

Seven Principles for Reimagining Undergraduate Research in the “Next Normal”

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Abstract

Bridgewater State University moved undergraduate research (UR) programs online in early 2020 in response to the COVID-19 pandemic. A few months later, Black Lives Matter demonstrations, the university’s racial justice reckonings and commitments, and the disproportionate effects of the pandemic on Black and Brown communities guided the reexamination of UR policies and practices. Compelling results of mixed-methods research with faculty mentors and student researchers also motivated this work. The authors recommend seven principles for leading UR programs during the mutually reinforcing crises of the pandemic, racism, partisan division, and economic austerity.

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Bridgewater State University (BSU) in Massachusetts moved courses and research online due to COVID-19 just weeks after accepting the Council on Undergraduate Research Award for Undergraduate Research Accomplishments (AURA) in early 2020. As everyone else involved in undergraduate research (UR) mentoring and programming in March 2020, BSU had to terminate or figure out how to redesign hundreds of UR projects. The university worked quickly to transform from in-person to online the “distinctive program” highlighted by the AURA, BSU’s Student Arts and Research Symposium (StARS), which was to include more than 1000 student

presenters in a daylong campus celebration. After more than a year of previously unimaginable online teaching, learning, and research, the institution is finally moving from crisis mode to a new reality that will not simply go “back to normal.”

In that spirit, this article offers seven principles for leading and mentoring UR going forward, resulting from the pandemic as well as a just response to racial inequity and violence:

1. Overhaul UR recruitment, selection, and support for BIPOC (Black, Indigenous, and people of color) students.
2. Support faculty and students shifting their research focus to topics of renewed urgency (e.g., effects of the pandemic, racial injustice) and seeking to decolonize their research.
3. Create customized support for UR in different disciplines and on different kinds of projects, as students and faculty face disproportional challenges.
4. Capitalize on the unexpected benefits of remote research and mentoring.
5. Respond to the lack of assuredness with technology and lack of access to reliable connectivity experienced by faculty and students.
6. Accommodate the work schedules of students.
7. Offer flexibility and trust.

These lessons are offered from the perspective of the diverse UR program at BSU, a comprehensive, public, primarily undergraduate institution, where students from underserved groups (students of color, Pell-eligible students, and first-generation students) compose two-thirds

of the 11,000-member student body. The cumulative and mutually reinforcing emergencies of the pandemic, economic collapse, and systemic and individual racism have hit hard at BSU. Many students and their family members, the majority of whom identify as working class and/or as people of color, contracted COVID-19 and lost loved ones.

During a pandemic that has disproportionately ravaged Black and Brown communities (Laidler 2020; Sequist 2020), the killings of Breonna Taylor, Ahmaud Arbery, and George Floyd in spring 2020 caused unbearable sorrow and anger. One week after Floyd's murder, during protests across the country and in the region of the university, a racist incident shook the campus community: a photo on social media of a White BSU student in blackface, the discursively violent "n word" written in the caption. As those emergencies unfolded in rapid succession, the institution also was realizing the impact of budget concerns. BSU's fiscal year 2021 budget reflected cuts in state appropriations and reduced enrollments by students in the most vulnerable groups.

How can UR be reimagined at this unprecedented time in higher education? How can the UR community respond with even more intention and urgency to the crises faced on campus, in communities, and throughout the world? These have been the guiding questions of the last year. The seven principles compose the response. They derive from (a) the authors' experience as UR mentors and program administrators; (b) articles in peer-reviewed literature and the popular press about the effects of the pandemic on higher education and on students of color in particular; (c) two surveys of BSU students who presented at BSU's virtual symposia in April 2020 and April 2021; (d) content analysis of 190 grant proposals by BSU students submitted between March 2020 and March 2021; (e) communications from faculty colleagues, shared with written consent; and (f) an August 2020 survey of faculty mentors about UR reconfigurations that spring and summer. Of the 92 faculty who completed the survey, 44 were in humanities and social sciences (47.8 percent), 31 in science and mathematics (33.7 percent), 13 in education (14.1 percent), and 4 in business (4.3 percent).

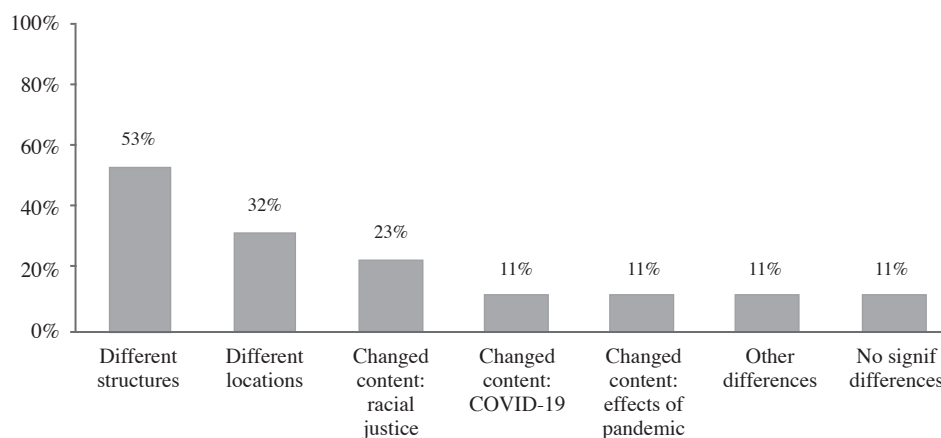
Principle 1: Overhaul UR Recruitment, Selection, and Support for BIPOC Students

The numerous, well-established benefits of participating in UR—including significantly higher rates of retention, graduation, and academic achievement—are most pronounced for students who have been underserved in higher education: students of color and low-income and first-generation students. Supportive relationships with mentors and the advantageous opportunities afforded by participation in UR are particularly beneficial for students from historically underserved groups (Brownell and Swaner 2010; Carpi et al. 2016; Kuh and O'Donnell 2013;

Pierszalowski and Buser 2021). Yet, at many institutions, access to UR and other high-impact practices has disproportionately favored White students, especially those with economic advantages and family legacies of higher education (Finley and McNair 2013; McNair, Bensimon, and Malcom-Piqueux 2020).

The moral imperative to ensure equity in UR access (Shanahan 2019) is more evident than ever. BIPOC students and their family members have contracted COVID-19, required hospitalization, and died as a result of the virus at significantly higher rates than White Americans. BIPOC college students also live with disproportionate psychological effects of the pandemic. They are more likely than their White peers to have lost loved ones to the virus; the racial inequality they have experienced their whole lives has been exacerbated by the pandemic; and they have borne the brunt of the economic fallout of the pandemic, including layoffs and reduced hours in hospitality and retail industries (Clabaugh, Duque, and Fields 2021; Laidler 2020; Lederer et al. 2021; McAlpine 2021; Zamudio-Suarez 2021). A McKinsey report predicted that the "learning loss" from school closures during the pandemic will exacerbate racial disparities in education for generations to come (Dorn et al. 2020). All of this has occurred in a year in which BIPOC students have reported the triggering of past traumas as a result of watching and hearing about the murders of Black Americans (Williams 2020).

In many institutions of higher education, White supremacist and neocolonial assumptions about research readiness and student achievement determine who is recruited, accepted, and welcomed to UR opportunities. Students are directed to "reach out" to faculty about their interest in UR, and they face complex applications and high-bar requirements to be granted funding. Many students from underserved groups never even hear about UR opportunities, especially when faculty selectively invite students who have the highest grades in their courses and signal enthusiasm for their fields of study. Stephens and colleagues (2012) have explained how such choices create opportunity gaps. They described cultural norms in higher education that may be unfamiliar to first-generation, working-class students, specifically expectations that students influence successful outcomes for themselves. Stephens and colleagues found that many instructors' values align with how socioeconomically privileged students often have been raised. Their families have imbued in them a sense of self-importance, individual preference, and control over their own lives and provided the financial and social capital for them to exercise those choices. First-generation, low-income, and working-class students, on the other hand, have had fewer resources and chances to state their preferences and exert control than their affluent peers (Stephens et al. 2012). BIPOC students also have grown up in K–12 cultures

FIGURE 1. How BSU Faculty Plans for UR Changed in AY2020–2021 Compared to Previous Years

Note: N = 92. Respondents could select more than one option.

that over-police Black and Brown children and label their self-assertion as defiant and disrespectful, whereas White children have been encouraged to express themselves freely (Education Trust 2020).

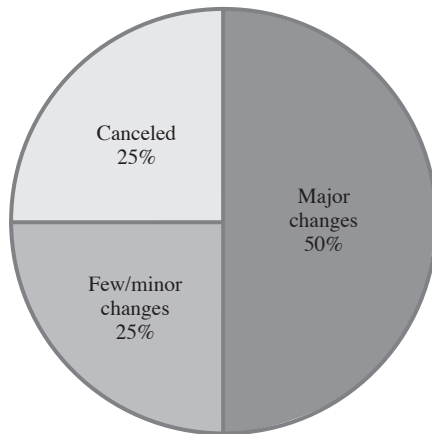
Selecting students for research opportunities based on their previous success or eager affect reifies privilege and perpetuates inequity. As colleges and universities across the country have prioritized racial equity and social justice in the past year, UR programs and individual mentors are encouraged to change practices as well, such as by recruiting BIPOC students through multicultural centers, racial and ethnic identity clubs and organizations, and peer-to-peer outreach (Shanahan 2018; 2019). Eliminating high GPA requirements and using holistic, asset-based assessments of potential undergraduate researchers are other proven means of democratizing UR (Pierszalowski and Buser 2020; Shanahan et al. 2017). Efforts to diversify UR programs should be combined with professional development for UR mentors that teaches critical mentoring (Liou, Martinez, and Rotheram-Fuller 2016). Critical mentoring centers equity, inclusion, and student success by amplifying the community cultural wealth of BIPOC and low-income students (Longmire-Avital 2019; 2020).

Principle 2: Support Faculty and Students Shifting Their Research Focus to Topics of Renewed Urgency or Seeking to Decolonize Their Research

In August 2020, the survey of faculty mentors at BSU was emailed to 170 faculty who had mentored internally grant-funded UR in AY2019–2020; the survey was created for the distinct purpose of learning what faculty had done in spring 2020 when the university moved online and what they were planning for the new academic year. Results showed that one in three were changing UR topics to address the country’s current crises, specifically systemic

racism and the COVID-19 pandemic. Of the 92 faculty mentors who completed surveys, 21 said student research would concentrate more on racial justice, 10 predicted greater focus on COVID-19, and 10 said economic and social effects of the pandemic would feature more prominently in the near future. Figure 1 displays their responses in percentages. (Note that respondents could select more than one option.) Anticipated changes to UR topics were reported across disciplines. For example, a mathematics instructor involved students in statistical analyses of the spread of COVID-19 in towns and cities with majority Black and Brown communities. Elementary and secondary education faculty members mentioned giving greater attention to racial disparities in PreK–12 schooling, especially during remote learning.

It is suspected that the university’s long-standing commitment to social justice and the BSU presidential special task force on racial justice that launched in summer 2020 to transform the institution helped inspire and support the notable finding that 23 percent of participants intended to focus more on racial justice in UR. Their plans were in evidence in students’ campus presentations in AY2020–2021. In fact, there was such a preponderance of intersectional racial justice UR topics that “themes” was a new item (in addition to disciplines) on submission forms for the two annual UR showcases for the first time. Among the 1,209 students who presented at BSU’s virtual symposia (539 in December 2020; 670 in April 2021), 276 (23 percent) indicated that their research related to racial or social justice. Before 2020 students were not asked to identify themes of their research, so there were no previous data for comparison. However, the significant percentage of such topics corroborated the plans of faculty members to shift focus, and, based on experience with the symposia programs over the past decade, this was a notable increase.

FIGURE 2. What Happened to UR after Moving Online in Spring 2020

Note: N = 92.

Supporting anti-racist research by funding, highlighting, and rewarding it is a key instrument for institutions working to eradicate interpersonal and systemic racism (Metivier 2020). A series of *Race on Campus* articles in the *Chronicle of Higher Education* has made the case that symbolic responses to racism, such as presidential statements, new committees and task forces, and changing the names of buildings honoring Confederate leaders, are promising developments but likely will not fundamentally change structural racism in higher education. Dismantling White supremacist systems and ideologies in institutions requires altering the foundations of higher education: curricula, pedagogy, and scholarship (Bartlett 2021; Brown 2021; Diep 2020). Global efforts to decolonize universities have focused on transforming institutions through changes in research topics and methods (Bhambra, Gebrial, and Nişancıoğlu 2018). In supporting faculty and student scholarship that utilizes critical race theory, advances anti-racism, and seeks to decolonize academic disciplines and institutions, UR programs contribute to meaningful change in higher education.

Principle 3: Create Customized Support for UR in Different Disciplines and on Different Kinds of Projects, as Students and Faculty Face Disproportional Challenges

Twenty-five percent of faculty survey participants said UR was canceled after BSU's move to remote teaching, learning, and research. Fifty percent noted "major changes" to the original plans, and the remaining 25 percent said they made "few or minor changes." Figure 2 notes their responses. The most common major change was literature-based and theoretical activities replacing fieldwork and laboratory research.

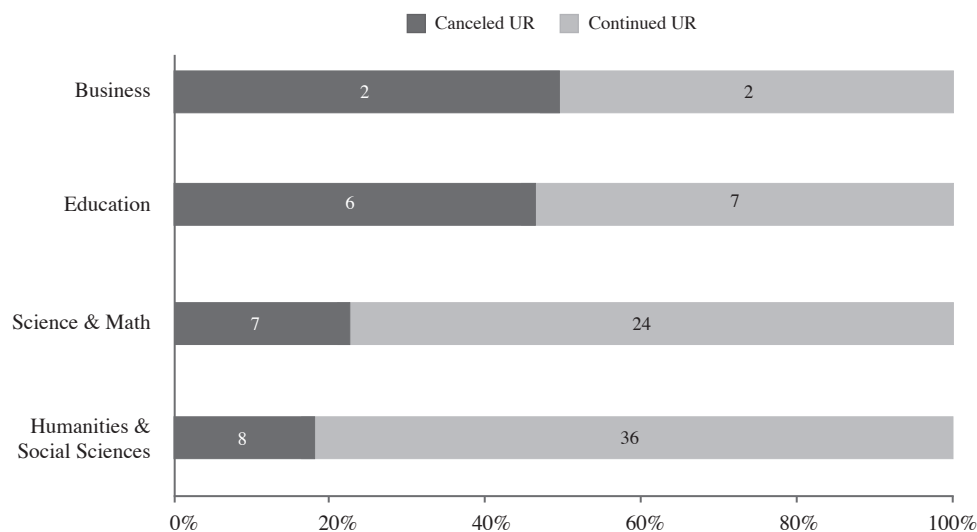
Those who reported "few or minor changes" indicated that the nature or stage of the work made progress possible with small modifications. The most frequent responses in that category were that (a) students were conducting literature-based research (or in the literature-search stage of a larger project); and (b) students could shift to using online, publicly available information or analyze previously collected data, as opposed to generating original data.

Although most UR continued after the campus closed, the success of those efforts varied by discipline. UR in the humanities and mathematics carried on with the fewest interruptions. The core work of analysis of texts and artifacts in the humanities and the use of theory, computations, and computer software by mathematics majors could be accomplished remotely. One exception was an English UR project aimed at analyzing several live performances of Shakespeare plays that were canceled; the student immersed himself instead in audience theory and theater criticism of recent Shakespearean productions and adaptations. Social science research involving surveys, interviews, and focus groups also proceeded in most cases. Some research required changes to protocols (e.g., from in-person to video interviews), which simply required submitting an amendment to the Institutional Review Board (IRB) and informing participants about the shift.

Laboratories and studio arts spaces were closed in March 2020, but BSU reopened them in July 2020, with limitations. Faculty and students who agreed to protocols for making work spaces less dense and physical distancing were approved to return to research. Because fewer researchers could work together in the same space, progress was slower than usual, but there were fewer negative effects than anticipated. One mentor even expressed appreciation for the unexpected delay: "Those weeks afforded us more time to delve into the background literature and refine our plans for maximizing the research time."

Even though field research usually takes place outdoors, much of it was delayed in 2020 because of restricted access to sites and public transportation. One faculty mentor in biology helped her students with fieldwork by deploying cameras in the field and uploading the images to the cloud so that students could analyze the data remotely. An ecology student who had designed a study of bird diversity in cranberry bogs used an open-access data portal rather than visiting bogs and collecting original data. A geology major who was to travel to Montana for data collection instead conducted petrographic analysis of previously collected samples with a microscope at home.

UR in education was affected most significantly. The 23 faculty respondents (25 percent) who reported that UR stopped when courses moved online most frequently attributed the cancellation to the sudden closure of PK–12

FIGURE 3. Faculty Participation in UR after Campus Closure in March 2020 (by College)

Note: N = 92 (4 in business, 13 in education, 31 in science and math, 44 in humanities and social sciences).

schools. Even though schools continued online, undergraduate researchers were not able to move from in-person to online research with schoolchildren and teachers. Accessing remote classes was all but impossible as districts required secure sites for online education; this was limited to school personnel. Of the 35 education majors who received university funding for UR in spring 2020, only two were able to complete their research that semester. Business, social work, and photography scholarship also was impeded, as the work depended on being with other people (collaborators in community-based research or subjects of observation or photography). Figure 3 shows that those who canceled UR were disproportionately in the education and business colleges. Whereas one-quarter of all respondents had to cancel UR, about half of the respondents in education and business did.

By fall 2020, however, many UR mentors and students in the professional disciplines, most notably, had figured out creative solutions for new research design and remote data collection. Rather than observing classes, several education majors requested interviews with teachers to learn about their remote teaching practices and the ways they used technology. Students also applied educational theory to assess the quality of apps, online platforms, and other remote learning tools. Similar changes were made for social work research. Pre-pandemic, the scaffolded research curriculum in social work culminated in a capstone project in which students researched and then carried out a social justice campaign. The in-person campaign was upended in spring 2020, but faculty redesigned the capstone for fall 2020 and spring 2021 so that students researched, planned, and implemented advocacy

projects in digital spaces. Course-based undergraduate business experiences (CUBEs) in management and marketing also moved online, although, based on faculty and student reports, with less success. CUBEs are like whole-class internships in which students serve as collaborative research consultants for companies and organizations with an identified need, such as for a marketing plan, updated diversity goals, or a consumer survey report. Without visiting offices and working with clients in person, students missed out on key professional practice that would have enriched their experiences and resulted in higher-quality products for the clients, according to three business faculty members.

Principle 4: Capitalize on the Unexpected Benefits of Remote Research and Mentoring

From technology aiding some facets of mentoring to virtual symposia offering broader accessibility, a few things have worked out better than expected. They can continue and even be expanded after the pandemic.

Technology-Assisted Mentoring

A faculty mentor's survey response about the advantages of video meetings for teaching student researchers complex skills cited screen-sharing and meeting-recording—which allowed students to review the tutorials later—as “actually working better than in-person mentoring” for parts of the research. Another mentor also noted the usefulness of video meetings: “I think being forced to mentor virtually, using video conferencing platforms, actually helped me mentor better because we could keep a more consistent schedule, didn't have to make trips to campus, [and] I could share my screen during the video call to explain

things.” Outside of the laboratory sciences, all summer 2021 faculty mentors (35 in the arts, business, education, humanities, mathematics, and social sciences) said they planned to continue holding most mentoring meetings by video even after pandemic restrictions are lifted.

Accessible, Virtual Symposia

One of the first pivot points in spring 2020 was rethinking the annual showcase of student scholarship. Each April for the last 20 years, BSU has hosted a Student Arts and Research Symposium known as StARS, which in 2018 and again in 2019 featured more than 1000 presenters. To move the 2020 StARS online, BSU took advantage of the offer by CUR sponsor ForagerOne to pilot its Symposium platform. It worked well, and BSU purchased a 2020–2021 subscription to the platform.

The sudden disruption to UR in spring 2020 and the short turnaround to a virtual symposium left most intended StARS presenters unable to participate. The anticipated group of 1000 shrank to just over 300. Challenges abounded as everyone learned a new platform in a short time frame, but so did the benefits. Over 80 audience members logged in for the live sessions, many more than attend in-person presentations at StARS. Over the week, BSU students’ presentations were viewed 3,916 times (an average of 13 unique views per presentation) and received 554 written comments or questions from audience members (an average of 1.85 comments per presentation). There were no such precise data from in-person symposia, but post-event surveys over the years indicated that poster presenters interacted with four to seven audience members in their one-hour sessions. Audiences for oral presentations varied widely, but most sessions drew fewer than seven people.

The numbers of student presenters and audience members grew for BSU’s second virtual UR showcase, the Mid-Year Symposium in December 2020; 286 presentations (comprising 539 presenters) received 6,933 unique views, an average of 24 per presentation. The 2021 StARS has been the largest of all: 670 presenters and 12,818 unique views! Audience engagement in commenting and asking questions doubled between April 2020 and April 2021, likely a reflection of increasing familiarity with online meetings.

The larger audiences were an unexpected benefit of virtual symposia, highlighting greater accessibility in a host of ways, from drawing campus constituents (especially non-academic staff) who had never attended in-person symposia to easing participation by those who utilize wheelchairs or otherwise face barriers in getting to campus and finding parking and the right building at the precise time of a one-hour session.

Students and faculty mentors (including those who said they had participated in person for years) found much to

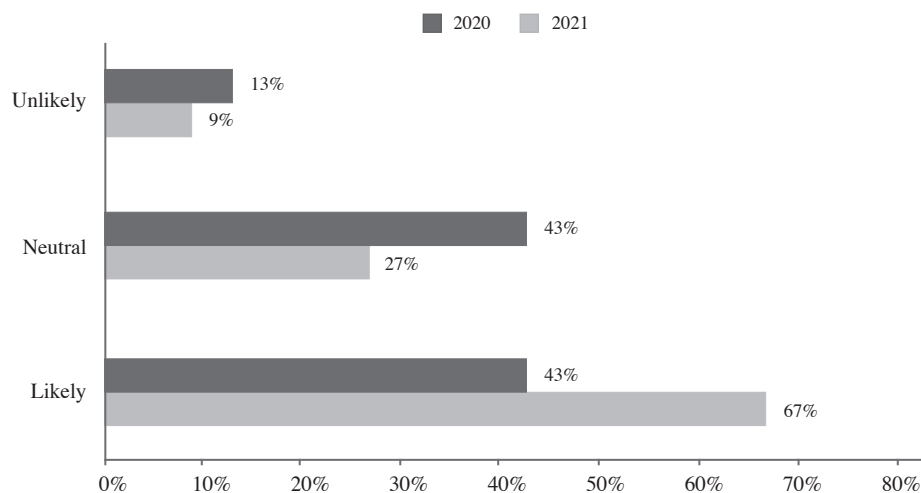
appreciate about the virtual events. Results are based on the faculty mentor survey referenced previously (92 participants), which included two questions about the 2020 virtual symposium, plus two surveys of student presenters, from April 2020 (29 participants) and April 2021 (53 participants). The surveys of student presenters were created specifically to ask about the virtual symposia. A link to the seven-question survey was emailed to all student presenters 10 days after the symposium launched. The most frequent response by students and faculty to the open-ended survey question, “What did you *like most* about virtual StARS,” was the availability of presentations for several days. A mentor wrote, “With presentations available over a week time period, it was MUCH easier to ‘see’ all the work and participate with the presenters.” A student presenter said, “I liked being able to see everyone else’s presentations and view them at my leisure and revisit them.”

In answering “What did you *like least* about virtual StARS,” 70 percent of faculty mentioned the lack of in-person interaction. One mentor noted, “Students were unable to have ‘conversations’ about their research, which often can lead to students’ deeper understanding and improved communication about their ideas.” Interestingly, only 30 percent of student presenters in 2020 and 14 percent of student presenters in 2021 said they missed live interactions with the audience.

Although the numbers of student presenters who participated in post-StARS surveys were small—29 (10 percent of presenters) in 2020; 53 (8 percent of presenters) in 2021—those who responded reported positive experiences. Both years, the most frequent response to the question about presenters’ dissatisfaction was “nothing” (32 percent in 2020; 30 percent in 2021). Although the low response rates do not allow for drawing significant conclusions from the data, there was a striking consistency in the responses. In answer to “What did you *like best* about virtual StARS?” about two-thirds of students in both years volunteered something related to reduced stress. Some said the virtual symposium produced “less pressure” than in-person events, for both presenters and audience members; others noted “zero performance anxiety” and “I like presenting in the comfort of my own home because I have an extreme fear of public presentations.”

What was most surprising about the student responses were how many replied that they were likely to present virtually even after in-person events resume (43 percent in 2020; 67 percent in 2021). Figure 4 illustrates their responses.

Based on the positive responses to the virtual symposia—and because of concern about the safety of gathering in large groups indoors in the upcoming academic year—the intention is to host hybrid symposia (i.e., with in-person and online elements) in AY2021–2022. The plan is to ask

FIGURE 4. Likelihood to Present Virtually when In-Person Events Resume, Reported by Students in 2020 and 2021

Note: N = 29 in 2020; N = 53 in 2021.

presenters to upload posters or videos ahead of the in-person sessions, allowing for both broad accessibility and interpersonal interactions.

Principle 5: Respond to the Lack of Assuredness with Technology and Lack of Access to Reliable Connectivity Experienced by Faculty and Students

Forty percent of the responses to the BSU faculty survey (37 of 92) referenced technology-related challenges in trying to mentor UR during the pandemic. Open-response answers included faculty concerns about their own and their students' inexperience with remote-learning technologies, the lack of rapport and warmth of video meetings, and insufficient internet access for their students. An Inside Higher Ed report on the digital divide (McKenzie 2021) highlighted what faculty at BSU noticed: many students did not have reliable internet access for attending online courses, collaborating on research, or meeting with mentors. One mentor lamented that a standout student researcher who had received national recognition for his REU research was suddenly unable to participate adequately in classes or research when he moved from a campus residence hall to live with extended family, with only a smartphone and cellular data plan (but no computer and no Wi-Fi). Faculty, most of whom had computer and internet access at home, reported their own difficulties with technology, mainly expressing the insufficiency of video meetings for mentorship. One said simply, "in-person interactions [are] crucial." Another stated, "The research work I do with students is dependent on face-to-face discussions."

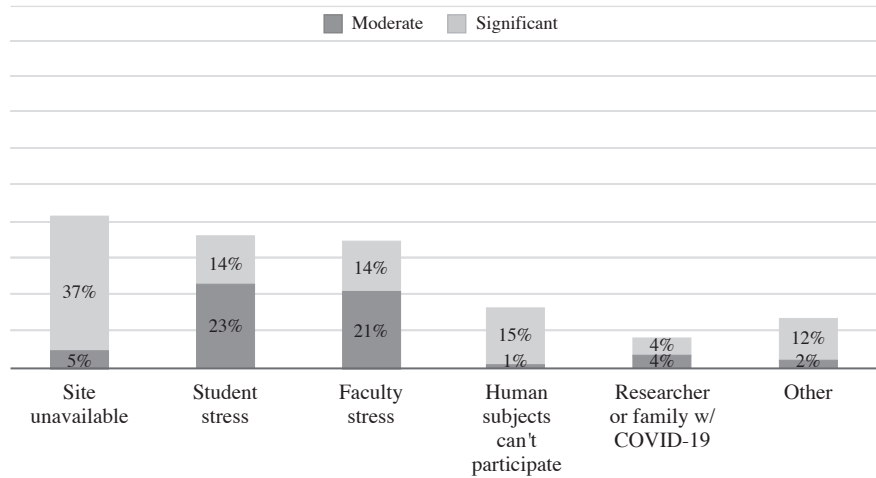
By the middle of summer 2020, BSU's Teaching and Technology Center was able to offer an Online Teaching Institute and had created a Faculty Resource Center

online course site, both of which introduced and provided guidance on utilizing a variety of remote teaching and learning tools. Based on reports from colleagues who participated in the institute and accessed the online course for faculty, the availability and clarity of those resources made a significant difference in the ability to mentor and teach remotely. Experience at BSU has shown that the technology challenges stemming from lack of familiarity are solvable with high-quality professional development and resources. To address the needs of low-income and rural students to access courses and research meetings remotely, there was a need for more loaner laptops and Wi-Fi "hotspots." A significant lesson learned in the early months of being online was related to the extent of this need and how to address it.

Principle 6: Accommodate the Work Schedules of Students

A hurdle anticipated during the pandemic—student worries about unemployment—turned out to be less of an issue than the opposite problem: students who were essential workers took on longer shifts that squeezed out time for research. From EMTs to grocery stockers to delivery drivers, many students have been needed at work during the pandemic. Even during non-pandemic times, working-class students at BSU and across the country have worked so many hours, often at multiple jobs, that participating in cocurricular UR was challenging, if not impossible. In 2016 and 2017 surveys of 128 BIPOC students who participated in UR at BSU, the most frequently cited barrier to continuing in research was the need to work (Shanahan 2018). US Department of Education data have shown that undergraduates are taking on increasing work hours—the majority working more than the department's

FIGURE 5. Factors Affecting Faculty Changes to UR in Spring 2020



Note: N = 92.

recommended maximum of 20 hours per week for full-time students. These data also showed that Black and Latinx students worked more hours than White students on average, and low-income students worked more than their higher-income peers (Perna and Odle 2020).

BSU faculty indicated in survey responses and personal communications that their students have been working even longer hours during the pandemic. On the survey about undergraduate researchers they were mentoring, one wrote, “Many of my students in the spring [2020] added extra work hours which contributed to being overwhelmed and not completing expectations.” Another expressed concern that students were taking on more shifts at work—to their academic detriment—because of the flexibility afforded by online, asynchronous coursework and not needing to commute to campus.

Working with students’ employment schedules to the extent possible is critical to equity in UR, whether during a pandemic or not. As students and faculty returned to campuses in fall 2021, there has been concern about a return to old models of working students not being able to participate in UR. On many campuses, Friday afternoons offer open blocks of time when few classes and meetings are scheduled, so UR work and meetings are slated for those times. But for students, especially those with jobs in service and hospitality industries, weekend work starts on Friday afternoon. A BSU faculty member who moved lab meetings to Mondays a few years ago to accommodate students’ Friday work schedules said he was inundated with requests from BIPOC students to join his lab based on schedule alignment alone. Similar creative planning and sensitivity to working-class students’ employment needs is encouraged in establishing UR opportunities.

Principle 7: Offer Flexibility and Trust

A BSU faculty colleague put it well: “I think everyone (students, faculty, our families, etc.) is going to have some PTSD related to COVID-19, the racial injustices, and unemployment. Now more than ever I think it is important to normalize discussions of mental health care and discussions of health care accessibility.” The majority of faculty respondents cited their own heavy workloads and stress and stated that the stress of their students “moderately” or “significantly” impinged on UR. Figure 5 summarizes their responses.

A recent national report, *The Role of Faculty in Student Mental Health* (Boston University School of Public Health 2021), reported similar concerns about student and faculty stress. The report stated that 87 percent of faculty respondents said their students’ mental health has “worsened” or “significantly worsened” during the pandemic. A different study, of 33,000 college students, showed peak levels of depression and anxiety in students due to the stress of the pandemic, systemic racism, inequality, and political unrest (McAlpine 2021).

As a means of acknowledging and responding to the emotional burdens of the past year, the UR program at BSU sought to communicate understanding about necessary changes to research plans, encouragement to gently lower expectations, and trust in students and mentors to decide how to proceed. The summer 2020 UR program was restructured to offer flexibility to students and faculty. Because summer 2020 UR proposals were submitted and reviewed before campus closed due to the pandemic, every plan needed reconfiguration to some degree. Several options were offered to the 36 summer researchers and their mentors, depending on the extent of restructuring

needed. The options were extended in a spirit of trust in faculty colleagues and student researchers, and the trust was well placed. In each case, mentors joined forces with students to remodel proposed research—some more drastically than others—while maintaining rigorous standards; gaining approval from the IRB or Institutional Animal Use and Care Committee, if applicable, for amended methods; and proposing new forms of collaboration with external partners.

One of the summer 2020 options was extended into summer 2021 and will likely continue after the pandemic: having summer researchers set their own timelines without jeopardizing their stipend payments. In 2020 this meant that some students postponed part or all of their projects until necessary access to research sites was granted, even though their stipends were paid, and several continued their summer projects into the academic year. In summer 2021, each student, with the guidance of the mentor, has set the start and end dates, as well as the number of hours per week for research. The 20-year practice of awarding summer grants for 10 weeks with 40 hours per week of research (400 hours total) also was restructured. In summer 2021, students could opt for 200- or 400-hour grants. With either option, they decided when to begin their work—any time between mid-May and late June—and when to conclude it.

Professional development and community-building events for summer 2020 were reconceived for virtual delivery, as well as to address current exigencies. Summer researchers met weekly by video to (a) discuss current events (e.g., a virologist-facilitated discussion about COVID-19, sharing of racist experiences by faculty of color); (b) take part in professional development (e.g., avoiding “death by PowerPoint,” presenting at virtual conferences); and (c) present progress reports. Virtual events continued in summer 2021, and that second year they were recorded so students could participate live or asynchronously. Those sessions comprised the usual research-related topics as well as special areas of focus in response to the trauma of the past year (e.g., sessions on personal wellness and decolonizing research).

Conclusion

The events of this challenging year and a half have resulted in grievous losses of life and health and laid bare global inequities and divisions. Everyone has experienced fundamental change. Neuroscientists and psychologists have noted that human brains have been altered during many months of chronic stress, grief, and isolation, and that those effects may last for years, especially in the form of diminished mental health (Cushing 2021). At no other period have people more needed the promise of higher education to improve the quality of life of students and communities, through the creation and discovery

of knowledge and through scientific, cultural, and artistic contributions. UR has been at the center of that promise for decades. It offers a transformative opportunity for students to participate in the scholarly enterprise that is at the heart of undergraduate institutions. UR can be—and must be—a fulcrum for change in higher education and in the broader world. As one university administrator put it, “higher education can’t afford to go back to ‘normal’” (Brownlee 2020). The financial toll is insupportable, and, more importantly, the ethical price is too high; the pre-pandemic “normal” did not serve most students.

The seven evidence-based principles presented in this article are intended to contribute to the chorus of voices calling for and guiding meaningful change in higher education. The shifts made to curricula, pedagogies, research, and faculty relationships with students and colleagues have been intractably difficult at times. The last few semesters also have offered new possibilities and insights into what should be brought forward into the “next normal.” It is hoped that these lessons will resonate with the reader and that together the UR community can reconceptualize programs and practices for equity and justice, on campuses, in communities, and throughout the world.

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