Student-Taught Coding Workshops in the Academic Library

Tina Li and Catherine R. Barber*

Research data services (RDS) library staff provide essential training for research reproducibility. As demand increases, RDS staff may consider employing students as workshop instructors. This article describes a case study of a pilot project in which an undergraduate student taught library workshops for Python novices. We share the benefits that this instructional format presented in our setting, from the perspectives of the student instructor and the workshop participants. We also offer reflection questions for RDS staff who are contemplating implementing student-taught workshops.

Student-Taught Coding Workshops in the Academic Library

In the past decade, computational research and data science applications have become increasingly prominent within disciplines beyond computer science (Ponsero et al., 2020). This development has been fueled by the emphasis on scientific reproducibility and open research within science, technology, engineering, and medicine (STEM) and social science fields (e.g., National Academies of Sciences, Engineering, and Medicine, 2019), as well as the emergence of cross-disciplinary fields, such as digital humanities. Concurrently, the use of technology to accomplish research data-related tasks such as curation, analysis, visualization, and sharing has become a prevalent focus of academic library instruction (Kang & Sinn, 2024; Sapa, 2024).

In response to the need for specialized support in this area, many colleges and universities have established research data services (RDS), broadly defined as "services that address the full data lifecycle" (Tenopir et al., 2013, p. 70). Libraries are the most common providers of RDS within academic settings (Radecki & Springer, 2022), and academic librarians generally view RDS as important (Rachlin, 2022; Tenopir et al., 2019). An emerging trend within RDS is the provision of workshops on coding in an open-source language (e.g., Python or R), as well as deeper dives into programming applications (e.g., Oliver et al., 2019). Depending on available resources, libraries may employ data librarians, other academic librarians, library support staff, or even students with programming expertise to teach such workshops, particularly as demand for RDS outpaces supply (Fuhr, 2022).

*Tina Li is Fondren Fellow at the Rice University Fondren Library, email: tcl3@rice.edu. Catherine R. Barber is Associate Director and Assistant Teaching Professor at the Rice University Center for Teaching Excellence, email: cb88@rice.edu.

The impetus for our case study was a similar supply versus demand challenge within our setting, Fondren Library at Rice University. Our patrons consistently expressed interest in Python-related workshops, and we were aware of the broad popularity of Python instruction at other university libraries (Kang & Sinn, 2024). However, at the time of the study, the library's Data Services Specialist, Catherine Barber, was a Python novice. To address this gap, the library sponsored a pilot project in which an undergraduate student with advanced Python skills, Tina Li, was recruited and trained to teach Python workshops under Barber's mentorship. Although student instructors had previously taught coding workshops at Fondren, there had been no prior effort to systematically evaluate student-taught workshops. In this article, we describe the benefits and challenges that the student instructor and participants experienced, and we highlight considerations for librarians and other library staff as they contemplate employing undergraduate students as RDS instructors.

Literature Review

Research Data Services Workshops

Several studies have demonstrated positive effects of RDS workshops in academic libraries. LaPolla and colleagues (2021) found that RDS workshop participants frequently used what they had learned in the workshops, which contributed to greater work efficiency. Similarly, Staudt Willet and Rosenberg (2023) reported beneficial outcomes of two educational data science workshops. Participants' confidence in working with data and their perceived ability to overcome getting stuck increased from pre- to postworkshop.

To develop workshops on foundational coding and data science skills, many libraries have used an evidence-based curriculum developed by The Carpentries organization (https://carpentries.org). Carpentries workshops employ recommended practices for teaching programming at an introductory level, including participatory live coding in a syntactically simple language, with frequent opportunities for practice and feedback (Brown & Wilson, 2018; Scherer et al., 2020). In a mixed methods study assessing the impact of Carpentries programming workshops on the computational reproducibility of biomedical research, Deardorff (2020) conducted in-depth interviews and quantitative assessments with 14 biomedical researchers before and after participation. Although the results did not show a statistically significant difference in quantitative skills, the qualitative interviews revealed high levels of post-workshop programming literacy and an interest in further training (Deardorf, 2020).

In contrast, Feldon and colleagues (2017) found no significant advantages of short-format programs in terms of graduate students' research skill development, scholarly productivity, or socialization, despite the participants reporting high levels of satisfaction and perceived value from these programs. This incongruity between perceived value and empirical outcomes prompted the authors to question the value of short-format learning experiences and to emphasize the importance of longitudinal and performance-based outcome assessments.

Feldon et al.'s (2017) critique of short-format workshops echoes some of the concerns raised about library one-shot instruction more generally (e.g., Cook, 2022). For example, limited instructional time and minimal opportunities to receive ongoing feedback during practice may hamper learners' long-term retention of content. Nonetheless, short-format workshops offer some advantages: From a learner's perspective, such workshops are often free and convenient, while for librarians, workshops are often more efficient than individual consultations.

Student Instructors in RDS

The strong demand for RDS and relative shortage of data librarians (Cox et al., 2019) prompt the question of whether RDS departments should hire knowledgeable students to provide services. Academic libraries have a long history of employing students (Benjamin & McDevitt, 2018), and recent scholarship has called for creating more experiential learning opportunities for student library workers (Everett & Bischoff, 2021). One promising experiential learning strategy is near-peer teaching, in which more experienced students teach their peers. Learners perceive near-peer teachers to be well-suited for roles such as facilitator, information provider, and role model (Bulte et al., 2007). Furthermore, near-peers can be effective in teaching coding and programming skills. For instance, Pon-Barry et al. (2017) trained near-peer mentors to conduct peer code review and feedback sessions in an introductory computer science course. Both near-peer mentors and learners reported substantial benefits, with learners citing improvements in their confidence and understanding and instructors expressing enthusiasm for their experience with the program.

A common theme in the near-peer literature is that students require support to develop confidence and competence in their teaching skills (Irvine et al., 2018). When they are well-prepared, student instructors' work produces positive outcomes and is viewed favorably by learners. Tips for preparing students to engage in near-peer teaching include providing information about how to teach, giving opportunities to ask experts questions prior to teaching, and receiving observation and feedback from expert teachers (Bulte et al., 2007).

Method

Research Question and Design

Following Coates et al.'s (2018) recommendation to center RDS evaluation on a "well-defined question" (p. 4), our case study began with this question: "What are the benefits and challenges presented by student-taught workshops for learners new to coding in Python?" The case study design adopted elements of McNiff and Whitehead's (2011) action research cycle, an iterative process of action, evaluation, and reflection. Actions included training the student instructor and developing and implementing the workshops. Evaluation entailed exploring the benefits and challenges of the workshops through multiple lenses, while reflection involved synthesizing the results and offering considerations for other RDS staff.

We used a convergent mixed methods approach, in which qualitative and quantitative strands are conducted concurrently. In this approach, the resulting data are triangulated and synthesized to obtain a deeper understanding of the research phenomena (Creswell & Plano Clark, 2017). The study was deemed exempt from review by the Rice University Institutional Review Board. The time frame for the study was October 2023 through March 2024. Relevant project materials can be accessed through the Rice Research Repository (https://doi.org/10.25611/VQ8C-XY19).

Student Instructor Training and Workshop Development

A central aspect of the student instructor's preparation was a comprehensive review of the literature on effective teaching strategies. Literature on live coding, paired programming, and near-peer teaching was integrated to create an instructional framework. In addition, training involved guidance on teaching key programming concepts, informed by the Carpentries curriculum and by Barber's (i.e., the mentor's) experience with teaching similar workshops

in R. Other library staff members with knowledge of Python were available for consultation, though such consultation ultimately was not used because of Li's (i.e., the student instructor's) proficiency in Python.

We chose Python for its widespread popularity, relevance to the job market, simplicity, and readability, which makes it particularly conducive to beginners with limited programming experience (Koulouri et al., 2014). The workshop curriculum was inspired by introductory computer science courses at Rice University and incorporated topics such as the print function; object types such as integers, floats, strings, and Booleans; manipulation of variables; fundamental arithmetic and comparison operations; and the principles of writing and utilizing functions. These concepts were chosen for clarity, accessibility, and practical relevance to equip participants with a solid understanding of fundamentals.

Developing and preparing the workshops required three months of weekly meetings and approximately 50 hours of independent work by Li. A pivotal preparatory step occurred one week before the first workshop: Li fully rehearsed the workshop while Barber acted as an attendee. Barber timed the rehearsal and posed questions that might come up, from the perspective of a Python novice. Rehearsing provided an opportunity to review workshop material, fine-tune teaching techniques, and calibrate the pacing of the sessions. Moreover, the rehearsal served as a platform for Li to refine explanations of intricate concepts and strategize responses to potential participant inquiries, thereby contributing to overall instructional preparedness and efficacy. Ongoing discussion and feedback before and after each workshop allowed us to debrief and identify small improvements, while ensuring a consistent learning experience across workshops.

Implementation

Digital flyers and social media posts announced two free introductory Python workshops sponsored by the library. Sixty-six people registered, and 39 people (59%) attended a workshop. Learners included university staff (44%), undergraduate students (31%), graduate students (21%), and faculty or guests (4%). A wide range of disciplines was represented, including biosciences, business, other natural sciences, psychology, and statistics. No prior experience with coding in any language was required to attend the workshops. Most learners reported that their goal for the workshop was to gain an introduction to Python.

Each workshop occurred on a mid-week evening in January of 2024, lasted two hours, and was taught in-person in a computer lab within the library. The format of workshop sessions was a combination of lecture-style explanations with participatory live coding demonstrations (Nederbragt et al., 2020). Li welcomed learners and provided an overview of the agenda. Barber then described the research and provided instructions for participating. Consistent with Sufi et al.'s (2018) recommendation to implement direct measures of learning outcomes in workshop evaluations, we used preworkshop and postworkshop quizzes, which comprised identical sets of eight multiple-choice items. Following the pre-quiz, Li introduced Google Colab (https://colab.research.google.com/) as the platform for coding and presented highlights of Python as a programming language.

Most of the workshop entailed teaching a series of topics through participatory live coding. Li explained each topic, demonstrated the code associated with the topic, and walked through additional examples of the topic. Using their own devices or the lab computers, learners coded along with Li. At the end of each topic segment, Li presented a practice exercise, which learners

worked through individually, in pairs, or in small groups before the student instructor discussed the answers with the entire group. Finally, we distributed the post-quiz worksheets, which learners had five minutes to complete. To avoid participants simply memorizing the correct answers, Li did not review the pre-quiz or provide answers to quiz items during the workshop. However, we provided participants with an answer key via a post-workshop email to facilitate self-assessment and further reinforce learning.

A Google Forms survey was available online via QR code at the end of each workshop session. Learners also received a link to the survey URL in a post-workshop email. Similar to procedures used in related research (e.g., Staudt Willet & Rosenberg, 2023), we adapted five items from the Carpentries post-workshop survey (Jordan et al., 2018), including comfort with learning and ability to apply learning; instructor knowledge and ability to answer questions; and instructional methods. Response options were on a five-point Likert-type scale ranging from "Strongly disagree" to "Strongly agree." In addition, we included two open-ended items from the Carpentries survey (Jordan et al., 2018): "Please describe the major strengths of this workshop," and "Please describe any ways the workshop could be improved."

Evaluation Strategy

To evaluate the project, we drew upon three data sources: student instructor reflection, workshop participants' survey responses, and workshop quizzes. Li wrote observational notes during the workshop development and implementation phases. These notes covered Li's experience of teaching the workshop and lessons learned. Shortly after teaching both workshops, Li reviewed her notes and wrote a first-person narrative of her reflections.

In addition, we obtained consent from 14 workshop participants (36% of learners) to use their quiz and survey data. Data organization was carried out before data analysis to safeguard participants' anonymity. Using unique participant codes, we matched survey responses with quiz scores. After removing the codes from the dataset and replacing them with numeric codes, we destroyed the link between the codes. For each Likert-type survey item, we calculated the percentage of the sample who endorsed a particular response. We also collaboratively identified themes across responses to the open-ended survey items.

We analyzed quiz data from participants who completed both the pre-quiz and the post-quiz ($n = 10$). Although the results cannot be generalized to other contexts, we have included the quiz analysis to demonstrate one method for evaluating student-taught workshops. We calculated the mean and standard deviation of total pre- and post-quiz scores and the percentages of participants who answered each quiz item correctly. We then compared the percentages of participants who improved, worsened, or experienced no change in total scores from pre- to post-quiz. Finally, we calculated a measure of effect size (Cohen's d), which provided a standardized measure of participants' average change from pre- to post-quiz.

After analyzing the qualitative and quantitative data, we merged the findings to obtain a deeper understanding of benefits and challenges within our setting (Fetters et al., 2013). Merging involved reviewing the findings from each data source and extracting points of commonality and contrast to address the broader research question. To support our findings' trustworthiness, we aligned our research design with our research goal; strove for fidelity within the data collection and data analysis procedures; and enhanced the utility of our case study by linking our findings to broader considerations for RDS staff (Levitt et al., 2021).

Results

Li's Reflection as Student Instructor

As the workshop developer and instructor, my perspectives were shaped by my background as an undergraduate student in statistics and data science, a programmer proficient in object-oriented languages like R and Python, and as a researcher passionate about data literacy. My programming skills were developed through coursework, research projects, and internships, particularly those focused on data analysis and statistical modeling. While I didn't learn new technical content through this workshop series, this experience taught me about pedagogy, preparation, and interpersonal dynamics, especially through the lens of being a student instructor teaching fellow students.

One of the more unique aspects of this experience was navigating my dual identity as both a peer and an instructor. On one hand, I found that my status as a fellow student helped me relate more easily to participants. I had a better understanding of what it is like to struggle with new material, and I could anticipate points of confusion based on my own learning experiences. I used that awareness to develop lecture materials and exercises that were both accessible and appropriately challenging. During the design phase, I enjoyed returning to the fundamentals of coding and reframing them through a beginner's lens. Creating practice problems that encouraged critical thinking and active engagement was tough but rewarding.

However, being a student instructor also had challenges. I worried that participants might not take me as seriously because of my age or perceived lack of authority. While most participants were respectful and engaged, there were moments when a few spoke over me or expressed irritation in ways that tested my confidence. These moments made me more aware of the balance between being approachable and maintaining authority. As the workshops progressed, I learned to respond with a mix of empathy and firmness, and I recognized that frustration with the material and not with me personally was often the root cause.

The support I received from the library staff consisted of access to instructional materials and the freedom to shape the sessions based on what I thought would best serve the learners. That said, my mentor, Barber, did not have significant experience in Python, which added a layer of pressure during preparation. Knowing that I was the main point of expertise on the topic meant that I had to be particularly thorough in anticipating questions and structuring material in a clear, intuitive way. While that was challenging, it also gave me a sense of ownership and pride in the final product.

In terms of delivery, I learned a lot about instructional presence and classroom management. I incorporated humor into the workshops to reflect my personality and build a friendly, low-pressure environment. On a particularly cold day, I joked about setting the "temperature" variable to -100, which got some laughs and lightened the mood. Seeing participants nod along as I explained concepts gave me a confidence boost and helped me feel connected to the group. Still, I recognized areas for improvement. I spoke too quickly at the beginning of the first workshop due to nerves, and I occasionally found it difficult to project my voice clearly. These are things I'm now more mindful of and plan to improve in future teaching roles.

Overall, teaching these workshops was a very meaningful experience. It pushed me to grow not just as a programmer or educator, but also as a communicator and leader. I am proud of what I accomplished and look forward to building on this experience and continuing to support data literacy in academic spaces.

Participants' Perceptions of the Workshops

Three themes emerged from participants' responses to the open-ended survey items: instructor behaviors, workshop content, and instructional strategies. Within each of these themes, we identified strengths and areas for improvement.

Instructor behaviors that facilitated learning included Li's knowledge of the content and the clarity with which she presented it. For example, one participant shared, "I think the instructor did a great job explaining the concepts and providing examples/exceptions." Another participant stated, "The instructor was able to discuss the topic clearly and stop for people who needed extra explanations or more time to compute." In addition, participants commented on Li's "availability" and "relatability." One participant also commended Li on the "friendly atmosphere."

The main aspect of instructor behavior that needed improvement was the amount of time spent on topics. However, some participants wanted more explanation and others less. For example, some participants stated, "[Be] more concise on each topic so everything in the agenda could be discussed in 2 hours," and "From my experience level it felt a bit slow." In contrast, others felt that it was "rushed" and commented, "Wish it was a longer workshop since it would leave room for all the questions," and "I went in with zero background in computer science or coding and felt a little lost at times, like I was trying to catch up to the lesson."

Regarding the workshop content, participants indicated that it was a good introduction to Python and that they liked the mix of lectures and practice exercises. They were generally satisfied with the scope of content; however, this varied somewhat based on participants' level of coding knowledge. For example, one participant appreciated the "Good basic definitions," and another shared, "Loved how I was able to learn the basics of Python. We got to learn how the basic [sic] of it all worked and what we needed to know for just starting off." In contrast, those with more experience felt that they would have preferred more sophisticated content. For instance, one participant stated, "I have coding background in R and Julia so I think I would have benefitted [sic] more from an intermediate workshop or one geared toward those with coding experience but not Python specific experience." Another participant noted, "The IF THEN ELSE construct is an integral part of coding and was not able to be discussed as we ran out of time."

Instructional strategies included the methods used to teach the content. Several participants reported that the practice exercises were a strength of the workshops. One participant reported liking the quizzes, and another noted the utility of Google Colab as a user-friendly integrated development environment: "I really liked using the Google coding platform to make it easy to practice without navigating software." Suggestions for improvements included facilitating "more active participation between the people in the class" through "discussion," and spending less time typing comments on the code during the workshop. Two participants also requested a "handout" or "reference sheet" as a learning aid.

The themes from participants' responses to the open-ended items mapped onto their responses to the Likert-type items; complete results are presented in Table 1. In terms of instructor behavior, participants were overwhelmingly positive: Over 90% of participants agreed or strongly agreed with all the items. Furthermore, there was strong agreement about comfort with the workshop, the clarity of the instructor's answers, and the instructor's level of knowledge. Slightly more mixed were participants' perceptions of their own ability to apply what they had learned and of the efficacy of teaching methods; nonetheless, none of the participants disagreed with any of the survey items.

TABLE 1
Participants' (n = 14) Responses to Survey Items

Survey Item	Strongly Agree	Agree	Neutral
I felt comfortable learning in this workshop.	79%	21%	0%
I can immediately apply what I learned at this workshop.	43%	50%	7%
I was able to get clear answers to my questions from the instructor.	86%	7%	7%
The instructor was knowledgeable about the material being taught.	86%	14%	0%
The instructional methods helped me to learn the coding skills being taught.	64%	29%	7%

Note. No participants endorsed Disagree or Strongly Disagree for any item.

Participants' Learning

Based on the pre-quiz scores, many participants in our sample had some prior knowledge of either Python specifically or of programming more generally, as pre-quiz scores ranged from two to six out of eight possible points. Despite this, 90% of participants increased their quiz score by at least one point; the remaining 10% (one participant) experienced no change from pre to post. Average quiz scores increased from pre ($M = 4.4$, $SD = 1.2$; 55% correct) to post ($M = 6.6$, $SD = 1.1$; 83% correct), Cohen's $d = 1.95$, which was a large change. This finding was consistent with participants' self-assessment of their own learning on relevant survey items.

Synthesis

Both the student instructor's and the participants' responses were overwhelmingly positive. Training and mentorship strengthened the student instructor's confidence and helped her to discover her unique teaching style, which participants experienced as knowledgeable, relatable, and clear. Participants felt comfortable in the casual setting and appreciated the instructional methods, such as practice exercises and active learning. Participants also felt the workshop provided a good introduction to Python and taught them skills they could apply. In the short term, average recall of workshop concepts increased by almost two standard deviations.

However, participants were mixed in their satisfaction with the pace and scope of the workshop. We did not gather information about learners' prior knowledge before the workshop, which made it impossible to tailor the workshop to their learning needs. Furthermore, it was challenging for Li to cover all the planned material with a heterogeneous audience. She also experienced some challenges with establishing her authority as an instructor, particularly given the unexpected circumstance that she was not a near-peer to most of the audience, which heavily skewed toward university staff and graduate students.

Discussion

Our case study suggests that the workshops were beneficial to both the participants and the student instructor. Li's empathy for participants and ability to draw upon her own experience as a learner appeared to contribute to participants' positive feedback on the instructor and the learning environment. Participants generally agreed that they would be able to apply what they learned, which aligns with previous studies indicating improvements in workshop participants' confidence and perceived ability (Deardorff, 2020; Staudt Willet & Rosenberg, 2023). Furthermore, Li enjoyed the process and felt that it supported her

professional development. Because this was a pilot project that involved one iteration with a very small sample in a single location, the specific results are unlikely to generalize to other settings. However, the process of developing, implementing, evaluating, and reflecting on these workshops highlighted benefits and challenges that may be of broad interest, particularly to RDS staff. With this in mind, we offer reflection questions for library staff as they consider implementing student-taught coding workshops.

Reflection Questions for Library Staff

1. *Will there be sufficient time and mentorship for instructor training?* Mentorship and training helped Li feel comfortable and confident about teaching, which is consistent with Irvine et al.'s (2018) finding that in-depth training strongly contributes to student instructors' confidence and competence. The specific amount of time required depends on the student, context, and workshop content, but a three-month preparation period was beneficial in our setting. Within the training and implementation phase, essential components included rehearsal, debriefing, and ongoing feedback.
2. *What support is available for evidence-based teaching practices, particularly active learning?* In our case study, participants reported that the student instructor's active approach benefited their learning, which was further supported by the substantial increase in participants' knowledge of Python concepts from pre to post. This is consistent with Berssanette and de Francisco's (2021) finding that active learning contributes to better outcomes in computer science education. Active learning strategies in the workshops included participatory live coding with a user-friendly platform, worked examples, and practice opportunities, all of which are recommended in the literature on teaching coding (e.g., Brown & Wilson, 2018). Seeking support from the institution's teaching and learning center may facilitate this aspect.
3. *Does the library have mechanisms for pre-workshop communication with participants to understand what they already know about programming and to clarify their learning goals?* As in previous studies (e.g., Medeiros et al., 2019), the diversity of participants' prior programming experience was the biggest challenge of the workshops. Teaching programming to a group of learners who have varying levels of pre-existing knowledge benefits from a tailored approach (Mohamed, 2022), which is not always possible in a short-format workshop. In our case study, participant heterogeneity appears to have been a drawback; some participants suggested that the workshops were too introductory, while others wished that the workshops were longer and slower paced to allow for more questions. Being able to communicate with participants ahead of time about their background knowledge and expectations would have provided valuable guidance on how to tailor instruction.
4. *Is it feasible to chunk workshop content into smaller segments and hold a workshop series, rather than a single session, to ensure sufficient coverage of each topic?* Li found it challenging to cover the planned material in a reasonable time frame. For practical purposes, each workshop was two hours; however, this was insufficient time to teach all the concepts while still allowing space for questions and practice. Creating audience-specific workshops and reducing the amount of content within each workshop may help. One participant alluded to this idea, stating, "it will be nice if they can offer ... a level 1, 1.5, 2 and so forth to learn more ... Python and what it is

used to create ... [and] we can see a finished product." This feedback is consistent with Oliver et al.'s (2019) approach of offering an introduction to a programming language followed by specific applications.

5. *Will an RDS staff member mentor the student instructor on issues such as classroom management and navigating the teaching role as a near-peer versus non-peer?* De Menezes and Premnath (2016) have suggested that cognitive and social congruence between learners and teachers contributes to the success of near-peer teaching. Li was not a near-peer, relative to most participants' age or academic level; nevertheless, social congruence can be inferred from participants' descriptions of Li as "sincere," "relatable," and "friendly." In short, Li's student status did not appear to detract from the perceived value of the workshop. However, although Li intuitively navigated occasional participant disruptions with empathy and patience, she felt that it would have been helpful to have anticipated points of potential friction and to have brainstormed solutions during the rehearsal. Furthermore, preparing to teach an audience with a wider range of experiences and roles would have been helpful. These strategies may support a student instructor's ability to build and maintain rapport with all participants.

Future Directions

The use of a mixed methods case study design inspired by key elements of the action research cycle had several benefits. It provided a richer understanding of the student instructor's and participants' experiences (Creswell & Plano Clark, 2017). It also adopted recommendations from previous workshop research by including a short quiz as a direct measure of learning (Sufi et al., 2018). Furthermore, embedding the data collection process within the workshop enhanced the project's ecological validity (Fahmie et al., 2023). These design choices contributed to a realistic evaluation of the workshop within our context and setting.

However, many of these design choices sharply limited the generalization of findings to other contexts and settings. Chief among the limiting factors were the small convenience sample, a single student instructor, the lack of longer-term assessment of learning, and the absence of a control group. Nonetheless, the case study allowed us to explore the feasibility of student-taught coding workshops in our library and to understand the challenges that such workshops might pose. Future studies may explore workshops designed for more targeted audiences to understand the unique needs of learners at each level and to identify appropriate instructional strategies. Larger longitudinal studies of student-taught workshops could shed light on the degree to which participants retain the knowledge they have gained. Furthermore, follow-up interviews with participants could determine whether the workshop prompted them to obtain additional programming training or apply the material to their own research or programming projects.

Conclusion

Our case study demonstrated that student-taught coding workshops offered both benefits and challenges to the student instructor and participants in our library. Student-taught workshops may be a viable solution to staffing needs; however, this decision may rest on each library's unique context. By conducting action research-informed case studies such as the one we described in this article, academic librarians and other RDS staff will be well-positioned to implement, evaluate, and reflect on student-taught workshops within their own settings.

Author Note

This study was supported by the Fondren Fellows Program at Rice University's Fondren Library. We also acknowledge the Center for Teaching Excellence at Rice University for providing resources on evidence-based practices. We are grateful to Todd Ferguson, Tom McCabe, Lisa Spiro, and Carissa Zimmerman for consulting on implementation and write-up. We have no conflicts of interest to disclose.

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