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**Abstract**

The undergraduate research assistantship is key in the professionalization of future sociologists. Our study is the first in the social sciences to document benefits and challenges from both faculty and student perspectives. By interviewing 13 undergraduate research assistants (RAs) and 10 faculty in sociology departments at Primarily Undergraduate Institutions (PUIs), we outline the benefits and challenges of faculty-directed research with undergraduates. We find that students develop practical research, project management, and interpersonal skills while learning about career interests and developing relationships with mentors. RA challenges include repetitive tasks and time management. Faculty benefited from assistance with their work, the opportunity to mentor, and pedagogical feedback. Faculty challenges included communication, undergraduate turnover, and institutional barriers. Comparing these benefits and challenges with the goals and motives of both RAs and faculty, we suggest recommendations for departments and institutions interested in increasing undergraduate engagement in research.

Keywords:

undergraduate research, research assistant, undergraduate education, mentoring,

faculty development

Extensive research on socialization and the sociology of education document the importance of out-of-classroom experiences for cognitive and emotional development (McKinney, Saxe, and Cobb 1998; Nichols, Berry, and Kalogrides 2004). Informal interactions with faculty outside of class socialize students into professional norms and enhance students' education in sociology (McKinney and Reed 2007; McKinney et al. 1998). The importance of employment-related training is also reflected in the ASA's recommendation to provide more skill development opportunities for undergraduate sociology majors (Pike et al. 2017:65). Faculty at over 2000 U.S. institutions of higher education interact primarily with undergraduate students (Slocum and Scholl 2013). As a result, the primarily undergraduate institution (PUI) plays a critical role in integrating undergraduate students into research activities (Slocum and Scholl 2013). This makes the PUI an ideal setting for understanding professional socialization of the undergraduate in sociology.

While several studies have highlighted the importance of research experiences for undergraduates (Healey et al. 2010; Lei and Chuang 2009; Potter et al. 2009), few have investigated the challenges alongside these benefits. This study uses first-hand experiences to better understand the benefits and challenges of these collaborative relationships between faculty and undergraduate research assistants (RAs) in sociology at PUIs. After reviewing the existing literature, we present results from an interview study of 23 faculty and students at three PUIs. We conclude with a discussion of recommendations for institutions.

## LITERATURE REVIEW

### *Student Benefits & Challenges*

Research assistantships provide a variety of benefits for students, and these are particularly well-documented in the natural and physical sciences (e.g., Houser, Lemmons, and Cahill 2013; Hunter, Laursen, and Seymour 2007; Smith et al. 2014). Research opportunities help undergraduates acquire skills and experiences that prepare them for advanced study or influence their choice to pursue graduate school (Houser et al. 2013; Lei and Chuang 2009).

However, few have examined benefits and challenges for RAs and their faculty advisors in social science fields in particular. In one exception, a survey study investigated psychology professors' perceptions of undergraduate RAs' technical and interpersonal skill development (Landrum and Nelsen 2002). Professors rated the most important skills as enhanced critical thinking, graduate school preparation, and excitement for the research process. RAs best developed the skills of relating one-on-one with mentors, participating in data collection, and forming relationships for the foundation of recommendation letters (Landrum and Nelsen 2002). However, this research reflects only professors' perspectives.

Swigert, Singleton, and Ainlay (1993) implemented a program at a small, teaching-focused university where undergraduate students collaborated on faculty research in classes and paid research positions. Not only did the students gain skills and experience by collaborating on every phase of research, but they also became more open-minded about and invested in the topics of study. The authors claim professional, pedagogical, and personal benefits for the students while identifying challenges with student recruitment, time investment, and methods training (Swigert et al. 1993). Although they described in depth the benefits and challenges for both faculty and students involved in the project, the authors did so only from a faculty perspective. Our research seeks to solicit opinions on the benefits and challenges from both faculty and students.

*Faculty Benefits & Challenges*

Faculty feel generally positive about the experience of mentoring undergraduate researchers (Hyatt and Good 2017; Potter et al. 2009). Mentoring undergraduate research helps faculty relate better to their students (Potter et al. 2009; Swigert et al. 1993) and supports curricular development (Healey, Bovill, and Jenkins 2015). Faculty gain motivation and accomplishment from their involvement (Malachowski 2003; Potter et al. 2009) and some note concrete productivity gains (Lei and Chuang 2009; Swigert et al. 1993). On the other hand, some faculty report that involvement with undergraduate researchers hinders their ability to focus on or reduces the time they have to spend on research (Potter et al. 2009).

No studies have documented the challenges and benefits of offering extracurricular research opportunities at PUIs specifically targeted at sociology undergraduate students to support the development of advanced research skills. We offer the first simultaneous examination of the benefits and challenges of undergraduate research assistantships in sociology from the perspectives of both faculty and students.

## METHODS

This research took place at three PUIs: one mid-sized private religious university and two large public universities on the West coast. We sought interviews to gather holistic, insiders' views of the process of working in a faculty-RA research relationship (Weiss 1995). In total, we interviewed 23 respondents, including 13 undergraduate RAs who worked with a sociology faculty member and 10 sociology faculty members who have worked with undergraduate RAs.[1] Although the demographics of both faculty and student respondents (Table 1) largely reflect the makeup of the sociology departments from which they are drawn, there is a slightly higher

[1] This research was approved by the Institutional Review Board for the Protection of Human Subjects at the authors' institution.

proportion of women among RA respondents than women students in some of the departments. Semi-structured interviews lasted between 30 minutes to just over an hour.

[Insert Table 1 about here]

Respondents were recruited through snowball sampling. We reached out to potential faculty respondents through email, summarizing the goals of our study and asking them if they would be willing to participate in an interview and refer us to their student RAs and other colleagues. In a few cases, we reached out to RAs directly. When faculty referred us to their RAs, this could have disproportionately generated a sample of dyads with a positive relationship. Since we only interviewed faculty and students who were currently or previously involved in research assistantships, we have perspectives from respondents whose approaches worked well enough for them to engage in the practice. Although this deliberately biases our sample, we felt this was the best way to understand the benefits and challenges of faculty-RA relationships. We triangulated our findings with RAs and faculty whose respective advisor or advisee(s) were not interviewed. Similar recruitment approaches have been used for other studies of undergraduate research teams (e.g., Brew and Mantai 2017).

Our positionality for this project is self-referential; we are studying teams of RAs and faculty members as a team consisting of the same. Thus we are invested in the data and study, driving a well-informed interview protocol and follow-up questions during interviews (Lofland et al. 2006). On the other hand, we had to be vigilant to not overlook details different from our perspectives (Peshkin 1988). To provide balance, we developed our protocol based on findings of previous scholarship. Full protocols for RAs and faculty can be found on our Open Science Framework project repository (https://osf.io/82y4b/).

All interviews were conducted by the student RA co-author over Zoom. An incentive of a $15 gift card or donation was offered to respondents, and the lead author's current RAs could opt to receive their regular wage. Interviews were initially transcribed using Zoom automatic transcription software. The RA co-author completed transcription verbatim. Transcripts were imported into Atlas.ti cloud software for qualitative data analysis.

Our coding method was based on the three-step process outlined by Campbell et al. (2013). First, we established an initial set of codes and the level of unitization for our transcripts. Both authors began coding by tagging three transcripts independently, employing the techniques of grounded theory (Glaser and Strauss 1967), then merged similar codes to create a codebook (Lofland et al. 2006). We both coded all interviews, developed taxonomies (Lofland et al. 2006), and analyzed codes in groupings to increase the reliability of our coding. Coding is another place where our positionality came through in our research, from the codes created to the patterns that emerged and eventually how we decided to write and frame our findings. Theoretical memos about emerging themes that we wrote during the coding process, including representative quotes, formed the basis for our analysis and findings (Lofland et al. 2006).

## RESULTS

What are the benefits and challenges of an RA-faculty relationship? We present our answer to this question in two parts. First, we discuss students: their goals and motives for working as RAs, benefits acquired in the process, and challenges encountered. Second, we discuss the same elements for faculty. In doing so, we look at how initial goals match the benefits each group receives from research assistantships, as well as how benefits can also present challenges.

### *Student Goals & Motives*

Students sought participation in faculty research to build certain skills, learn more about research, and develop relationships with faculty. A few RAs were primarily interested in skill-building opportunities:

> To be honest I really wanted something else just on my resume… I could leverage when looking for internships for this summer. I was looking for something… that would kind of be professional and good to have on my resume and I'll learn from.

Several students were also interested in learning more about what it was like "to go through the process of a more long-term project." Some intended this as an exploration of their interest in graduate school or research careers, and others were interested in developing skills that could be used in multiple possible futures.

> At the beginning my main thing was, one, I wanted to have a better understanding of what the research process was– basically what the job was. Because I know that in graduate school and in those studies, you're working on your own research and it's a lot more self-guided… and that was intimidating to me, and it still is intimidating to me. But I thought that this would be a really good way for me to get a taste of that.

> I thought it was a good way to explore what a career in sociology could possibly be like if I go down an academia route because I added my sociology major this year… because I just enjoyed the classes. I didn't necessarily think about any career opportunities. …. And then also, I was hoping to just learn some valuable skills, so even if I don't go down the academia route, maybe these skills will help me in another way. And then also, I'm just hoping to be able to contribute to a study that can have a positive impact.

Students sought out extracurricular RA opportunities because they felt these would give them a better sense of what a career in research might be like than coursework. As we discuss later, these aims to develop skills and better understand the research process were largely realized by our respondents.

*Student Benefits*

[Insert Table 2 about here]

*Skills.* Undergraduates gain several benefits from their experiences working as RAs, including a wide range of skills that are applicable to research and other jobs. Table 2 provides a list of technical and interpersonal skills student RAs reported developing. Many students felt that learning a statistical programming language was useful because it would make them more appealing to employers when applying for internships and jobs. Some students who learned statistical programming said they would not have learned it in their coursework, while others found that being able to take the time to learn the skill outside of class helped them in courses where they needed it. Qualitative skills helped in a more general way; students felt that interviewing boosted their interpersonal skills, making them adept at navigating important conversations in real-time and more confident doing so. Regardless of the specific skills developed, all RAs reported learning through the hands-on process of engaging in faculty-directed research:

> I've learned more through this project than I have in any of my individual soc[iology] classes for sure, and probably more than I have in most of my soc[iology] classes combined. So from an academic standpoint, it's been really fruitful.

Applying skills repeatedly over the course of a long-term research project requires students to refine and adapt them to fresh contexts. The same student spoke of the ability to receive feedback and apply it to the next task in the research project, as well as to reflect on her performance and improve her interviewing skills over time:

> I've learned how to reflect on my research skills in a really useful way. I don't think that came through in classes, because, you're graded but you don't ever exercise those edits. At the end of the class, you're like "Okay, this is the grade I got and this is where I could have gotten better," but you don't then apply it. Cuz then you're off to a different class. So, because of the scope of this project and the length of it, and the different ways I've been working on it, I've been able to apply those edits... That's been good.

Student RAs learn how to exercise feedback more immediately. This skill of self-reflection, applied repeatedly over time, enables a new depth of learning.

In addition to research-specific skills, RAs develop abilities that are transferable to life and work, including project management, self-regulation, and interpersonal skills. A specific workplace communication skill one faculty member encouraged her RAs to practice was how to ask for a raise; students appreciated the opportunity to rehearse an intimidating skill in a safe environment. Notably, communication and interpersonal interaction skills were reported gained by the most student respondents and seen as the most important skills RAs acquired by both students and faculty, probably because they are applicable to so many areas. These findings are consistent with prior research surveying psychology educators, which described technical skills and interpersonal benefits developed by undergraduate RAs (Landrum and Nelsen 2002).

*Careers.* Working as an RA helps students learn more about their career interests. They get to practice research and learn about topics that may be of interest, as well as seek guidance from their faculty mentors. Several RAs saw the position as an opportunity for career discernment:

> I just - I have no idea what I want to do. I had a plan for a long time to be a math major and become an actuary, but I completely switched, obviously. So now I have no plan and I'm trying to figure it out, and hopefully, this position will help me figure that out.

Research opportunities may be especially helpful to those who want to explore whether they enjoy the practice of "real" research enough to pursue a higher degree in sociology:

> I am thinking about grad school, at either the Master's level or even I'm considering the Ph.D. level. I really want to make sure that I like research before I just start willy-nilly applying to grad school. So I definitely wanted to use this as a vocational discernment opportunity to see if research was something that I wanted to do for the next five years, or maybe for the rest of my life, which is a big thing to consider as a 21-year-old.

Research assistantships provide a window into academic life before committing to graduate school. Some faculty view providing these opportunities for career exploration as part of their role as effective teachers:

> If I want to be an effective instructor, I want them to have the opportunity to participate in research to learn how to do it. I think it makes them better scholars, I think it gives them an advantage in getting into school, and I hope that it gets them excited about the possibility of not just research but combining research and teaching, and really understanding how much research is part of professors' work.

From their perspectives as students, undergraduates may not understand the role of professors as researchers. Working as RAs affords students a fuller picture of this career, particularly for first-generation students or others who do not come from academic families.[2]

In addition to career discernment, students can garner career-related advice from their faculty supervisors. This includes asking faculty about their graduate school experiences, receiving help on the graduate school application process, learning about other ways to use sociology in the workforce, networking, and getting letters of recommendation. Of course, they can also add the RA experience and the skills they learn to their resumes.

A few of our respondents talked about how employers were interested in their RA position when they applied for jobs and internships:

> [I]t honestly has helped a lot and the people that I have interviewed with have told me that they were really interested to hear about my RA position and what I was working on. And, I think being able to talk about doing things really hands-on.… [P]otential employers want to know that you can handle the responsibility and can do whatever you're assigned to do. And being an RA, you're working on your own time a lot of the time, and so you have to self-manage to make sure that you're meeting expectations and getting things done. And I, at least in the interviews I've had, people really liked that. And they've told me that that was a really good thing to have on my resume. So, it's been hugely beneficial for me to have been an RA.

Students have the opportunity to explore more about what interests them (or what does not) about research for their future work, while also building job experience.

*Relationship with mentors.* Part of this career development occurs through building relationships with faculty mentors. One RA spoke about how developing this relationship made

[2] This opportunity may be particularly notable given that tenure-track faculty are up to 25 times more likely to have a parent with a Ph.D. (Morgan et al. 2022).

her less intimidated by future supervisors. Another student spoke of learning mentorship skills and qualities to seek in future mentoring relationships:

> [D]eveloping this relationship with her has shown me kind of some things that I'm going to be looking for in a relationship with an advisor later on and given me a model for collaborative research that I think will be really useful, not only in my relationship with faculty or an advisor in graduate school but also with my peers and also with anyone else… Once we brought in more and more people on our project, I think I was able to emulate some things that I had really liked about how she had dealt with me and introduced the project to me, then, in working with the… new RAs.

This RA modeled her mentoring style off the qualities she appreciated in her faculty supervisor, demonstrating that she also used the experience to develop her own management skills.

The personal connection "that goes beyond just teacher to student but someone who really cares about your personal growth" is valued both by students and faculty. In addition to concrete career assistance, students learn to develop positive mutual relationships with their faculty supervisors:

> It's just a way to get to know your professors, or get to know a side of them that you don't necessarily or maybe wouldn't necessarily see in the classroom, and I think that that goes a long way in building more reciprocal relationships. Which I think is just obviously a characteristic of healthy relationships and healthy communities.

> I thought I was just going to be working more for [my faculty supervisor] in a really kind of dry capacity. And then, one, I really like her, and two, … she makes you really feel like an equal. So she develops that relationship in a great way. But that's something that I didn't anticipate getting out of it, and now definitely would count as one of my key takeaways.

For the most part, students expressed satisfaction with their relationships with their faculty supervisors. Of course, some faculty-student relationships were more fraught. One RA who was pressured to complete tasks by deadlines with what she saw to be unrealistic time expectations expressed tension and ambiguity in her relationship with her mentor and the project:

> So it's a love-hate, like I really enjoyed it, I learned a lot… But at the same time, it's like, "Aw man, like, what can I do better?…" There's this weird balance there. Like, you shouldn't do too much where you get extorted, but at the same time don't do too little,

> because it's not your project at the end of the day. You don't want to screw something up for your mentor.

This student expressed the anxiety that resulted from often ill-defined expectations for work productivity combined with the high value she placed on the relationship with her mentor. Students felt tension when the importance of relationships came into conflict with the tasks of the job. Despite this tension, assistantships gave RAs experience navigating supervisory relationships, which in reality is sometimes difficult.

*Student Challenges*

*Skills development.* Students described challenges related to the new or more advanced skills they needed to learn as RAs, although they usually did not describe these as negative. Others reported emotional and self-regulation challenges as they developed these new skills. For example, one RA recounted stress before presenting at a conference as her biggest challenge:

> I was extremely nervous. Super nervous. I felt like throwing up like the day before, I was so nervous. It was not something I've done before, and I didn't feel like I was prepared, even though we were prepared. We did everything we needed to do, it just felt like it wasn't enough….You're the one presenting. And they're gonna be asking you the questions, and you're like, "Oh dear"... It's ah – imposter syndrome.

RAs reported the biggest challenges in technical skill development in the process of learning coding – both quantitative and qualitative. Learning how to do better literature reviews was also challenging as RAs gained more advanced techniques.

*Repetitive work and time management.* The most notable challenges students described, however, were related to the nature of the tasks they were assigned and time management. Students became dissatisfied due to the type and variety of tasks, repetition, and tedium. The two students who expressed the most ambivalence and lost motivation doing their job had very repetitive work:

> I feel like my role is so specific and narrow, and it's just doing one thing, so I feel like I don't really get a good grasp, in general, of the whole sociological research process. I feel like I learned more from my classes.

This resulted from asking the student to work semi-independently on repetitive but challenging tasks in the statistical programming language R in between check-in meetings. Others also found greater autonomy a challenge, but viewed it as a growth opportunity:

> One of the reasons why I've been such a good student is because I really thrive on structure. I'm very good at following the rules, but with this [there are] a lot less rules to follow. So I definitely think that it has been more challenging in the way that I can't just tick a box next to a rubric but I definitely need to think a lot more abstractly and be able to ask for a lot more help than I would if I was just doing a normal research project in the class.

Faculty-directed research is often more amorphous than projects students have experienced in coursework, so "to have to jump in and learn it in real time took a mindset adjustment." Several RAs struggled with the level of focus and self-direction their supervisors asked of them. Another student who did solely transcription found herself drawn more to her other commitments.

> I think being a student and just prioritizing other responsibilities in my life has been really hard to now stay on task with everything related to the research. So, I think I was getting a lot out of the experience in the beginning, but then I got a little bit of burnout… I needed to tell [my faculty supervisor] that I'm not doing my best work, I'm getting burnt out.

However, having repetitive work was not a guarantee that an RA would lose motivation or interest. One student who primarily assisted with data entry reported that "understanding where [her] work plays into" the larger project made it "very meaningful at the end of the day." The challenges students experienced were very specific to the goals of the student, the task requirements, and the structure of the team. RAs also grappled with time management challenges, depending on the management style of the faculty supervisor. Several specifically noted struggles balancing expectations and interest in the project with other work or school commitments.

*Communication.* Communication was frequently mentioned as a challenge to (or facilitator of) effective collaborations. RAs occasionally struggled to understand faculty supervisors' requests:

> I think sometimes not knowing the expectations of what I need to do. So my mentor will tell me, "Okay, I want you to do this." For example, last year, when I started this project… in a group of 5000 interviews, I was supposed to highlight the names [relevant to the study]. And so I did that, and then once I did– I went through all 5000, then I was told, "Oh, can you please code what they said." And then I was like, "Oh my gosh." So then I had to go back and code it. And I didn't get an example of what that is, I've never heard of coding before. So after going through all 5000 of them, and coding them, I was then told I didn't do it right, and then, this is what it should look like.

Especially when starting a position, RAs may be hesitant to ask clarifying questions or may not even know what to ask. Challenges from RAs' perspectives largely centered around "little things [that] were not communicated properly." The faculty member's immersion in their long-term project, combined with the student's desire to please the mentor, can lead to details being glossed over or omitted. RAs frequently cited a lack of in-depth training from their faculty supervisors as a challenge in their positions. Faculty could reduce these challenges via clear communication of expectations and adequate instruction in tasks.

*Faculty Goals & Motives*

Faculty sought to work with undergraduate RAs for two primary reasons: the opportunity to mentor students in research and assistance with their work. Some faculty either remembered their own mentorship experiences fondly or had sought out research mentorship unsuccessfully:

> As an undergraduate, I worked with two sociology professors on their research project. I published my first academic journal article in a top-tiered journal with them. I wanted to carry on this tradition.

> I remember really clearly as an undergrad myself wanting that experience. I remember going to professors and asking them, "Are you working on anything over the summer?" and then, not anyone taking me up on that.

Faculty wanted to replicate a previous personally beneficial relationship or provide their students with one that they had lacked. Others sought to mentor to gain better connections to students and ideas from student collaborators. We elaborate on these benefits in the next section.

Several faculty mentioned it was important to them to mentor students from traditionally underrepresented groups. One minority faculty member liked the idea of "paying it forward" and "being a mentor to people who maybe don't traditionally look like scientists." Others spoke of mentoring RAs as a way of enacting their values:

> I think primarily, what I mentioned earlier about wanting to expose undergrads who wouldn't necessarily have the opportunity to see how research works, otherwise, to research. One of my professional and personal values is diversity, so it's also really important to me. The professoriate isn't gonna get more diverse if we don't do anything to make it more diverse.

This echoes one of the benefits RAs reported of being able to experience what it is like to do original academic research first-hand. Faculty goals and student goals in this area are particularly well-aligned.

Nearly all faculty also mentioned that involving RAs in their work was "definitely also self-interested." Faculty reported needing help with transcribing interviews, coding, and "front end work." Many ultimately involved students in nearly all stages of the research process.

*Faculty Benefits*

Working with RAs has many benefits for faculty members. These fall into three categories: practical and intellectual, personal and relational, and pedagogical benefits.

*Practical and intellectual.* The practical and intellectual benefits include getting work done and having collaborators. As one professor put it simply, "I like having work off my desk without having to do it, that's number one." RAs can help with necessary but time-consuming tasks that facilitate faculty work. Other faculty reported that having mutual deadlines helped keep both students and faculty accountable for project progress. Several faculty discussed that

they enjoy having student collaborators on projects to provide feedback and additional perspective:

> I love working with undergraduate research fellows for my deliverables. So that said, there is a difference between getting a job done, and getting a job that is done nicely… [A]fter working with undergraduate research fellows, they can always point out the issues that I need to work on and the issues that I need to improve…. Sometimes I do not make my contribution significant enough because I'm just too close to the literature that I'm working on.

In this case, the faculty member valued the broad insight that undergraduate collaborators brought to her work. RAs were able to point out areas in the research that were insufficiently motivated for a broader audience, strengthening her arguments for the research contributions. Student RAs served as junior colleagues for faculty, acting as interested collaborators to discuss research.

> I love bouncing ideas off of people and having them ask questions that clarify my own thought process… I've always liked collaborating with people, and it's very helpful to have people ask questions or question my assumptions.

RAs help faculty clarify the importance of their research questions, methods, and outputs. Many faculty expressed that they have been very pleased with the quality of work from RAs:

> I would say that they are super capable… I've never needed to micromanage. I feel like I've always been really comfortable and confident with being able to give a task or, "Here's a project to start working on." And then I feel very comfortable with, "See what you could do." And I've typically been very impressed and satisfied with what's been done. And surprised, in some cases, pleasantly surprised.

This respondent – and several other faculty – expressed the benefit of being able to give capable RAs minimal direction and ownership of a research project, increasing productivity for the faculty member.

*Personal and relational.* Second, the personal and relational benefits include mentoring students, watching them develop as scholars, and paying forward mentorship they had as undergraduate or graduate students. Faculty valued sharing this love of research and thirst for

knowledge with the next generation. As teachers, faculty members reported satisfaction in guiding and watching students learn and grow:

> I just really like seeing scholars develop. There's just like a pleasure in watching someone's skills bloom… I would say that's a big pleasure, almost as much as having work off my desk.

For some, building a mentorship relationship with students is the main reason they engage with undergraduates:

> The most gratifying thing is if I detect that the experience was enjoyable for the undergraduate… I'm not so much interested in the final outcome. The final outcome can happen with an RA or without an RA. We all write a lot, a bunch of papers, so we could do that. But the most important thing is that gratification, is to know that the person is gonna remember this experience, and have learned something from it, and enjoy doing this very much… And that always brings me back to my relationship with my mentors and how they provided opportunities for me to grow.

Faculty found that collaborating with RAs enhanced their ability to relate to and mentor all students.

*Pedagogical.* Working with RAs also helped faculty reflect upon their teaching in ways that can be applied back to the classroom:

> I have to give different learning experiences to different students. And you do that in the classroom but you don't get the one-on-one feedback that you do with research assistants. And with research assistants, because they're giving you work product not a grade, they have to immediately say, "what am I doing, am I doing this right, is this what you want?" And then you can actually sort of monitor because the time interval is much closer. What you did as a supervisor and the outcome. So, I think that really helps because it makes you realize the ways maybe you're not explaining things correctly or that maybe you're explaining it correctly, but insufficiently for somebody who learns in a different way.

The direct and immediate interaction of working with RAs provides faculty with a better sense of effective pedagogy. Another faculty member spoke to the feedback they can gain based on the personalization and fast turnaround of RA training:

> Sitting down with two undergrads and walking them through the methods of what we were doing, and understanding where there were misunderstandings… So it was helpful and learning, 'Oh, this thing that I'm also teaching is tricky for people who don't know it

> yet, right, who this is their first exposure.' So that definitely was a feedback loop back into my teaching.

Faculty use these opportunities not only to train RAs in research methods but also to improve their pedagogical practices. Through this feedback cycle, faculty research with undergraduates improves classroom teaching, and quality classroom teaching improves opportunities for faculty research with RAs.

While these intellectual and practical, personal and relational, and pedagogical benefits are notable, it is important to keep in mind that there is a selection bias in our sample because we only interviewed faculty who have worked with undergraduate RAs. These faculty were sufficiently optimistic to invest effort to make research with RAs successful. This interest and effort are likely part of why these relationships have been so fruitful for them.

*Faculty Challenges*

Faculty also experience challenges and drawbacks to working with RAs: communication; undergraduate turnover; and institutional barriers, including logistical and management challenges, reward systems, and funding.

*Communication.* The flip side of the opportunity to receive pedagogical feedback is the challenge of communicating tasks clearly and training RAs effectively. In communicating expectations to RAs, especially new assistants, faculty must guard against miscommunication with students who are eager to please and prove their capability. This can occur between faculty and RAs, or between RAs:

> Because they didn't know each other, I think there was some… My impression was that they both wanted to show us, the faculty, that they were ambitious, driven, competent research assistants. And I think maybe they weren't splitting the [work] exactly right. So I think there was some tension between them.

After sorting out initial miscommunications, these RAs became fast friends and collaborated on an independent research project. Alternatively, sometimes faculty encounter the challenge of minimal communication from RAs:

> I'm not hearing from them, and just keep reminding them, and then, finally hear back. And then we had a conversation about that and about their communication and how it's okay to have things to do, or if you need to push the deadline back, but just communicate with me.

In both cases, faculty supervisors report having conversations with their RAs about what did not go well and how the communication process could improve in the future.

*Turnover.* The primary challenge unique to undergraduates is their relatively short period in school:

> I feel like I don't have enough time to properly train people before they move on. Honestly, I don't usually identify someone as a good potential student until their junior year. And then they graduate. And I feel like they're just starting to really kind of understand and be able to work on their own, in a way, as they leave. And that's hard.

Because of this rapid turnover, faculty members weigh the value of having an RA against the time and money spent on training them and logistical tasks like scheduling. Several faculty respondents were unsure if "the amount of time [they had] to put into training someone compensates for the amount of work they take over." One faculty member reflected on the misalignment of student goals and faculty incentives:

> Schedules, longevity of the relationship, funding, incentives and rewards: there's a complete disjuncture between the way research is evaluated and the way collaboration with students is rewarded, and the latter is not rewarded at all. I mean you really have to want to do it.

This rapid turnover among undergraduate students made institutional support – particularly the availability of quickly-accessible funding – even more important for some faculty.

*Institutional barriers*. Institutional structures and reward systems pose a major challenge to faculty interested in working with RAs. Particularly in sociology, which still places a high

value on the sole-authored publication, research evaluation structures are currently not aligned to encourage team science. Furthermore, the logistics of coordinating a team are substantial and require faculty to develop managerial skills that are not included in most graduate training. Logistical and management challenges were mentioned frequently, including scheduling, coordinating documents, and supervising people. However, faculty always mentioned these as "not substantive challenges," but more as minor inconveniences that were necessary correlates of working with others. For faculty who derive personal satisfaction from getting to know their RAs and mentoring them, the time investment for training seemed to be worthwhile, as most faculty respondents reported generally positive experiences with undergraduates.

One form of institutional support that is critical is funding to support RAs and faculty mentoring time. Although one of our RA respondents was unpaid (and one of the faculty respondents mentored unpaid RAs), the majority of our respondents relied on institutional funding and other institutional resources to support their research work. This often meant that faculty ability to engage with students was limited by the amount of funding they had:

> I think that it is very important to consider that working with a research assistant depends a lot on different institutions and institutional resources. So, I have worked in three different places and in the first place…we didn't have, as far as I knew, we did not have money…. to work with a research assistant.

> I wish there was funding and abilities to just engage more students. I wish there was maybe a more formal process, maybe something more standardized… I would just like the ability to do it more and to be able to pay students.

Most faculty expressed an interest in working with more students as RAs, with the limiting resource being funding.

## DISCUSSION

This research is the first to document the benefits and challenges of working as and with sociology undergraduate RAs from both the perspective of students and faculty. In doing so, we

categorize students' goals, motives, benefits, and challenges in working on faculty-directed research. We also do the same for faculty, looking at the alignment of goals and benefits, as well as the balance of challenges and skills needed to develop meaningful and productive RA relationships. In this concluding discussion, we review these findings and connect them with previous research and recommendations for institutions interested in increasing professional development by offering more RA opportunities for undergraduates.

Student RAs' benefits include developing skills, discerning career paths, and cultivating relationships with faculty mentors. Our RA respondents' decisions about their careers ranged from changing or confirming career paths toward becoming a sociologist to deciding they were not interested in research-related careers. All along this spectrum, however, students learn about their skills and interests. Whether or not they choose to pursue a vocation in research, RA experiences enhance undergraduates' professional socialization into the identity of sociologists (Houser et al. 2013; Hunter et al. 2007). The student benefits align comprehensively with goals and motives in seeking to become RAs. The one notable area of divergence is that many students developed even stronger mentorship connections than they indicated they had sought at the beginning. These benefits, including employment-relevant skills and personal relationships with faculty, are increasingly important to both student retention and post-graduation outcomes (Pike et al. 2017).

Student challenges include dissatisfaction with tasks, motivation, and communication. Additionally, RAs reported challenges of minimal structure or guidance on tasks. This mirrors the earlier finding of Swigert et al. (1993) that student researchers required substantial ad hoc methods training. Although previous studies of STEM research assistantships discuss mentorship

and communication skills or structures as key to outcomes, rarely do they mention communication as a challenge *per se* (Hunter et al. 2007; Houser et al. 2013).

Faculty benefits include practical and intellectual support, relational and personal development, and pedagogical practice. Faculty learn new skills and concepts from their RAs (Healey et al. 2015) while receiving assistance with their research tasks. They develop meaningful relationships with many RAs. Not only does this meet many faculty members' goals of developing students as junior researchers, but it also contextualizes the unexpected benefit of pedagogical feedback for faculty. Faculty test teaching approaches and receive rapid feedback on their efficacy from RAs before moving these techniques to the classroom. Not only are these benefits important individually but they also allow for the integration of the research, teaching, and mentorship elements of faculty identity (Swigert et al. 1993; Kain 2006).

Faculty confront challenges with communication, in addition to other logistical and managerial issues. The key challenges for faculty are the rate of turnover among undergraduate students and institutional resources. These findings align with other studies of challenges to implementing research programs for undergraduates, which found faculty were concerned about institutional policies and resources and lacked necessary skills, time, and financial support (Brew and Mantai 2017; Swigert et al. 1993). Despite these challenges of communication, logistics, and turnover, we find that faculty and students develop quality mentorship relationships through their work.

The benefits largely align with the goals faculty set out when they began working with RAs. Almost all faculty found some benefits in the practical support provided by RAs, although this varied with the degree to which faculty were willing to delegate and allow for autonomous work. One faculty member summarized this conclusion well:

> I've noticed that the more freedom you give talented undergraduates, the more they rise to the occasion. The more freedom you give them to innovate, again checking in with a supervisor and the team, they actually really become responsible.

With adequate training and support, faculty seeking assistance with their work find that RAs meet this goal. Given the potential contradiction here with challenges expressed by RAs, it may take practice and iterative feedback for faculty to find the appropriate amount of guidance and structure needed by an individual student while also providing practical time-saving assistance to the faculty member. Undergraduate research programs can engage students and help faculty integrate teaching and research (Brew 2013; Brew and Cahir 2014; Kuh 2008). Research experiences are increasingly recognized as important, high-impact educational practices that matter for all students (Kuh 2008). Participation in faculty research may also be effective in the teaching and learning of research methods. Most scholarship about training the next generation of researchers focuses on classroom practices (Leahey 2006; Medley-Rath and Morgan 2021). Future research could investigate whether RAs receive more, similar, less, or simply different benefits than students do from conducting research via a standard methods course or in applied research throughout the curriculum (Scheel 2002). Since the small number of cases of interview studies makes it difficult to generalize (Small 2009), future work could pursue a survey study with both students and faculty to evaluate the benefits and challenges of RA programs. Additionally, future work could characterize the processes used by faculty-RA teams in successful research collaborations.

Given the variety of benefits reported by both RAs and faculty that align with the mission of undergraduate teaching (particularly at PUIs), institutions may wish to consider formalized programs for supporting faculty-directed undergraduate research in the social sciences. Sociology graduates report that they would like more applied training during their undergraduate years (Senter, Spalter-Roth, and Vooren 2015). Emphasizing such benefits to faculty research

programs and pedagogy may provide a route for sociology programs to secure institutional support, as "increasing concern over student retention, engagement, and degree completion has renewed interest in mentoring as a process for improving student success" (Pike et al. 2017:46). The ASA Task Force on Liberal Learning and the Sociology Major recommends internal research funding for RAs to encourage the involvement of students in disciplinary research activity (Pike et al. 2017). Many faculty report a lack of institutional support — either through time or money — or uncertainty around the institutional valuation of mentorship as a major barrier to pursuing more research with undergraduates (Brew and Mantai 2017; Jones and Davis 2014; Lei and Chuang 2009; Potter et al. 2009; Wayment and Dickson 2008). Such formalized support could go a long way to facilitating faculty involvement with undergraduate RAs. As the sociology curriculum moves increasingly toward applied learning, the availability of extracurricular applied research experiences for interested students and faculty – with institutional support – is critical. This examination of the benefits and challenges that undergraduate sociology students experience from participating in faculty research, as well as what benefits and challenges faculty encounter from working with students, helps us understand the opportunities such support could offer.

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END MATTER

Table 1. Demographics of interview respondents.

| | **RAs** | **Faculty** |
|---|---|---|
| Total | 13 | 10 |
| Institution type | | |
| Private | 9 | 8 |
| Public | 4 | 2 |
| Race | | |
| White | 6 | 6 |
| African American | 1 | |
| Asian | 2 | 1 |
| Mixed Race | 2 | 2 |
| No response | 2 | 1 |
| Ethnicity | | |
| Hispanic/Chicano | 4 | 2 |
| Non-Hispanic | 9 | 8 |
| Gender | | |
| Women | 11 | 7 |
| Men | 1 | 2 |
| Non-binary | 1 | 1 |
| Age | | |
| Median | 21 | 39 |
| Range (for responses) | 20 - 24 | 31 - 55 |
| No response | | 2 |
| Parental Educational Attainment | | |
| High school graduate/GED | 3 | 2 |
| 4-year college graduate/Bachelor's | 4 | 3 |
| Postgraduate degree | 6 | 4 |
| No response | | 1 |
| Identify as Disabled | | |
| Yes | | 3 |
| No | 13 | 6 |
| No response | | 1 |

Table 2. Skills developed by undergraduate RAs.

| **Area** | **Skill** |
|---|---|
| Quantitative Methods | Quantitative coding<br>- Data analysis<br>- Data visualization |
| | Data entry |
| Qualitative Methods | Interviewing |
| | Transcription |
| | Qualitative coding / Data analysis |
| Literature / Writing | Academic database research |
| | Literature review |
| | Manuscript writing |
| Project / Other Research Skills | Institutional Review Board |
| | Protocol development |
| | Research design |
| | Conference presentation |
| | Project management |
| Self-Regulation | Organization |
| | Critical thinking / Problem solving |
| | Focus / Self-discipline |
| | Independence / Autonomy |
| | Time management |
| | Self-evaluation / Reflection |
| Interpersonal / Communication | Collaboration / Teamwork |
| | Communication skills |
| | Interpersonal interaction skills |
| | Peer mentorship |