



Collaborations between Research Universities and Liberal Arts Colleges: A Unique Model of Undergraduate Research Mentorship

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In this issue, we feature a piece written by several faculty members from The College of Charleston and The Medical University of South Carolina (also located in Charleston). In this article, the authors describe a unique and mutually beneficial undergraduate research partnership that has developed between these two very different institutions.

It has long been my belief that collaborative efforts between large research universities and liberal arts colleges provide undergraduates with a “best of both worlds” experience in regards to their undergraduate research efforts. These programs, like the one described by Korey and colleagues, allow for students at liberal arts colleges to obtain in-depth one-on-one mentorship while also allowing access to the types of world class research facilities and resources that only large universities can provide. These institutional relationships also promote the development of faculty scholarship, as access to these research resources is often extended to the faculty of the undergraduate students.

But the value of such partnerships does not flow solely in one direction. Research universities benefit from collaborative efforts with liberal arts colleges as well, these programs provide unique opportunities for university research faculty, postdoctoral associates, and graduate students to serve as undergraduate research mentors in ways that would otherwise be unlikely, if not impossible. Having undergraduates in a large research lab can also infuse a new sense of novelty and

excitement into long-running programs of investigation.

My belief in the high value of these collaborations is a consequence of my personal experience of having participated in such a program as a student. My undergraduate institution, Hobart and William Smith Colleges (HWS) in Geneva, NY, has a long-standing and fruitful partnership with several of Cornell University’s life science departments. Those departments are housed at the sprawling New York State Agricultural Experiment Station (NYSAES) complex, which is also located in Geneva. In this competitive program, which will be featured in a future issue of *PURM*, undergraduates from HWS are matched with researchers at NYSAES and spend a summer working in NYSAES facilities. The students engage in research under the close mentoring of Cornell University faculty and staff. In some cases, additional funding is identified that allows for these undergraduate researchers to continue their work at NYSAES in future summers. This is precisely what happened to me.

I applied to the program and was selected to participate as a rising sophomore. I spent that summer working hard to advance the research program in the lab I was paired with. I really enjoyed the experience, and funds were identified that allowed me to return to the lab for the next two summers as a paid undergraduate research assistant. Spending time across three years in one lab allowed me to engage with research in an in-depth way

that might not otherwise have been possible. During this time, I co-authored a published research manuscript with my mentor—an accomplishment that I am proud of to this day.

I can say without hesitation that those 3 summers were collectively the single most important event in my development as a young scientist. To be sure, my doctoral degree program was an important developmental step, but my time spent at NYSAES was where I really learned how to be a scientist. I was lucky to have a research mentor who understood the value of giving me a “long leash” so that I could try things in the lab and succeed and fail on my own terms. Under the guidance of my mentor, I really learned what it meant to “do” science, and I built a foundation of core scientific competencies. They’ve served me well in graduate school and my professional career.

Perhaps the most valuable component of my NYSAES experience was simply being immersed in a vibrant and collaborative research university environment. These institutional collaborations excel at providing liberal arts undergraduates with research experiences that authentically mimic the “feel” of what their masters and doctoral training will be like. Sharing a lab each day with principle investigators that were busy developing, managing, and funding complex research programs was an incredibly important experience for me. I left NYSEAS with an in-depth awareness of the process of how research programs are conceptualized, proposed, and administered, and this knowledge put me at a distinct advantage when I entered my doctoral program.

As faculty, we often throw around terms like “postdoc,” “research associate,” “R01,” “NIH payline,” and “study section,” while sometimes forgetting that the undergraduates that we work with likely have no idea what we are talking about. My time at NYSAES granted me access to both the lexicon and process of

conducting fundable research in a way that I could not have otherwise obtained as an undergraduate. As mentors of developing young scientists, it is critical that we help our students go to graduate school with an understanding of how the research “game” is played. Providing our students opportunities to conduct investigations in graduate level lab environments is the best way to do that.

Over the years, I have become quite familiar with the successful partnership between the College of Charleston and The Medical University of South Carolina. The program described by Korey and colleagues in this issue particularly resonates with me because their collaborative efforts mirror my undergraduate research experiences. I have attended several conference presentations (both poster and platform) given by undergraduates involved in the College of Charleston/The Medical University of South Carolina partnership, and it is clear that these students benefit greatly from their unique research experiences and mentorship. I see a remarkable degree of intellectual and professional development in these students. I have come to believe that such research university/liberal arts college partnerships are one of single most effective ways to develop competent and capable young scientists.

Although forging research and mentoring partnerships between liberal arts colleges and research universities can be challenging, the student outcomes that are ultimately produced make it worthwhile. It is my hope that the success of collaborative programs like those modeled by The College of Charleston and The Medical University of South Carolina, as well as other institutions, will inspire other undergraduate institutions to initiate similar collaborations with nearby research universities, as they provide a truly transformative opportunity to the students, faculty, and staff that they serve.