Working With Undergraduate Research Assistants
Setting Up and Maintaining a Research Laboratory
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Date: 09/02/10 01:48:34 -0400
Subject: RA positions available?

Let us imagine two hypothetical psychology laboratories, in need of new research assistants. Dr. Eager and Dr. Careful are both new professors in psychology, and from the day they are hired, they begin receiving e-mails with headers like the one above. Dr. Eager invites the first 10 students who e-mail him to join his lab. He is excited that students want to work on research but quickly becomes overwhelmed trying to properly train them while preparing to teach a new course. Dr. Careful has a different approach. She is hesitant to take on students who do not have prior research experience and top grades, as she wants to be sure the students can work independently. Very few students meet her standards, and even once her team is assembled, she panics when she realizes she needs more time to plan her research projects for the year.

Working with undergraduate research assistants (RAs) is an integral part of teaching and research at many institutions that entails a unique set of benefits and challenges. In particular, new faculty members may find it daunting to set up a lab that actively and effectively involves undergraduates in research. Although every lab will have different goals and include different kinds of students, in this article, we provide practical ideas and solutions for new faculty who work with undergraduate RAs.

First Steps
Choosing a laboratory structure. The initial shock of realizing that one is in charge of one’s own research destiny can be managed by breaking the start-up process into manageable steps. The first decision to make concerns the general structure or set-up of one’s laboratory. Most often, the default approach is to model a new lab after one’s graduate or post-doctoral advisor’s lab. However, this may not always be the best or most feasible option. For example, perhaps your advisor assigned one RA to each graduate student, but you do not currently have any graduate students. In this case, it may be best to adapt various aspects of your previous laboratory experiences and create a new hybrid structure that better fits your current environment and research goals. For example, at Lewis & Clark College, Jerusha and Brian Detweiler-Bedell developed a laboratory model involving undergraduate students working in teams of three. Students begin as team assistants, and over time, they take on more responsibilities as team leaders (e.g., Detweiler-Bedell & Detweiler-Bedell, 2004, 2007). Other laboratories use a similar model with graduate students as team leaders. There are many other laboratory models, such as having RAs work individually on tasks that are assigned to them on a day-by-day basis by the faculty member or graduate students. Choose the model that works best for you at this time, and plan to reevaluate and adjust your laboratory structure as your research program develops.

Formulate goals. Your first projects will determine how your first few years as professor will proceed. It may be helpful to begin by identifying some long-term research goals, such as projections about study completion, data analysis, and write-up for different projects. Working backwards from the long-term goals, you can determine what short-term goals need to be accomplished to help you get there, such as designing and pilot testing stimuli, finding subject populations, or developing a coding system. Another option is to think about specific projects and determine the steps to get to the data collection. Regardless of how you construct your list, the short-term goals are likely to be the ones that affect RAs most directly, and these can be used to create a timeline. With this framework, you can then determine how many RAs you will need in order to advance your research plan.

Evaluate your resources. Once you have assessed your project needs, the next step is to consider what kinds of resources you have available to support RAs. The RAs may be paid, volunteer, or enrolled for course credit. If students are to be paid, check with your department finance manager about the rules for spending start-up funds, wages and benefits, restrictions on hours, union rules, and various state and federal regulations that may be applicable. Alternatively, depending on the institution, you might hire students whose...
pay is supplemented by state or federal work-study programs, or via various granting agencies (e.g., REU grants through the National Science Foundation, and McNair scholars programs for minority students; see also Page, Abramson, & Jacob-Lawson, 2004). An advantage of paying RAs is that the commitment seems more like a “job” and students may take that responsibility more seriously. The second option is to find unpaid volunteers. Volunteers can be very motivated RAs; however, they may not be able to devote as much time as you would like to the laboratory, and without some compensation, they may be less motivated to stay. Finally, you may be able to offer course credit for undergraduate laboratory experience — potential RAs can be plentiful, particularly if students require a research credit to complete their degree. However, be aware that some students are not motivated by an interest in research or by grades, and may simply want the credit needed for graduation, which can result in a lackluster performance in the laboratory.

Recruiting RAs

Advertise. Your department and institution may already have resources to help you recruit RAs, and these are often a good place to begin advertising. Some departments maintain websites or mailing lists of independent study or research opportunities. If no such resources exist, consider asking your department to create a research website, as these have been shown to be very effective in increasing awareness of and interest in RA positions (Wayment & Dickinson, 2008).

Another common means of advertising is to simply post flyers around campus. Word of mouth can also be highly effective. If you are opening a new laboratory or beginning a new research project, tell undergraduate advisors, secretaries, or other people who have frequent contact with students more about your laboratory and what you are looking for. Ask your colleagues to make announcements in their courses (particularly courses that have a natural connection to your research) or offer to have one of your students give a brief presentation about your laboratory during a class meeting. If you teach undergraduates, consider personally inviting your top students each semester to work in your laboratory.

The more clear and direct your advertisement is, the more likely you are to find RAs who meet your criteria. As a rule of thumb, your ad should be as brief as possible, yet informative. Begin by clearly stating both your expectations and compensation for the position. For example, if RAs will receive course credit, state the terms (e.g., “RAs are expected to work 9 hours per week for 3 credits”). List any prerequisites or requirements (e.g., “must have a minimum 3.0 GPA”). Be sure to mention if you do not have prerequisites (e.g., “no prior research experience needed”) or if you want to encourage particular applicants (e.g., “freshmen are encouraged to apply”). Highlighting the availability of research opportunities and stressing that research experience is important for graduate school applications will make your advertisement more appealing to qualified and motivated students.

Select RAs. There are many indicators of a successful RA besides his or her academic achievements. Asking students to complete a short written application can be an effective way of obtaining useful information about your applicants, such as their level of motivation. Based on these responses, you may want to invite a subset of applicants to an interview. Interviews allow you to personally assess a student’s interest, tell students more about your research, and determine whether or not a student is likely to meet your expectations. For example, one of our colleagues who strongly values punctuality schedules interviews at 8 AM and does not hire applicants who arrive late. Although it can be flattering to have a large number of responses to an advertisement when you first start out, always keep your objectives for the semester in mind. If you have more suitable applicants than open positions, encourage students who you do not hire to apply again in future semesters. It is better to maintain a waiting list than to hire more RAs than you need.

Getting RAs Started in the Laboratory

Complete prerequisites. RAs generally have prerequisites to complete before they can conduct research. These prerequisites vary from institutional review board training and criminal background checks to paperwork needed to receive credit or pay. You may also have prerequisites you would like students to complete for your laboratory, such as writing a brief biography for your lab’s website or reading research articles. Consider providing first-time RAs with a list of these prerequisites to complete at the beginning of the semester, perhaps even as a requirement for signing up for course credit. If a student does not handle this responsibility, it is a good signal that the student may not be successful as an RA.

Set clear guidelines. Just as with teaching courses, it is helpful to start with clear guidelines outlining your expectations for new (and returning) RAs. Students should understand that they have an important role in your laboratory and that they should take their position seriously. The laboratory position’s requirements can be conveyed in various ways, such as a formal laboratory contract or a list posted in a conspicuous location.
Maintaining a Productive Laboratory Environment

Scheduling. Before RAs enter the laboratory, determine your policies about laboratory hours. Is it important to you that RAs keep set hours each week, or will you be more flexible? If you opt for set hours, post the schedule in a location easily accessible to everyone. We have found it useful to create an internal RA webpage that lists the schedule and set it as the homepage on all laboratory computers.

Whether the hours are set or flexible, it may be good to create a system for keeping track of the time RAs spend in the laboratory. One method is to create a sign-in/sign-out form using the spreadsheet function on www.docs.google.com or other survey websites. Forms can include information such as the RA’s name, time in, time out, total time spent working that session, and additional notes or reminders (e.g., lock file cabinets). You can then publish your form, link it to your RA webpage and download entries to calculate weekly or semester totals for each RA.

Communicating. One common way of communicating with RAs is to have laboratory meetings. Regularly scheduled meetings can be a valuable opportunity to disseminate information and allow RAs to share what they are learning. However, laboratory meetings can also require additional planning and coordination and they may not be productive if there are no new topics to discuss. Whether or not you hold meetings, we recommend having an alternative means of regular communication among laboratory members, such as an e-mail list.

Give RAs to-do lists. Providing RAs with a concrete list of tasks to complete when they are in the laboratory allows them to be productive and independent. For example, we use a GoogleDocs spreadsheet that lists weekly tasks and can be edited by all users. (It is also linked to the RA webpage so RAs can easily check it each time they come in.) The spreadsheet is divided into sections for each RA or project team, and it includes columns for describing the task, listing progress, and questions or follow-ups needed. There are additional columns for communication between RAs, graduate students, and faculty. Critically, our to-do lists include a section with “downtime” activities for RAs to work on if they have completed their other tasks. These activities are typically small projects, such as putting up flyers or updating the laboratory manual, that are clearly tied to the laboratory mission but are not associated with any one project or person.

Get feedback. Having RAs provide feedback about their experience can be particularly useful as you develop your laboratory. Consider providing an anonymous feedback system that RAs will feel comfortable using. Specific questions can also be helpful. For instance, in the past we have required RAs to complete anonymous web-based questionnaires about skills they would like to learn, improving laboratory communication, and reading assignments based on current projects.
Summary
In short, newly-minted professors Dr. Eager and Dr. Careful are both doing some things right when it comes to hiring research assistants. To survive as a new faculty member, you need to think carefully about your projects and where you see yourself going, just as Dr. Careful does. But you also need a bit of Dr. Eager’s enthusiasm to push you through even when you are not quite sure where you are going. We have provided suggestions based on our own experiences setting up research laboratories. However, even with the best planning, your experience with RAs will not always be as you envision it. Be flexible and keep in mind that the structure and shape of your laboratory is likely to change as your research program evolves and you gain experience and confidence. Remember that your relationship with RAs should be mutually beneficial: You should make progress on your research, and your students should develop as scholars and critical thinkers. Ultimately, taking the time to develop a laboratory structure that involves undergraduates will help you establish yourself both as an independent investigator and an effective mentor.

References and Recommended Readings


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 Psi Chi is seeking volunteer mentors for its Undergraduate Summer Research Grants program. The purpose of this program is to further the goals of Psi Chi by providing funds for undergraduate Psi Chi members to conduct summer research under the supervision of members of the Association for Psychological Science (APS).

A potential APS sponsor agrees to:
- provide contact information to be posted on the Psi Chi website under the grant program,
- provide information about his/her institution, interests, and research at the state of a grant recipient could work,
- allow interested Psi Chi members to contact him/her to discuss working on a summer research project to be undertaken during the summer months; and
- if selected to receive a Psi Chi/APS Summer Research Grant, the APS Member mentor will supervise the grant recipient for approximately 16 weeks during the summer and provide the mentorship needed to complete the research by August 20.

Student grant recipients receiving this research award. Mentors of grant recipients will each receive a $500 sponsorship.

For more information or to volunteer as a mentor, please emailaps@psychologicalscience.org.

Volunteer by October 30, 2010