



JOHNSON CENTER SESSION: MENTORING STUDENT RESEARCH IN A REMOTE LEARNING WORLD

4/16/20

WHAT STUDENT SCHOLARSHIP / CREATIVE WORK IS AFFECTED BY MOVE TO REMOTE?

- Current research students (including Honors students & research courses)
- Senior art shows, senior recitals, music ensembles, theater shows
- Summer research
 - Scarbrough
 - Sciences Summer Research Program
- Fall semester research?

CHALLENGES OF REMOTE RESEARCH MENTORING

- Challenges to students:
 - Access – what to do about students who want to do research but have technology issues or need to work to support families?
 - Lack of access to software/resources
 - Library collections, statistical software
 - Presenting scholarship in a scholarly context – cancelled seminars, canceled conferences, virtual thesis defense, virtual conferences
 - Moving from ‘hands-on’ to virtual work – how to translate bench-based lab sciences or art to virtual?
 - Many external summer research experiences are cancelled – supporting students who were relying on stipend?
- Challenges to faculty:
 - Lack of access to software/resources
 - How will remote research experiences be viewed in tenure review process?
 - Lack of time to prepare a reasonable alternative – avoiding burnout?

OPPORTUNITIES OF REMOTE RESEARCH MENTORING

- **Access** – some students who may not be able to commit to summer research normally (jobs, etc.) may now have space to do so; students with health issues may be able to participate remotely
 - Supply funds can be used for student access to technology
- **Creative collaboration** between disciplines & students of different experience levels – e.g., media production/science communication
- **Community outreach** – COVID-related projects with community-facing outputs
- **Focus on writing** – grants, proposals, review articles, manuscripts, abstracts
- **Opportunity for skills practice** – what background skills are needed for a student to be able to produce creative/scholarly work in your discipline?

WHY SHOULD WE CONTINUE TO OFFER RESEARCH OPPORTUNITIES IN A VIRTUAL SETTING?

- Upcoming seniors developing Honors projects or grad school-bound
- Continuing to develop and support ongoing student/faculty collaborations – keep momentum (3-year impacts for one lost summer research)
- Curricular implications – many courses have embedded research components, some departments have research requirements
- Students counting on funding/experience
- Engagement in scholarship keeps students connected to institution (retention)
- Use this as an opportunity to model flexibility in the research process
- Research/scholarship is one of best tools we have to foster skills for student growth
 - Prioritize student learning outcomes over project outcomes

POTENTIAL MODELS FOR REMOTE STUDENT RESEARCH ENGAGEMENT

- Sciences:

- Skill building:

- Literature search (create/update database, work on citation management skills)
 - Experimental design
 - Develop videos used for communicating science to a general audience
 - Write 'lab manual' of standard operating procedures for new students
 - IACUC/IRB protocols

- Project preparation:

- Develop citizen science project
 - Develop proposal for Honors project

- Data analysis:

- Modeling/computational work
 - GIS-based project
 - Coding projects
 - Meta-analysis of existing literature
 - Working with & analyzing big data (NEON, ... <https://www.nature.com/sdata/policies/repositories>)
 - Gene screen 'library' analysis
 - Collect data yourself, have students analyze it

- Writing projects:

- Literature review (written lit review paper on topic of shared interest)
 - Manuscript writing project (collaborate on writing up results of previous experiments)
 - Grant writing project

POTENTIAL MODELS FOR REMOTE STUDENT RESEARCH ENGAGEMENT

- Humanities & Social Sciences

- Skill building:

- Translations
 - Creating databases
 - Developing IRB protocols
 - Writing literature reviews
 - Transcribing films, interviews, other materials
 - Professional development (CV preparation, grad school prep)
 - Website building
 - Podcast development

- Project preparation:

- Archival research
 - Conducting interviews
 - Developing surveys/questionnaires

- Data gathering/analysis

- Remote research/data analysis

- Writing projects:

- Preparing manuscripts for publication
 - Expanded literature review
 - Developing writing skills across research genres

EXISTING MODELS OF REMOTE STUDENT SCHOLARSHIP MENTORING AT AC

- Scarbrough summer program previous faculty mentors
 - What sort of project did you mentor remotely?
 - How did you interact remotely with your student?
 - What were the challenges/benefits of remote mentoring?
- CREATE assessment tool for learning outcomes

Learning the Discipline (LD)	Practicing the Discipline (PD)		Communicating in the Discipline (CD)
1. Selects appropriate and relevant primary and secondary materials.	1. Shows ability to approach problems from different perspectives.	6. Formulates questions and hypotheses within the discipline.	1. Writes clearly and effectively in discipline-specific formats.
2. Shows understanding of important scholars, concepts, and/or history within the discipline.	2. Works independently and collaboratively to identify when input, guidance, and feedback are needed.	7. Properly identifies and/or generates reliable data.	2. Uses and understands professional and discipline-specific language.
3. Keeps organized, detailed, and accurate records.	3. Accepts constructive criticism and applies feedback effectively.	8. Shows understanding of the way practitioners think within the discipline (e.g. As physicist, sociologist, or artist) and view the world around them.	3. Demonstrates an informed reflection and communicates with clarity future plans and aspirations regarding further study and career.
4. Synthesizes ideas, information, processes, and concepts from multiple sources.	4. Uses time well to ensure work gets accomplished and meets deadlines.	9. Trouble-shoots problems, searches for ways to do things more effectively, and generates, evaluates, and selects between alternatives.	4. Orally presents research clearly and effectively in discipline-specific formats.
5. Displays a thorough grasp of relevant research methods and is clear about how these methods apply to the research project at hand.	5. Learns from and is not discouraged by setbacks and unforeseen events, showing flexibility and a willingness to take risks and try again.	10. Recognizes flaws, assumptions, and missing elements in arguments.	5. Shows an awareness of audience in communicating research to audiences with differing degrees of expertise.

BREAKOUT ROOMS

HONORS STUDENT MENTORS

- What challenges are you currently facing in getting these projects out the door?
- What resources would be helpful for you or your students?

CURRENT RESEARCH COURSES

- What challenges are you currently facing in getting these projects out the door?
- What resources would be helpful for you or your students?

SUMMER RESEARCH PROGRAMS

- What are some ways in which you could alter your existing research program to go remote?
- How can you use your summer time more flexibly to avoid burnout? When to start, make project last longer with fewer hours per week, etc.
- What resources would be helpful to you to support your research project/students?

HELPFUL HINTS FOR ONLINE RESEARCH MENTORING:

- Meet with students at least once a week (for semester courses) or daily (for summer programs) via Zoom
 - Have agenda with well-defined tasks & deadlines (flexible as necessary)
- Have students keep online research journal (Google Docs, OneNote, Overleaf)
- Use shared whiteboards to share ideas or work out notes
- Team building:
 - Keep putting in context (what is known/not known/knowledge creation)
 - Encourage students to create & use chat group

OTHER RESOURCES

- Mentoring Remote Undergraduate Research in Mathematics (but also good general advice for remote research mentoring):
<https://drive.google.com/file/d/1YTz7ul6S8Ly0AUhvWHNRDnZcHf6lcvFS/view>
- Council on Undergraduate Research:
 - Resource library: <https://community.cur.org/resources/communitylibraries#GoOnline>
- Lab options for online courses: <https://li.wsu.edu/teaching-tool-boxes/options-for-virtual-labs-and-simulations-for-laboratory-based-courses/>
- Conducting remote interviews for oral histories:
<https://www.oralhistory.org/2020/03/26/webinar-oral-history-at-a-distance-conducting-remote-interviews/>
- Doing (social) field work in a pandemic:
<https://docs.google.com/document/d/1cIGjGABB2h2qbduTgfqribHmog9B6P0NvMgVuiHZCl8/edit>
- Citizen science projects: <https://www.citizenscience.gov/#>