

# How New Technologies Advance Mentoring Practices with Non-Residential Undergraduate Researchers

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## ABSTRACT

In the past, a stereotypical view of an undergraduate researcher would be a student living on campus who could swing by a research lab and faculty member's office for scheduled and/or drop-in meetings. Mentoring would take place face-to-face, perhaps with follow-up email reports. However, more and more campuses are seeing an increase in the non-traditional student, adults that live off campus with additional competing pressures that minimize their time on campus. Community colleges that typically do not have residential housing are increasing the opportunities for students in the first two years to engage in inquiry-based classroom, laboratory and field experiences. In addition, there are four-year institutions that also do not provide on-campus housing options for students. New technologies that are freely accessible assist faculty in connecting with undergraduate researchers on a regular basis when face-to-face meetings are not possible. Instead of passing back-and-forth a composition notebook that records data and observations, a research log can be created in Google Docs and shared between the mentor and student, so that both have unlimited and easy access to notes and can provide electronic, asynchronous comments and feedback. Synchronous discussions have moved beyond phone calls and can now be conducted with Skype or a Google Hangout, the latter providing the ability to edit a Google Doc the same time the Hangout is taking place. The faculty mentor and student researcher can create, share access, and add updates to their research timeline with a Google Calendar, and/or utilize social bookmarking sites, such as Diigo, and online bibliographic programs, such as Zotero (for additional examples, see SERC's On the Cutting Edge Undergraduate Research as a Teaching Practice website for Social Media in Undergraduate Research: [http://serc.carleton.edu/NAGTWorkshops/undergraduate\\_research/social\\_media.html](http://serc.carleton.edu/NAGTWorkshops/undergraduate_research/social_media.html)). Many of these tools and practices can be helpful for mentoring residential students, but with the limited time non-residential students spend on campus, complicated by demands from family and employment outside of school, new online tools have allowed commuting students to have successful and rewarding undergraduate research experiences with effective mentoring.

## Some notes about Commuting Students



## Commuting Students.... *(facts supported by NSSE survey data)*

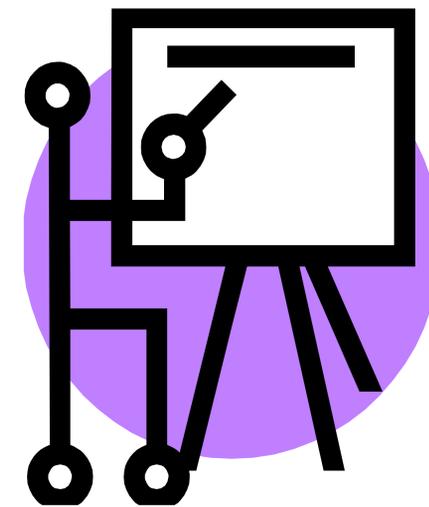
- Are typically non-traditional, first-generation, and/or of lower socioeconomic status
- Have large pressures external to the campus, such as family, employment, etc.
- May not have time to complete work until evenings and/or weekends (external conflicts)
- Have less contact with their professors, as compared to residential students
- Are less likely to take advantage of educational resources (academic and social) provided by the institution the further away from campus he/she lives
- Do not spend extra or "free" time on campus before/after classes
- Are not necessarily on campus every day, creating block schedules for work/day care
- Are challenged by transportation issues – car breaking down, no money for gas, accident on the highway, public transportation going on strike/making transportation to school unavailable, etc.
- May feel a disconnect from their institution, do not identify themselves as a member of the campus community, lack of "school spirit"
- TO SUMMARIZE... commuting students do not necessarily have the extra time to spend on campus to connect with faculty or to seek out opportunities for engagement

## However, Commuting Students....

- Work just as hard in class and contribute as much in class as residential students
- **Are not less committed to their academic pursuits!**

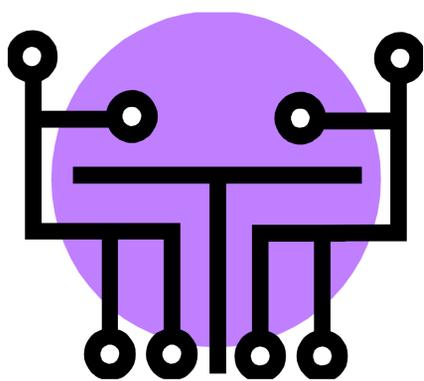
## Keep organized with a web-based calendar

Commuting students have demanding schedules that require them to balance school, work, family, and must include carving out time for the drive time between these locations. Setting up appointments and deadlines with students via email, in person, or over the phone may not result in those deadlines making it to a day planner kept by the student researcher. A paper calendar on the wall of a lab or in the office of a faculty member is not always accessible or viewable by a student, especially with the limited time commuting students spend on campus. By using an online calendar, such as a **Google Calendar**, the student and faculty mentor can always access a schedule agreed upon by the two parties. The Google Calendar also has a Tasks pane where a student/mentor can list and prioritize items that need to be completed.



## Engage in regular, online, synchronous communication

Commuting students have a complicated schedule, always coming and going from campus, to their jobs, etc. It is important to schedule regular communication and to take advantage of the online tools available for dynamic conversations. Tools available online for free include **Skype** and **Google Hangout** (a Google Hangout is useful for connecting with a team of students at the same time). In a Google Hangout, a Google Doc can be created and edited to record notes that both the faculty member and student can access post-meeting and serve as a timeline for next steps. A regular schedule of communication keeps the student engaged with the project and the faculty mentor. Challenges to online communication include carving out that regular time in the schedule, the student having a home computer with audio/video input/output, and having a distraction-free video call (for example, a student may have interruptions occur at home).

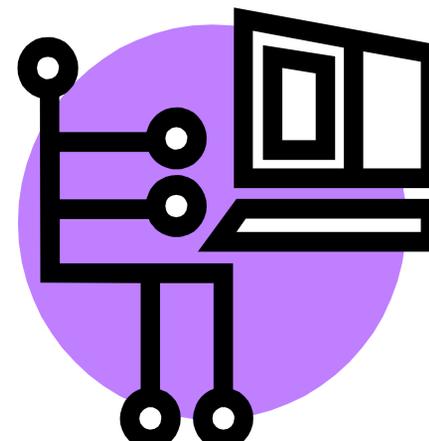


## Create/maintain an online research log for asynchronous updates and communication

A common model for a student and faculty mentor to share research data and to document progress in a project is in a composition notebook. Commuting students may not have the ability to exchange a paper notebook with a faculty mentor with the same frequency. An online research log can be kept in a **Google Doc** for both the student and faculty mentor to access at all times, with the ability to add comments, insert images and web links, track edits/changes to the text over time, etc.

An additional online tool to asynchronously share resources includes social bookmarking sites, such as **Delicious** or **Diigo**. If a project will continue over multiple semesters and/or have multiple students participate, social bookmarking can be helpful in creating a collection of websites and links that continue beyond one student and one project component. This collection of links is then available outside of a Google Doc for multiple members of a research team to access.

**Zotero** is another tool that goes beyond social bookmarking programs that allows users to create a collection of PDFs, images, audio/video files, etc.



## Additional resources with valuable tips/information for mentoring commuting students in undergraduate research experiences

Scan this QR code for a webpage with links to resources, or visit this URL to explore resources such as these listed below:  
<http://www.personal.psu.edu/uxg3/gsa/gsa2013guertinsupp.pdf>

Involving Students in Research at a Commuter College (V. Prohaska, 2008)  
Five Effective Strategies for mentoring Undergraduates: Students' Perspectives (Pita et al., 2013)  
Undergraduate Research at Community Colleges (CUR booklet)  
SERC's Undergraduate Research as Teaching Practice site (On the Cutting Edge module)  
SERC's Social Media in Undergraduate Research site (authored by Meagen Pollock)

