment and Geospatial Services in Academic Libraries

Start of Block: Consent

****Displayed to all potential respondents****

The Ohio State University Consent to Participate in Research

Study Title: Student Employment and Geospatial Services in Academic Libraries: A Survey of Current, Past, and Prospective Supervisors

Researcher: Joshua Sadvari, Geospatial Information Librarian, The Ohio State University Libraries, sadvari.1@osu.edu

IRB Protocol Number: 2022E0258

This is a consent form for research participation. It contains important information about this study and what to expect if you decide to participate. This study has been determined Exempt from IRB review.

Purpose:

The purpose of this study is to describe practices, benefits, and challenges associated with student employment and geospatial services in academic libraries, through the perspectives of current, past, and prospective supervisors. This survey is appropriate for map, geospatial, data, and digital scholarship librarians and any other academic library professionals who:

- Supervised student employees providing geospatial services at their current institution during the 2021-2022 academic year;
- Supervised student employees providing geospatial services at their current institution within the past five years, but not during the 2021-2022 academic year; or
- Have never supervised student employees providing geospatial services at their current institution, but hope to hire students in the future.

For the purposes of this survey, “geospatial services” is broadly defined, and can include the management and use of print and digital collections of maps and other geospatial information resources; use and support of geospatial data, methods, and technologies for research and teaching; and library-based geospatial education and outreach.

Procedures:

If you decide to participate, your responses will be collected through a Qualtrics survey consisting of multiple choice and open-ended questions. Topics addressed include department staffing, student employee responsibilities, funding sources and

compensation practices for student employee positions, and the perceived benefits and challenges of employing students to provide geospatial services.

Duration:

The survey should take approximately 20 minutes to complete.

Risks:

Minimal identification information will be collected, including job title, institution, library department, and email address (optional) to validate responses. All other questions throughout the survey are optional, and you may decline to answer any question. If you realize after completing the survey that you disclosed information that you wish you had not disclosed, you can contact the principal investigator (PI, Sadvari) and ask for that information to be deleted from your recorded response.

Benefits:

The results of this survey will provide academic library professionals with a better understanding of how student employees can and do contribute to geospatial services, as well as practical information they can use to reflect upon their current staffing practices, engage in conversations with library administrators or potential campus partners, and develop or enhance student employment opportunities at their own institutions.

Confidentiality:

The results of this research will be published in a scholarly journal and possibly presented at academic conferences. Individual responses may contain information that directly or indirectly identifies you, but such information will not be used in published results. The PI will work to make sure that no one sees your online responses without approval. But, because we are using the Internet, there is a chance that someone could access your online responses without permission. In some cases, this information could be used to identify you.

Individual responses will be de-identified prior to analysis, and all data will be stored securely on university-approved infrastructure accessible only to the PI. Individual responses will remain confidential, and direct quotes will be used only if they do not contain any identifiable information. Final aggregate results (with no identifying information) will be made available to participants upon request.

There may be circumstances where this information must be released. For example, personal information regarding your participation in this study may be disclosed if required by state law. Also, your records may be reviewed by the following groups (as applicable to the research): Office for Human Research Protections or other federal, state, or international regulatory agencies; The Ohio State University Institutional Review Board or Office of Responsible Research Practices; Authorized Ohio State University staff not involved in the study may be aware that you are participating in a research study and have access to your information.

Future Research:

De-identified data collected through this study will be retained for a minimum of five years in accordance with The Ohio State University's research data policy. Your de-identified information may be used or shared with other researchers without your additional informed consent.

Participant Rights:

Your participation is entirely voluntary. You may choose not to participate. If you choose to participate, you may leave the study at any time without penalty. By agreeing to participate, you do not give up any personal legal rights you may have as a participant in this study.

Contacts and Questions:

If you have questions about the study, you may contact the principal investigator, Joshua Sadvari, Geospatial Information Librarian, The Ohio State University Libraries, by phone: 614-292-5828; or by email: sadvari.1@osu.edu.

If you have questions about your rights as a participant in this study or wish to discuss any other study-related concerns with someone who is not the principal investigator, you may contact the Office of Responsible Research Practices at 1-800-678-6251 or hsconcerns@osu.edu.

Providing Consent:

You may download a PDF copy of this information for your records.

To participate in this study, please answer “Yes” to the question below. If you do not wish to participate, please close out your browser window.

Do you consent to participate in the research study as described above?

Yes

No

End of Block: Consent

Start of Block: Respondent Information

****Displayed to all respondents who consent to participate****

Respondent Information

* Required fields

* Job title

* Institution

* Library department

* Which of the following statements best describes your status related to student employment and library geospatial services during the 2021-2022 academic year?

- Current:** I have supervised student employees providing geospatial services at my current institution during the 2021-2022 academic year.
- Past:** I have supervised student employees providing geospatial services at my current institution within the past five years, but not during the 2021-2022 academic year.
- Prospective:** I have never supervised student employees providing geospatial services at my current institution, but I hope to hire students in the future.

End of Block: Respondent Information

Start of Block: Current Supervisors

****Survey Flow #1: Displayed to all respondents who select “Current” for the supervisory status question in the Respondent Information block****

Staffing

How many full-time professionals (faculty/staff) in your department provide geospatial services as a primary job responsibility?

How long has your department been employing students to provide geospatial services?

In a typical academic term, how many students are employed to provide geospatial services?

	Number of student employees
Graduate/Professional	
Undergraduate	

On average, how many hours per week does a student employee work providing geospatial services?

	Weekly hours
Graduate/Professional	
Undergraduate	

Page Break

Responsibilities

Please indicate which responsibilities student employees commonly engage in when providing geospatial services (check all that apply).

	Student Employee Status	
	Graduate/Professional	Undergraduate

Cataloging/processing support for collections (e.g., data entry, physical processing of maps)	<input type="checkbox"/>	<input type="checkbox"/>
Collaborating on external faculty, staff, or student-led research projects (i.e., directly responsible for performing project tasks)	<input type="checkbox"/>	<input type="checkbox"/>
Consulting on external faculty, staff, or student-led research projects (i.e., answering questions or demonstrating project tasks)	<input type="checkbox"/>	<input type="checkbox"/>
Collaborating on library-led projects (e.g., application development, digital scholarship, physical/digital exhibits)	<input type="checkbox"/>	<input type="checkbox"/>
Consulting on library-led projects (e.g., application development, digital scholarship, physical/digital exhibits)	<input type="checkbox"/>	<input type="checkbox"/>
Creating/editing metadata for maps, GIS data, or other geospatial information resources	<input type="checkbox"/>	<input type="checkbox"/>
Creating/maintaining content for outreach and communications (e.g., blog posts, social media, library websites)	<input type="checkbox"/>	<input type="checkbox"/>
Delivering instruction (e.g., workshops, one-shot sessions)	<input type="checkbox"/>	<input type="checkbox"/>
Developing/updating instructional resources (e.g., tutorials, LibGuides)	<input type="checkbox"/>	<input type="checkbox"/>
Digitizing/extracting vector data from scanned maps	<input type="checkbox"/>	<input type="checkbox"/>
Georeferencing scanned maps	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining/supporting general technologies (e.g., lab software/hardware)	<input type="checkbox"/>	<input type="checkbox"/>

Maintaining/supporting advanced technologies (e.g., GPS equipment, Drone/UAS equipment)

Scanning maps

Shelving and other stacks activities for physical collections

Staffing a physical service point (e.g., computer lab, reference desk)

Staffing a virtual service point (e.g., chat service, organizational email)

Other #1 (please describe)

Other #2 (please describe)

Other #3 (please describe)

Funding and Compensation

How are these student employee positions funded (check all that apply)?

	Student Employee Status	
	Graduate/Professional	Undergraduate
Library operating budget	<input type="checkbox"/>	<input type="checkbox"/>
Federal work study	<input type="checkbox"/>	<input type="checkbox"/>
Special one-time funds	<input type="checkbox"/>	<input type="checkbox"/>
Grants	<input type="checkbox"/>	<input type="checkbox"/>
Library endowments or donor funds	<input type="checkbox"/>	<input type="checkbox"/>
Contributions from another campus unit or academic department (please describe)	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>

How are student employees providing geospatial services compensated for their work (check all that apply)?

	Student Employee Status	
	Graduate/Professional	Undergraduate
Hourly wage	<input type="checkbox"/>	<input type="checkbox"/>
Fixed stipend	<input type="checkbox"/>	<input type="checkbox"/>
Full tuition/fees	<input type="checkbox"/>	<input type="checkbox"/>
Partial tuition/fees	<input type="checkbox"/>	<input type="checkbox"/>
Course/Internship credit	<input type="checkbox"/>	<input type="checkbox"/>
Project credit (e.g., authorship, acknowledgment)	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>

Page Break

Benefits and Challenges

What do you think are the main benefits to student employees who provide geospatial services in your library?

What have been the main benefits to you as a supervisor and to your department as a whole?

What are the most challenging aspects of employing students to provide geospatial services?

If any of your responses to this survey would have differed significantly prior to the onset of the COVID-19 pandemic in early 2020, please briefly elaborate on those differences below.

End of Block: Current Supervisors

Start of Block: Past Supervisors

****Survey Flow #2: Displayed to all respondents who select “Past” for the supervisory status question in the Respondent Information block****

Staffing

How many full-time professionals (faculty/staff) in your department provide geospatial services as a primary job responsibility?

What was the most recent date (month, year) that your department employed students to provide geospatial services?

Prior to that date, how long had your department employed students to provide geospatial services?

In a typical academic term, how many students were employed to provide geospatial services?

	Number of student employees
Graduate/Professional	
Undergraduate	

On average, how many hours per week did a student employee work providing geospatial services?

	Weekly hours
Graduate/Professional	
Undergraduate	

Page Break

Responsibilities

Please indicate which responsibilities student employees commonly engaged in when providing geospatial services (check all that apply).

	Student Employee Status	
	Graduate/Professional	Undergraduate

Cataloging/processing support for collections (e.g., data entry, physical processing of maps)	<input type="checkbox"/>	<input type="checkbox"/>
Collaborating on external faculty, staff, or student-led research projects (i.e., directly responsible for performing project tasks)	<input type="checkbox"/>	<input type="checkbox"/>
Consulting on external faculty, staff, or student-led research projects (i.e., answering questions or demonstrating project tasks)	<input type="checkbox"/>	<input type="checkbox"/>
Collaborating on library-led projects (e.g., application development, digital scholarship, physical/digital exhibits)	<input type="checkbox"/>	<input type="checkbox"/>
Consulting on library-led projects (e.g., application development, digital scholarship, physical/digital exhibits)	<input type="checkbox"/>	<input type="checkbox"/>
Creating/editing metadata for maps, GIS data, or other geospatial information resources	<input type="checkbox"/>	<input type="checkbox"/>
Creating/maintaining content for outreach and communications (e.g., blog posts, social media, library websites)	<input type="checkbox"/>	<input type="checkbox"/>
Delivering instruction (e.g., workshops, one-shot sessions)	<input type="checkbox"/>	<input type="checkbox"/>
Developing/updating instructional resources (e.g., tutorials, LibGuides)	<input type="checkbox"/>	<input type="checkbox"/>
Digitizing/extracting vector data from scanned maps	<input type="checkbox"/>	<input type="checkbox"/>
Georeferencing scanned maps	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining/supporting general technologies (e.g., lab software/hardware)	<input type="checkbox"/>	<input type="checkbox"/>

Maintaining/supporting advanced technologies (e.g., GPS equipment, Drone/UAS equipment)

Scanning maps

Shelving and other stacks activities for physical collections

Staffing a physical service point (e.g., computer lab, reference desk)

Staffing a virtual service point (e.g., chat service, organizational email)

Other #1 (please describe)

Other #2 (please describe)

Other #3 (please describe)

Funding and Compensation

How were these student employee positions funded (check all that apply)?

	Student Employee Status	
	Graduate/Professional	Undergraduate
Library operating budget	<input type="checkbox"/>	<input type="checkbox"/>
Federal work study	<input type="checkbox"/>	<input type="checkbox"/>
Special one-time funds	<input type="checkbox"/>	<input type="checkbox"/>
Grants	<input type="checkbox"/>	<input type="checkbox"/>
Library endowments or donor funds	<input type="checkbox"/>	<input type="checkbox"/>
Contributions from another campus unit or academic department (please describe)	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>

How were student employees providing geospatial services compensated for their work (check all that apply)?

	Student Employee Status	
	Graduate/Professional	Undergraduate
Hourly wage	<input type="checkbox"/>	<input type="checkbox"/>
Fixed stipend	<input type="checkbox"/>	<input type="checkbox"/>
Full tuition/fees	<input type="checkbox"/>	<input type="checkbox"/>
Partial tuition/fees	<input type="checkbox"/>	<input type="checkbox"/>
Course/Internship credit	<input type="checkbox"/>	<input type="checkbox"/>
Project credit (e.g., authorship, acknowledgment)	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>

Page Break

Benefits and Challenges

What do you think were the main benefits to student employees who provided geospatial services in your library?

What were the main benefits to you as a supervisor and to your department as a whole?

What were the most challenging aspects of employing students to provide geospatial services?

What is your reasoning for no longer employing students to provide geospatial services? Please indicate if you plan to hire student employees again in the future and, if applicable, any challenges that prevent you from doing so.

End of Block: Past Supervisors

Start of Block: Prospective Supervisors

****Survey Flow #3: Displayed to all respondents who select “Prospective” for the supervisory status question in the Respondent Information block****

Staffing

How many full-time professionals (faculty/staff) in your department provide geospatial services as a primary job responsibility?

When do you hope to begin employing students to provide geospatial services?

In a typical academic term, how many students would you expect to employ to provide geospatial services?

	Number of student employees
Graduate/Professional	
Undergraduate	

On average, how many hours per week would you expect a student employee to work providing geospatial services?

	Weekly hours
Graduate/Professional	
Undergraduate	

Page Break

Responsibilities

Please indicate which responsibilities you would expect student employees to commonly engage in when providing geospatial services (check all that apply).

	Student Employee Status	
	Graduate/Professional	Undergraduate

Cataloging/processing support for collections (e.g., data entry, physical processing of maps)	<input type="checkbox"/>	<input type="checkbox"/>
Collaborating on external faculty, staff, or student-led research projects (i.e., directly responsible for performing project tasks)	<input type="checkbox"/>	<input type="checkbox"/>
Consulting on external faculty, staff, or student-led research projects (i.e., answering questions or demonstrating project tasks)	<input type="checkbox"/>	<input type="checkbox"/>
Collaborating on library-led projects (e.g., application development, digital scholarship, physical/digital exhibits)	<input type="checkbox"/>	<input type="checkbox"/>
Consulting on library-led projects (e.g., application development, digital scholarship, physical/digital exhibits)	<input type="checkbox"/>	<input type="checkbox"/>
Creating/editing metadata for maps, GIS data, or other geospatial information resources	<input type="checkbox"/>	<input type="checkbox"/>
Creating/maintaining content for outreach and communications (e.g., blog posts, social media, library websites)	<input type="checkbox"/>	<input type="checkbox"/>
Delivering instruction (e.g., workshops, one-shot sessions)	<input type="checkbox"/>	<input type="checkbox"/>
Developing/updating instructional resources (e.g., tutorials, LibGuides)	<input type="checkbox"/>	<input type="checkbox"/>
Digitizing/extracting vector data from scanned maps	<input type="checkbox"/>	<input type="checkbox"/>
Georeferencing scanned maps	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining/supporting general technologies (e.g., lab software/hardware)	<input type="checkbox"/>	<input type="checkbox"/>

Maintaining/supporting advanced technologies (e.g., GPS equipment, Drone/UAS equipment)

Scanning maps

Shelving and other stacks activities for physical collections

Staffing a physical service point (e.g., computer lab, reference desk)

Staffing a virtual service point (e.g., chat service, organizational email)

Other #1 (please describe)

Other #2 (please describe)

Other #3 (please describe)

Page Break

Funding and Compensation

How would you expect these student employee positions to be funded (check all that apply)?

	Student Employee Status	
	Graduate/Professional	Undergraduate
Library operating budget	<input type="checkbox"/>	<input type="checkbox"/>
Federal work study	<input type="checkbox"/>	<input type="checkbox"/>
Special one-time funds	<input type="checkbox"/>	<input type="checkbox"/>
Grants	<input type="checkbox"/>	<input type="checkbox"/>
Library endowments or donor funds	<input type="checkbox"/>	<input type="checkbox"/>
Contributions from another campus unit or academic department (please describe)	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>

How would you expect student employees providing geospatial services to be compensated for their work (check all that apply)?

	Student Employee Status	
	Graduate/Professional	Undergraduate
Hourly wage	<input type="checkbox"/>	<input type="checkbox"/>
Fixed stipend	<input type="checkbox"/>	<input type="checkbox"/>
Full tuition/fees	<input type="checkbox"/>	<input type="checkbox"/>
Partial tuition/fees	<input type="checkbox"/>	<input type="checkbox"/>
Course/Internship credit	<input type="checkbox"/>	<input type="checkbox"/>
Project credit (e.g., authorship, acknowledgment)	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe)	<input type="checkbox"/>	<input type="checkbox"/>

Page Break

Benefits and Challenges

What do you think would be the main benefits to student employees providing geospatial services in your library?

What do you think would be the main benefits to you as a supervisor and to your department as a whole?

What do you think would be the most challenging aspects of employing students to provide geospatial services?

What is your reasoning for not currently employing students to provide geospatial services? If applicable, please describe any challenges that prevent you from doing so.

End of Block: Prospective Supervisors

Start of Block: Conclusion

****Displayed to all respondents****

Conclusion

If there is any additional information you would like to share about employing students to provide geospatial services in your library, please do so in the space below.

This is the first of two related projects exploring library student employment and geospatial services. The second project is focused on the mentorship, learning, and professional development experiences of supervisors and student employees in the context of high-impact educational practices.

If you are willing to be contacted directly about your interest in participating in this future study, please provide your email address below.

End of Block: Conclusion

****End of Survey****



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