Full Impact: Designing Research with Student Collaborators

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Most community college librarians can readily identify the ways students sometimes struggle with reading, critically analyzing, and appropriately using information resources. We see it in our daily interactions across the reference desk and in the classroom. We hear about it from the instructors with whom we collaborate. As faculty librarians, who most often work with individuals seeking help in the library specifically because they are struggling, we may have a skewed impression of the prevalence of students’ lack of ability or understanding. In fact, popular images of the traditional college-age generation suggest in various ways that these “digital natives” are at home and likely more capable than those of us from previous generations in the fast-paced, technology- and information-rich environments of the present future.1 The truth probably lies somewhere between these two positions—on the whole, today’s community college students are most likely neither hopelessly ill-prepared nor incredibly well-adapted for the current digital information landscape. But efforts to support student reading, specifically, are largely absent in our organizations. Librarians regularly help student researchers manage topics and find great information sources. But if students don’t have the strategies they need to read critically and interpret what they are reading, they may be unable to mine those great resources for the information that will support their research. Critical reading: this is the area of student need where we have chosen to invest our own research efforts. During the spring semester of 2018, we teamed up with three undergraduate students to co-design an exploratory research project focused on student reading. This case study describes the background, process, and implications of a research design project where community college faculty collaboration with student researchers was central.

Undergraduate Research as High-Impact Practice

A 1998 report by The Boyer Commission on Educating Undergraduates in the Research University laid out ten recommendations for improving undergraduate education, among them to “Make Research-based Learning the Standard.”2 According to the Commission, students should be learning through research as junior members of research teams from the first years of college, garnering the types of experience that will provide a foundation for their future success in educational, professional, and civic realms.3 Faculty and funding organizations quickly jumped on the undergraduate research (UR) bandwagon, a range of programs were piloted at various types of institutions, and evidence began to come in demonstrating clear benefits to students, faculty researchers, and institutions.4 The Council on Undergraduate Research (CUR) defines UR as “inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline.”5 UR may differ slightly in community colleges, where stakeholders have variously described UR as providing opportunities for applied research experience among those earning certificates or terminal degrees, for retooling among displaced workers, or for development of the skills and abilities needed to conduct independent research in the future. In community colleges, original intellectual disciplinary contributions are most likely to come into play specifically for those students who would eventually transfer to four-year institutions.6

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There have been some seismic shifts in the UR landscape since the Boyer Commission report, including expansion beyond the laboratory sciences to all areas of scholarly endeavor—from biology to the arts, and everything in between. An expanded definition of UR has made the practice more accessible to community college students and faculty, many of whom may not have ready access to lab facilities. There are actually a number of reasons for including UR experiences in community college education, specifically, among these the fact that time-to-graduation at four-year colleges often increases for students who transfer in without having had any opportunities to participate in substantial research experiences. UR provides students with opportunities to develop strong working relationships with faculty and helps demystify the mechanics of how knowledge is constructed for a population that includes many who are the first in their families to attend college. Research has also shown that students participating in UR have higher rates of retention, especially those who are first-generation college students.

In 2008, the Association of American Colleges and Universities (AACU) identified UR as one of eleven “high-impact practices” (HIPs), in addition to first-year seminars and experiences, common intellectual experiences, learning communities, writing-intensive courses, collaborative assignments and projects, diversity/global learning, e-portfolios, service/community-based learning, internships, and capstone courses and projects. It is worth noting that there is a lot of harmony among HIPs and, in certain incarnations, quite a bit of overlap. For example, a UR project situated in the context of an industry or professional organization which is outside of the educational institution could qualify as both UR and service learning, depending on how these practices are defined by the institutions involved. UR is versatile and, from an institutional perspective, addresses a wide range of goals simultaneously: learning that is empowered, informed, responsible, and collaborative, high in student engagement, and involving intensive interaction with faculty; it can be situated firmly in a single discipline or field, set up to support the full range of disciplines, or be integrated into HIP settings, such as first-year experience or capstone courses.

Student learning and learning-in-community are at the heart of UR, which has benefits for both students and faculty. The Boyer Commission proposed a new approach to education based on reciprocity, one that casts the professor as “scholar-teacher,” the laboratory (or library) as seminar room, and all participants as collaborators. “It assumes that everybody—undergraduate, graduate student, and faculty member alike—is both a teacher and a researcher, that the educational-research process is one of discovery, not transmission, and that communication is an integral part of the shared enterprise.” Bruce Alberts, a Boyer Commission member who also served as President of the National Academy of Sciences, has referred to students participating in UR as the “lubrication” that dissolves intellectual barriers between researchers and catalyzes the “accidental collision of ideas” to support discovery. Through interaction with other faculty and with students, a faculty researcher will “broaden his or her intellectual vista,” and these interactions will “make for a healthy and flourishing intellectual atmosphere” for all research participants.

Participating in UR benefits students in a number of ways. For officials from CUR, “the goal [of UR] is to involve students with actively contested questions, empirical observation, cutting-edge technologies, and the sense of excitement that comes from working to answer important questions.” In addition to increasing disciplinary knowledge and providing career training for those who would become researchers, UR experiences support development of problem-solving and critical-thinking skills, intellectual capacities such as inquiry, reading, analysis, and communication, professional perspective and career development, and also help students perform better in the non-UR classroom. UR could be particularly beneficial for those students who chafe at highly structured science curricula, providing a more creative way to “express themselves scientifically.” Student researchers may also reap benefits that go beyond academia or career, “a kind of development seen only out of
the corner of the eye, so to speak. Personal development, including the growth of self-confidence, independence, tolerance for obstacles, interest in the discipline, and sense of accomplishment, centers on the increasing understanding of one's self and one's capabilities. Through shared deep engagement, UR faculty mentors derive some of the same benefits enjoyed by students. Faculty, as well as students, find UR experiences intellectually stimulating and garner increased satisfaction and self-confidence from the experience. When UR involves a faculty member's own research, this level of engagement helps them maintain enthusiasm for and expertise in their areas of study. Additional benefits to participating faculty members include growth and development as teachers and mentors as well as recognition from colleagues and administrators.

Researching Student Reading at Hostos
The semester we spent researching with undergraduate colleagues at Hostos Community College (HCC) was the initial stage in a long-term research agenda intended to address the following questions: when students first encounter the range of academic and research texts that they are expected to read and make use of in college, are they really ready? How can we as librarians support reading- and research-readiness on campus? and in what ways could (should?) a better understanding of student reading inform the ways we practice librarianship? One of twenty-four campuses of the City University of New York (CUNY), HCC is named for Puerto Rican educational pioneer Eugenio María de Hostos and serves a highly diverse population in the city's South Bronx. Sixty percent of students in Fall of 2017 were Hispanic, and the total minority population was ninety-seven percent. In Spring of 2016, sixty-six percent of Hostos students were female, thirty-six percent were older than twenty-four, and of 7357 total students, seventeen percent were enrolled in ESL courses and twenty-nine percent in remedial English. We are familiar with this student body and some of the challenges they face from our regular interactions in the library and the classroom. But even though our work as librarians is centered around connecting Hostos students with information resources, we realized we know very little about their reading lives, let alone their readiness for college. We decided to focus our initial research on assessment of the reading habits and attitudes toward reading among Hostos students.

We developed a few generalized hypotheses about habits and attitudes, such as that students mainly read when it is required for work or school and that they prefer to read from the printed page. However, this first phase of research would be exploratory, seeking answers to questions about which we admitted we understood very little. Our preliminary research questions included: what kinds of texts have students encountered in their lives and educations to this point? What are their reading habits—what do they read? how much? in what combinations? when? where? and why? Besides reading, what kinds of information do our students consume, and from what information channels? How do they feel about reading in general, and about the readings they are asked to do in college? What kinds of strategies do they employ when they are reading for understanding or knowledge acquisition? We wanted to address these questions using survey and focus group research, believing that what we learned could ultimately help librarians and other campus stakeholders design and implement effective support systems for improved student reading at Hostos, and that answers to some of these exploratory questions could provide a foundation for future research.

We had sketched out a research design combining survey and interview data, and now were in need of effective instruments for capturing that data. Well aware of our lack of knowledge of our students' experiences and practices, we were looking for a way to ensure that the instruments we developed were not based on faulty assumptions. We needed access to the student perspective. In 2014 Hostos had received a $2.5 million, 5-year federal Title V Hispanic Serving Institutions grant to fund high-impact practices for students and support professional development for faculty on our campus. One initiative that supports both of these goals is the Student
Faculty Research (SFR) initiative, which supports UR projects from across the disciplines. The initiative teams three Hostos students with one or more faculty members who serve as research mentors for a semester. The Title V program provides orientations for both students and faculty, a $500 stipend for each student, and 3 credit hours of release time for faculty. Faculty are expected to work closely with their student team over the course of the semester involving them as research assistants in their own research. Under the auspices of the SFR, we designed a semester-long learning and research-development process where we would work collaboratively with three HCC students to conduct a literature review, operationalize our research questions, and develop and test a survey questionnaire and focus group interview guide designed to test our hypotheses about Hostos students’ reading habits and attitudes. We saw SFR as an opportunity to both support students and deepen and inform our research. Student collaborators would have an immersive research experience, with a practical grounding in information literacy and social science research practices. Our research would benefit from student perspectives, and their input would help ensure validity of our research instruments.

**Student-Faculty Research in Action**

Initial planning involved submitting an SFR proposal to the Title V office, which included delineation of learning outcomes, faculty research goals, research methods, student deliverables, potential student activities, and a project timeline. Our next step was to take that timeline and develop a semester-long plan more or less structured as a seminar syllabus—a scaffolded research project with a dual focus on student learning and research design goals. Then it was time to recruit, interview, and secure commitments from student collaborators. Most of the Hostos faculty who participate in SFR already know students who have shown potential for, or interest in, working with them on their research projects. As librarians, we typically have only short-term or “one-shot” interactions with students, and at first found it challenging to recruit potential candidates. Many students were reluctant to engage in a project with faculty who were unfamiliar to them, on a topic to which they had had little, if any, academic exposure. We reached out to colleagues across campus for referrals, and eventually interviewed a number of candidates. We made it clear during the interviews what the scope of the research would be, how the work would be organized throughout the semester, and what the weekly expectations were. Based on the comments of faculty engaged in previous SFR projects, we knew that this work of screening students for aptitude and interest, and setting specific expectations upfront, would be essential to success of the project.

In the end, we engaged a group of three students from varied academic, linguistic, and cultural backgrounds. One student was about to graduate and transfer to a four-year institution to pursue a future career in education, one was in the early semesters of a very demanding nursing program, and the third was a liberal arts student in her second semester at Hostos. It has been suggested that complex semester-long UR opportunities such as ours generally attract two types of students: adventurous thinkers and high achievers looking for new ways to experience learning. These traits certainly align with the three students on our team. Two of them are career-focused and driven to succeed in their chosen fields, education and nursing. They saw this experience as an opportunity to build their resumes and acquire skills that would help them in academia and the professions. The third student is a playwright and a creative thinker who seeks out new experiences and likes books and reading. As a new student who had recently moved to the United States, she was also looking for ways to become more connected with the college experience and meet new people. Above and beyond the material support provided by the Title V student stipend, we understood that they would receive multiple, varied benefits from their participation—that, in addition to adding to our understanding of our student population and helping us further our research goals, this would be an opportunity for us to invest in the development of these three students—not only in their...
academic success at Hostos, but in their futures as scholars and as information literate citizens of the world. This is what makes "high-impact practices" in education so impactful.

Collaborating in the design phase of a research project provided students with a highly immersive learning experience. We met in a small group seminar format once a week. The UR model emphasizes reciprocal learning and discovery, but we found that our roles vis-à-vis the student researchers shifted during the semester, sometimes several times during a single session. In the teacher role, we helped the students understand the conventions of research literature, how library interfaces function to provide access, and what goes into developing a research question, a literature review, and the research instruments themselves. Between meetings, students had assignments, such as comparing or dissecting different types of scholarly communication, or reading an introduction to certain research terminology or concepts. Journal prompts helped keep team members accountable for their learning and were also designed to provide jumping-off points for team discussion. Formative assessment occurred throughout, as we monitored student learning and progress toward our goals and outcomes and adjusted the “curriculum” accordingly.

There were times when we took off the teacher hats and became collaborators, contributing expertise but also learning as much from our partners as they did from us. After sharing with the students our background thinking about the project, we developed focused research questions and hypotheses together, through team discussion. We taught students core information literacy concepts and the basics of using the library’s research databases, then explored the types of scholarly articles that would inform our research together, and developed methods for targeted reading of the literature looking for concept definitions, research methods, and results. Interestingly, one of the more challenging aspects of the project was working with our student researchers to review the literature. We work with students every day at our reference desk who are struggling to understand research studies written by and for experts in a given field. The literature on reading comprehension and reading habits among college students can be just as difficult to read—full of academic terminology and statistical calculations. Students spent several weeks locating and analyzing relevant research and were asked to enter data about each article into a shared Google form. Not surprisingly, with no prior academic preparation in this field, they struggled to fully understand the relevant research literature. However, for librarians, this part of the semester was like conducting an extended seminar in information literacy. It was satisfying to work with students over the course of several weeks, to follow their progress, and to delve deeply into questions in ways that are not possible in the one-shot workshops that make up the bulk of our usual teaching responsibilities.

Since they would be participating in research with human subjects, our three students completed the Human Subject Research course designed for undergraduate student researchers and provided by subscription to CUNY through the Collaborative Institutional Training Initiative (CITI). The student course focuses on key concepts related to research such as what constitutes research with human subjects, what are researchers’ ethical and legal responsibilities, and what is meant by informed consent. Meanwhile, as co-Principal Investigators, we librarians sought and gained approval for the testing of the research instruments from HCC’s Human Research Protection Program (HRPP), the equivalent of IRB approval, and went through our own CITI courses on research conduct and responsibilities. At times we found ourselves in unfamiliar territory and were often learning new concepts along with the student researchers. As relatively inexperienced researchers ourselves, we also needed to learn more about designing questions and instruments for collecting valid and reliable survey and interview data. Together we operationalized key concepts, such as “reading habits,” “current,” and “college-reading readiness,” and came to agreement about the kind of data we were seeking. We drafted survey instruments collaboratively, reading about and discussing the best ways to ask questions and design question sequences. Once we had a good draft of both the questionnaire and focus group interview protocol, we tested them with volunteers recruited...
by our student researchers. Participants provided valuable insight into which questions worked and which ones failed, and our student researchers helped us understand why. As a team we revised questions for clarity and focus. This part of the process made clear to all of us that all researchers—even the “experts”—struggle with a significant amount of uncertainty. Our research project was developed on the basis of a firm anecdotal understanding of the student reading struggles we observed, but also on educated guesses and hypotheses. In the end, we are confident that we created a questionnaire and set of focus group questions that will yield valuable data about reading habits of HCC students.

**Challenge, Reward, and Future Direction**

We would count our semester-long UR experience as a huge success, in part because it helped us move forward with our research and in part because it was deeply engaging for all involved. However it was also not without its challenges, perhaps the most pervasive being scarcity of time. Our team consisted of two busy librarians and three full-time students, each with significant family and work responsibilities. We met with students weekly to discuss progress and introduce new concepts and new stages in the research design process. Some weeks we were unable to find a single meeting time that fit all schedules, so we had to meet with two students for one session and the third at a separate time. In addition to the added scheduling burden for mentors, multiple meetings may have negatively impacted the cohesiveness of the team. At Hostos the Title V SFR program provides financial incentives for student participation, but our experience demonstrates the potential value of an alternative model based on course-integrated or credit-bearing UR, which could provide for regularly scheduled project time.

Our lack of familiarity with our student collaborators and relative inexperience as research designers and classroom instructors may have compounded our time management challenges. Other SFR faculty already knew their students’ work and interests, as well as their level of familiarity with research methods and disciplinary content, because they had taught it to them. Going in, we made certain assumptions about our student collaborators’ knowledge and understanding, and ended up having to adjust the schedule and redesign activities “on the fly,” so to speak. It was a great experience to teach the foundations of academic research and to build our understanding of college students’ reading and academic readiness as a team, over the course of several weeks. However, we ultimately found ourselves investing more time than expected on the early stages of the project, which meant that we were unable to spend as much time on instrument design and testing as we had planned. A key realization for us is that a single semester is simply not enough time to bolster students’ information-finding skills, collaboratively develop a solid grounding in the literature of the field, introduce the research design process, develop research instruments, and test them. Although we made it to the finish line, we were not able to give each stage of the process the level of attention we would have liked. An academic year might have been a more realistic time frame to fully realize this project.

Despite the challenges, the rewards of this experience were legion. Beyond developing a research project, the Title V SFR program provided us with an opportunity to build meaningful and productive relationships with students and to develop our own skills as mentors, educators, and researchers. It gave us, as librarians, the rare opportunity to engage with students beyond the normal reference desk or one-shot classroom interaction. We had the time to get to know students over the course of the semester and to maintain a sustained dialogue about questions and concepts over time. We will be the first to admit that our research questions, and our thinking about the challenges we observed in students who were struggling to digest unfamiliar texts, were quite nascent when our project began the first week of the semester. We now believe this is one of the reasons for the overall success of the project—we weren’t coming in with everything figured out, or bringing in student “collaborators” as empty vessels to receive wisdom, or as casual consultants who could lend our project authenticity. We
wanted to set up an environment for building knowledge together. This would be research design accomplished via discourse and teamwork. Mentoring or teaching requires guidance and constructive feedback, but also co-discovery. Particularly in the early stages of the project when we were coordinating schedules, setting goals and deadlines, and teaching foundational skills, the librarian-student relationship was more like that of teacher-student or mentor-apprentice rather than co-collaborator. As the semester progressed, the three student researchers became more confident in their knowledge and skills. They provided a lot of insight about the lives and attitudes of Hostos students, although necessarily anecdotal, and also served as a kind of reality-check, calling us out when our assumptions were showing through. As the project became more focused on the surveys, questionnaires, and direct contact with other students, student researchers became more vocal collaborators, making well-considered suggestions about recruiting participants, how to word the questionnaires, and logistics, input that clearly improved our work.

The goal for the semester we spent working with student researchers was to develop, test, and revise a questionnaire and set of focus group questions. The logical next step would be to implement the instruments that we developed, and planning is in the works for this phase. Before this UR project, our shared research interest was already broader than reading habits and attitudes toward reading, encompassing multiple trajectories. For instance, as librarians, we believe we have a stake in helping students develop the ability to read texts critically. In order to make a difference to the students we work with every day, we are interested in ultimately measuring the level of students’ “academic literacy,” or their readiness to read and effectively use information from different types of academic texts, as well as learning what kinds of skills they have or need in order to navigate and use such texts effectively for college-level work. We will also want to measure the reading-readiness expectations of classroom faculty to see how these align with the levels of understanding and abilities of students. We want to do research that gets to the heart of what our students experience when they encounter academic texts and, when there is a gap between the texts and understanding, test ways to bridge that gap more effectively. Moreover, we’d like to learn more from all kinds of stakeholders across campus. How do the faculty who teach English as a second language and developmental English, coordinators of our Writing Across the Curriculum program, and those focused on student recruitment and retention currently support development of reading-readiness, and what opportunities are there for collaboration and support initiatives that may previously have gone unrecognized?

Conclusion
The students we worked with came away with strong understanding in two areas: information literacy and social science research methods. At Hostos, information literacy instruction happens solely through ad-hoc reference interactions or one-shot library workshops. In a sustained and very hands-on way our three collaborators learned about modes of scholarly communication, finding appropriate sources, mining them for relevant information, and using that information to analyze a research topic. This experience enabled student researchers to engage in the practice of primary research, or knowledge creation, and gave them an opportunity to experience the research design process. Knowledge of what goes on behind the scenes in the research process will help them make sense of the research reports they will be required to read and write about during the remainder of their academic lives. They also got practical experience working through several phases of research design themselves, including developing and refining research questions, operationalizing concepts, and developing and testing survey and interview instruments. We are certain that they now have a firm foundation in research skills, have learned some basic concepts related to research design and, perhaps most importantly, developed skills and confidence in teamwork and collaboration that will serve them in academia and beyond.
During the course of the semester, the our own assumptions about Hostos students and their reading practices were productively unmasked, questioned, and revised, and our research instruments are the better for it. This experience also provided us with an opportunity for sustained engagement with students centered around their academic practices, and what we have learned from our teammates makes us better teachers and librarians. We learned a great deal about how students experience research, how to ask them questions, and what motivates them to learn. We were confident that we could accomplish the goal of creating and testing research instruments related to student reading during our semester-long UR experience, and we had a sense that working with student collaborators would lead to better results. What we didn't realize was that the true reward of the semester would be the experience of mentoring and collaborating with student researchers.

Endnotes
20. Lopatto, sec. 3, para. 2.
Bibliography


