RESEARCH ARTICLE

Students as assessment partners: A collaborative, qualitative evaluation of the Guns on Campus course-based undergraduate research experience

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ABSTRACT

The Students-as-Partners (SaP) paradigm has been widely recognized for its enrichment of pedagogy and research, particularly in the scholarship of teaching and learning; in a time of acute disruption to higher education, the SaP model may further provide key insights into the adaptation of high impact teaching practices, although the changing conditions of partnership require close attention. This paper reports on the qualitative evaluation of a multi-campus, hybrid course-based undergraduate research experience (CURE) delivered in the first year of the COVID-19 pandemic. Analysis of student reflection data was conducted by a research team of two faculty and four CURE-student participants in a process informed by the Students-as-Partners model. In addition to identifying student-reported challenges, solutions, and educational benefits associated with a hybrid CURE, we reflect on both the unique opportunities, and difficulties, offered by student-faculty partnerships formed and conducted in a virtual meeting space.

KEYWORDS

undergraduate research, students as partners, scholarship of teaching and learning, qualitative research, social sciences

While still nascent within the global landscape of higher education, the Students-as-Partners (SaP) paradigm has perhaps arrived at a point of peak salience, as university staff and students struggle to connect within increasingly dislocated classrooms (Ahmad et al., 2017). A transformational model that positions students, faculty, and staff as actors offering equally valuable, if qualitatively different, forms of expertise, the SaP approach has been deployed successfully within four main activity areas, as conceptualized by Healey, Flint, and Harrington (2016): learning, teaching, and assessment; curriculum consultation; subject-area research; and the scholarship of teaching and learning (SoTL). Where student-faculty partnerships in curricular and course design have already shown promise in the reimagining of COVID classrooms, SaP-guided research teams in SoTL may inform long-term adaptations to pedagogy in a post- (or permanent) pandemic world, illuminating necessary changes to established high-impact teaching practices, if not revealing wholly new strategies for effective student engagement (Riddell et al., 2021). Indeed, several documented benefits of partnerships between students and faculty—such as increased motivation, strengthened relationships, and enhanced empathy, enjoyment, and trust—resonate powerfully with the difficulties voiced by both groups struggling with spatially and/or temporally altered teaching and learning environments (McKinney, 2007; Mercer-Mapstone et al., 2017). At the same time, the challenges associated with fostering authentic partnerships may be compounded by circumstances that constrain meetings and compress time; students and staff must work harder to become acquainted at a distance, while the social and emotional investments required of the SaP model may become overly burdensome for participants dealing with sickness, quarantine and isolation, irregular employment, or new childcare obligations (Ntem et al., 2020). In particular, research partnerships in SoTL may be strained by frustrated students and sensitive faculty, both feeling powerless over the conditions of their work.

This study seeks to highlight the power of student-faculty partnerships in the evaluation of pedagogy within courses reorganized by a global pandemic. At the same time, it demonstrates the utility of the SaP approach in forging effective personal connections over distance, with the authors representing a multi-campus, mixed research team whose only contact occurred online for nearly one year. Finally, in addition to outlining and reflecting upon the importance of a partnership paradigm in the context of COVID-19, the below pages report on the findings of a SoTL study concerning the impact of a course-based undergraduate research experience (CURE) delivered in a hybrid (in-person and remote) mode. In this way, this paper also contributes to a growing literature on the continued relevance, and necessary refinement, of evidence-based teaching practices within college classrooms that may never return to "normal." We find that both the SaP and CURE models retain their efficacy under a regime of social distancing, although our results and reflections reveal the need for certain adaptations to both modes of engagement.

LITERATURE REVIEW

The endowment of students as autonomous investigators is among the primary objectives and advantages of the Students-as-Partners model, particularly when deployed within SoTL. As characterized by Cook-Sather et al. (2014), the SaP paradigm proposes student-faculty partnerships in which "all participants have the opportunity to contribute equally,

although not necessarily in the same ways, to curricular or pedagogical conceptualization, decision-making, implementation, investigation, or analysis" (p. 6-7). As much an ethos as a practice, SaP informs reciprocal faculty-student relationships, in which both parties are recognized as offering unique and complementary expertise (Matthews, 2017). As noted above, the mutual advantages afforded by SaP are numerous, although the investments essential to the development of a successful partnership may appear more costly within an era characterized by a "veil of uncertainty" (Ntem et al., 2020, p. 1; see also: Mercer-Mapstone et al., 2017). Even in the best of times, SaP must be understood as both a transformative and troublesome process, which may incite faculty anxiety and recalcitrance, negative side effects rarely documented in the literature (Mercer-Mapstone et al., 2017; Murphy et al., 2017). Such backlash, if not properly acknowledged and managed, may threaten student-faculty partnerships, while undermining the quality of work undertaken—particularly in SoTL or during periods of stress (Murphy et al., 2017). While an international, staff-dominant 2020 community poll concerning learner-teaching partnerships during COVID-19 found that an overwhelming majority agreed that such practices were "important to maintain as teaching moves online," nearly half also conceded that they "had little time" for such partnerships as the pandemic erupted—a reality that threatens to undermine the process of trust- and relationship-building (Matthews et al., 2020). At the same time, initial acquaintance may be facilitated by virtual meeting spaces, excising the "initial strain that may come with in-person interaction" (Ntem et al., 2020, p. 3). The project described in this paper—a multi-section CURE subsequently evaluated by the three faculty of record and four student partners—attempted to abide by the radical collegiality that is intrinsic to SaP, an endeavor that required continuous reflection on the power dynamics that played out in online weekly meetings and data analysis between individuals who had not previously met in person (Ahmad et al., 2017). As we reflect in the final section, student partner perspectives both furthered and challenged those of faculty participants in the analysis of the CURE reflection data presented below; indeed, as individuals who had not only endured a rapid transition to online learning, but had also participated as students in the CURE itself, student-partner insights held unique weight.

The student partners and co-authors of this paper were first introduced to research activity through a course-based undergraduate research experience (CURE) in fall 2020. By integrating opportunities into students' regular course load, CUREs seek to expand access to undergraduate research by proactively addressing obstacles to research participation, such as inadequate time, funding, or faculty connections (Bangera & Brownell, 2014; Rowland et al., 2012). CUREs not only democratize the significant benefits of research involvement—such as enhanced academic motivation, disciplinary learning, and connections with faculty and peers—but also serve to enrich the research community, enrolling individuals from different backgrounds who can provide new perspectives and creative approaches to important problems (Auchincloss et al., 2014; Bangera & Brownell, 2014; Ishiyama & Hopkins, 2003; Lopatto, 2009). Given their potential to both promote equity and propagate interest in research over time, CUREs' longitudinal payoffs might be maximized through their deployment in introductory level courses, allowing students to start their research careers from year one—a stated goal of the CURE evaluated herein (Auchincloss et al., 2014; Harrison et al., 2011). At the same time, CUREs appear to reflect one of the limitations of undergraduate research

experiences in general, with published evaluations still largely confined to the natural sciences (Hensel, 2018; Parsons et al., 2021). The deployment of CUREs within the humanities and social sciences may further disseminate their academic and social-emotional benefits, illustrate wider career prospects in such majors, and also stimulate inquiry by empowering students as active learners in disciplines that historically prize critical thinking (Campbell & Skoog, 2004; Cavanaugh et al., 2016; Conover, 2015; Craney et al., 2011; George et al., 2015; Parsons et al., 2021; Ruth et al., 2021).

THE GUNS ON CAMPUS CURE AND EVALUATION WITH SAP (OVERVIEW)

This paper reflects on the results and experience of a multi-campus CURE in criminal justice, which was evaluated in partnership with former student participants after the semester's end. Funded by the Pennsylvania's State University Student Engagement Network, this collaborative CURE represents an expansion of a single-section pilot project in the same course, Introduction to Criminal Justice, undertaken in Fall 2019 (see Author, 2021). Beyond extending the impact of CURE participation by growing the ranks of enrolled students, this scale-up project had several aims: (a) to examine the feasibility of a multi-section, hybrid CURE that crossed campuses; (b) to expand the list of student endpoints to include research knowledge, interest, and perceived ability; and (c) to forge new faculty and student research partnerships in the scholarship of teaching and learning.

Enrollees in three sections of Introduction to Criminal Justice (hereafter, Intro to CJ) were tasked with executing a survey study of student attitudes toward firearms, firearm control policies, and confidence in the police on each of the participating campuses (hereafter, the Guns on Campus survey). A required class assignment representing 50% of the final grade, the study was operationalized as five smaller research projects that each highlighted one stage in the scientific process: background research, research question development and refinement, survey instrument construction and study design, ethical training and data collection, and data interpretation and presentation. Working on Zoom in small groups of four to six, students were asked to review public data on violent victimization and gun possession in crafting their specific research questions, before writing survey items to be added to an existing questionnaire previously deployed in the general population. Data collection proceeded remotely, using a web link, due to the COVID-19 pandemic. Following completion of the Collaborative Institutional Training Initiative CITI Human Subjects Research training, students interpreted the resulting data, which had been lightly cleaned and digested by faculty instructors. For the final assignment, each group presented their findings in a research poster format.

Excellence and enthusiasm in project completion was rewarded with not only high marks, but the opportunity to partner with faculty after course conclusion in the analysis of student reflection data concerning the CURE experience. While all students were informed of the opportunity to continue working on their particular projects, one student from each section would additionally receive funding to travel to a major disciplinary conference in Chicago in Fall 2021. It should be noted that all students (working in small groups) were permitted to revise and resubmit each research assignment until all answers were complete and accurate, resulting in full credit; students who were invited to join the faculty team demonstrated a clear commitment to the research process, revising their questions and hypotheses in line with

emerging data, connecting the class project to the extant literature, and considering how future projects might address the limitations of the current methodology. After final grading, each instructor invited at least one student to join the research team in analyzing and publishing on reflection data; this work was formalized through three parallel independent studies on each campus, although in practice, the research team functioned as a single unit.

DATA ANALYSIS USING A STUDENTS-AS-PARTNERS APPROACH

This manuscript reports findings from a qualitative analysis of CURE students' post-project reflections, which were completed following each of the five research projects in Fall 2020. Reflections were structured and consistent in format, with students asked to respond to three to four open-ended questions per reflection concerning the project experience. Such questions captured the barriers students encountered in project completion, their proposed solutions to such barriers, and the perceived learning benefits of project participation. All students in two of the CURE sections were asked to complete these reflections as part of their participation grade; however, our final analytic sample only includes the submissions of students who consented to participation in our study. After the semester's conclusion, participating students' reflections were downloaded from the course management websites, deidentified by student researchers within each section, and labelled with a respondent ID.

Reflection data was coded collaboratively and iteratively by a team of two faculty members and four student researchers over 2 months, via meetings over Zoom. To begin this project, one faculty member who identifies as a qualitative researcher circulated a short chapter describing the basic techniques of qualitative coding (Saldaña, 2013). After discussing the article in a weekly meeting, all team members independently attempted the initial coding of the first reflection, an endeavor intended to generate a wealth of emergent themes, codes, and categories—as well as determine any convergence across the group. In the subsequent meeting, individual team members proposed four to 22 codes, with significant overlap between coders. A draft coding list, roughly organized across six (higher-level) categories, was agreed upon, and reapplied to the same data, for the purpose of finding further lacunae or redundancies in the schema. After one further adjustment, we settled upon a final draft schema of 29 codes and six categories and analyzed the Reflection 1 data once more, before establishing intercoder reliability in pairs. Finally, each team member was assigned two reflection sheets to code using the established schema, with each reflection analyzed by at least two individuals. Afterward, three student team members suggested the need for two further codes and one additional category to better capture the data as it evolved across reflections. Thus, the "final" coding list was expanded and reapplied across the full data. Once coded, the reflection data was read by all for major themes, as suggested by the prevalence of different codes, their utilization over time, and inter-code associations. The resulting themes are illustrated by representative quotes as well as a table and chart, below. While these figures numerically represent the salience of different project barriers and benefits perceived by students over time, no statistical tests of association were performed to establish the significance of these trends; indeed, such measures are outside the purview of qualitative analysis, which acknowledges the idiosyncrasy of specific samples while generating questions for broader study.

RESULTS

Twenty-six students consented to the inclusion of their class artifacts in our study. This final sample represents, respectively, 56% of enrolled students in Section A, and 67% of enrolled students in Section B—response rates that were lower than anticipated but explicable in terms of the hybrid class format. It should be noted that some student participants did not submit every post-project reflection, leading to the fluctuating "n's" in Table 1, which charts the flow of different qualitative themes across the semester; by contrast, Figure 1 represents the mention of different research benefits by the full student sample (n=26). Post-project reflections were marked as simply "complete" or "incomplete," with submissions that addressed every prompt receiving full credit. While graded, each individual reflection represented only 1% of the total grade, a fact likely related to missed submissions.

Ultimately, qualitative analysis revealed seven primary themes organized into three sub-sections: challenges encountered by students during the research project, solutions to such challenges (received and recommended), and educational benefits of the project(s). While each of these themes was independently identified by multiple team members, each individual researcher was tasked with selecting representative quotes from the data to illustrate each theme and its nuances.

Challenges to research project completion: Group work, COVID-19, and "fear of data"

Table 1. Challenges identified by enrolled students, by reflection

POST-PROJECT REFLECTION #	% CODED "GROUP WORK AS CHALLENGE"	% CODED "COVID AS CHALLENGE"	% CODED "DATA AS CHALLENGE"
1	52	61	17
2	46	38	54
3	23	14	32
4	5	20	10
5	5	19	43

Initial coding assays were dominated by an issue registered by over half of all enrolled students (see Table 1): the difficulties of group work. In the first two reflections, mentions of group-related difficulties—including work delegation, division of labor, quality control, and basic communication—outnumbered struggles with specific research-related tasks by nearly two-to-one. Students voiced particular frustrations with group work that are well-documented, although it should be noted that these challenges were likely exacerbated by unique course characteristics: its heavy enrollment of first-semester students, the diverse interests and skills of a general education course sample, and the mandatory relocation of group work to an online platform (Zoom). Most groups consisted of relative strangers, not necessarily bonded by major or career aspirations, who enjoyed in-class contact only once each week. With few points of extant affiliation, the collaborative completion of complex research assignments—also demanding novel skills—may have seemed especially arduous. Nevertheless, group work as a

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challenge noted by students declined precipitously throughout the semester, and, indeed, the sorting of group-related woes was described by some individual participants, as evidenced in this pair of quotes from Reflections 1 and 4:

> I felt that the most challenging aspect of this assignment was trying to work with and getting to know my classmates work ethic. (R1, GA17)

> We broke up the assignment by working on each topic together. However, I feel that everyone somewhat contributed in their own ways and gave their own opinions on the project. (R4, GA17)

While Table 1 numerically demonstrates the falling share of students who continued to clash with their group past midterm, a couple indicated persistent problems, which may relate to a course delivery mode that yielded little space for confrontation and conflict resolution. Failures of communication are cited by another student, who continuously shouldered a disproportionate burden of work:

> I felt that the most difficult aspect of this assignment was working with other students, especially outside of class. Communication was a huge issue because I like to take charge of the project and get it done early. I did most of this project by myself with hardly any help. (R1, DS18)

> I tried to delegate work to the others, but that didn't work out so well. I told them that I would do sections not the whole thing. I think they took advantage of me being an overachiever and getting my work done early. (R4, DS18)

If it is not uncommon for students to have difficulties with the enforcement of norms around group reciprocity, the perceived vacuum of accountability sketched above was likely exacerbated by the pandemic and the teaching modifications it entailed. As in the case of "group work," the code of "COVID-19 as challenge" was frequently applied in the analysis of early reflections, with over 60% of respondents decrying the difficulties of socially-distanced classrooms, learning from home, and collaborating online. In their reflections, students considered avenues of learning that the pandemic disabled, as well as unique methods of evasion and distraction it enabled. On the one hand, students were unable to communicate, and connect, in conventional ways, and they lamented the lack of facetime with their classmates:

> The most difficult thing about this assignment was working with other people throughout the assignment. With all the stipulations of COVID-19, I thought it made it much harder to communicate with others in class because we had to be so spaced out. (R1, DS19)

> I think the hardest part was not being able to talk face-to-face. (R1, GA01)

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Not only missing each other in the classroom space, students were also unable to access informal modes of acquaintance such as "meeting up in the café" (R1, GA14). Some additionally felt less comfortable broaching questions with the instructional team, having had little opportunity to meet with them off Zoom. The only "place" where group work could be performed, the video conferencing platform was an early source of students' ire; indeed, only 6 months into the COVID-19 pandemic, students may have had relatively little experience working and collaborating online, in real time. While students struggled to make contact with their often faceless peers, their home internet connections struggled to support Zoom. Technological problems, ranging from overloaded wifi to old iPads, were often addressed through a pivot to asynchronous work and communication:

> Working during different times, through email or online communications.
> I feel the project would have went a lot smoother if we were able to be in
> person, face to face, and work on this together at the same time. (R1,
> DS01)

Finally, the remote group work necessitated by COVID-19 restrictions complicated students' school-life balance, with many accessing class from their home bedrooms. In the words of one respondent, "I found it most difficult to stay on task while doing the research assignments. Working from home is a whole new environment" (R1, DS08).

As with "group work," references to the academic strains caused by COVID-19 diminished as the semester wore on, perhaps reflecting students' increasing adaptation to the altered learning environment. Yet one final challenge persisted: discomfort, verging on fear, of statistical data. While students were not asked at any juncture to perform mathematical computations, many students expressed low confidence in their ability to work with numbers; as seen in Table 1, the proportion of students identifying data-related tasks as the most challenging aspect of each assignment did not decline over time but rather kept pace with the increasing complexity of the projects. Students' difficulties with data were likely aggravated by the remote learning environment, which made locating, organizing, and interpreting secondary statistics more tedious. For example, one student reflected:

> Finding the data is often difficult because many databases are difficult to
> navigate, and it's hard to navigate between different tabs. (R1, GA06)

Technological barriers to data retrieval populated early reflections; with later assignments demanding higher-order research skills, data analysis emerged as the main area of anxiety. Asked after Project 3 to articulate any challenges they anticipated in the final stages of their research, multiple students fretted over their ability to interpret their data, fearing they might be faced with a raw spread of numbers:

> I anticipate there being a challenge in gathering up all the details of the survey
> questions. I hope the questions will already have the responses calculated. (R3,
> DS08)

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> I anticipate having trouble getting the responses we had hoped for as well as being able to simplify them to analyze them. (R3, DS20)

Asked in the final reflection to name the research project and/or skill that they found "most challenging" throughout the semester, nearly half of respondents answered data analysis and interpretation, with one student quipping, "I definitely found the data-everything most challenging" (R5, DS011). At the same time, fully a third expressed increased facility with data analysis in the last question, a result considered in the final section of this article.

Overcoming research challenges: The benefits of "facetime" and scaffolding

Despite engaging remotely, students identified one-on-one assistance by course instructors and student partners as essential to making progress with difficult aspects of the research assignments. In some ways, the supervision of research during weekly Zoom sessions may have facilitated regular contact with individual students, as the teaching team was forced to circulate between Zoom breakout rooms to check in during assignment days. With most time in the physical classroom devoted to other subject-matter content, the research skills targeted by the CURE were largely learned by doing, with direct instructor intervention used to overcome the hurdles en route. This pedagogical practice was described by some students in their final post-project reflections, which also highlight the importance of peer-to-peer assistance:

> One strategy I might recommend to others who struggle with this part of the survey research is always get help from group members in your group and with your instructor to make sure you're understanding this part of the assignment, so it will help with the next assignment that comes after and how all the assignments tie together with each other. (R5, DS12)

The above statement additionally references another aspect of project structure mentioned by over a dozen students across five reflections: the importance of examples, practice, and iterative assignments in growing research confidence. Interestingly, this theme was identified exclusively by several student coders, escaping the instructors' attention. Asked to gauge their readiness to deploy the finished survey instrument in Project 4, two students drew different conclusions:

> I don't think I was as prepared as I could be. But maybe just seeing more examples. (R3, GA03)

> [I felt] very well prepared, all of the previous research assignments and research slides taught me what I needed to know to write my own questions. (R3, DS14)

In the final reflection, the progressive scaffolding of the research assignments also emerged as a key confidence builder; skills such as basic data retrieval, organization, and interpretation

were introduced in Project 1 and then incorporated in nearly every subsequent assignment. This was reported in student reflections, as the following two demonstrate:

> I feel way more confident working with data now that I've done it all semester. Like everyone always states, practice makes perfect. (R5, DS19)
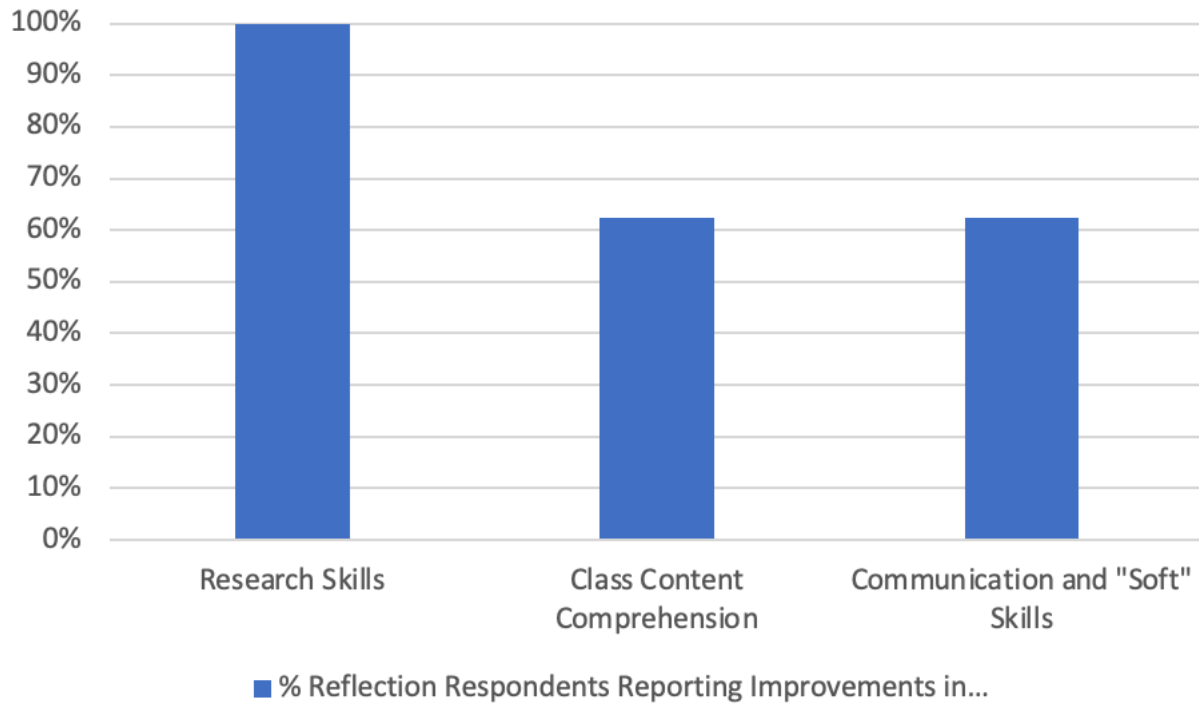
> I feel more comfortable navigating the different tables and selecting from the drop-down menus. I felt that ability to practice these skills helped me to feel more comfortable. (R5 Campus DS18)

Given the discontinuities inherent in a hybrid course delivery mode—every participating course section moved between in-person and synchronous remote teaching each week—the importance of assignment scaffolding may have been more pronounced this particular semester. Multiple assignments asked students to refer back to data tables as well as to research questions and hypotheses generated in previous projects, a strategy employed in hopes of maintaining the thread during a tumultuous time.

Educational benefits: Research confidence and "soft skills"

Figure 1 depicts the percentage of all student respondents who identified improvements in different skill or content areas. Notably, all individuals who consented to study inclusion reported improvements in their research skills, while over 60% wrote that the research experience increased their understanding of subject-matter content, as well as their abilities to communicate and collaborate (i.e., soft skills).

Figure 2. Self-reported improvements by skill/content area, Fall 2020

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The first result—unanimous indication of research skill improvements—served as an interesting addendum to the previous finding around students' fear of data. Even as students saw room for advancement in their understanding and manipulation of statistical data, project participation nevertheless appeared to enhance these abilities against baselines, heightening students' confidence. Multiple students emphasized that the hands-on nature of the project was indispensable to their individual progress:

> I understand how we really got the data and how the data came through and how to interpret it better so that my understanding was easier, and everyone else's was as well. (R4, DS11)

> I think being able to work with Zoom and understanding the data is something no one can really teach you, but yourself. (R2, GA08)

Beyond gains in perceived research competence, coding also revealed increases in students' research appreciation, enthusiasm, and persistence. Collectively, statements such as those shown below point to the development of students' research agency as an outcome of CURE completion; while better understanding the effort that goes into rigorous research, students also indicated the will and skills to continue their research moving forward:

> I would not have been able to learn the level of difficulty and work that goes into a survey without being able to do it myself. (R5, GA14)

> I learned how to dig for information and use context clues to find a source. I also became well acquainted with the [university] library which will become a helpful resource in the future. (R1, DS03)

Another prominent site of educational benefits mirrored two major challenges discussed earlier, group work during COVID-19. Nearly two-thirds of respondents cited improvements in their abilities to communicate and collaborate with their peers, particularly at a distance. Indeed, many reflections explicitly referenced students' growing comfort with connecting over Zoom—a skill that, while not targeted by the CURE, may prove essential to other scholastic and professional ventures:

> I learned how to create a table and gather data for that table and how to work with others on Zoom. (R1, GA09)

> I learned how to overcome being online and not doing the research projects in class with my classmates. (R5, DS09)

Others focused on progressive advances in their abilities to work in teams, a multifactorial skillset that implicated leadership, task delegation, and listening:

> I learned how to work with group members and learned how to be a good group member. (R4, DS02)
>
> Every class I learn to be a little bit of a better group leader. (R3, GA13)

Here, not only the structure but the content of this CURE may be meaningful; individuals were required to work in small groups and were further obliged to discuss a topic riven by political minefields (during a presidential election, no less.) If this project posed students with a formidable task within an uncertain era, the results arguably point toward students' aptitude to rise to the occasion, even within a first-year, general education course.

DISCUSSION: PARTNERING FOR A CURE IN A PANDEMIC

While illuminating concrete challenges during the roll-out of a multi-campus hybrid CURE in the social sciences, the above findings also demonstrate the persistence and resiliency of students not only attempting higher-order research, but simultaneously navigating novel learning environments. Mostly underclassmen, all respondents successfully crafted original research questions and survey items, interpreted the ensuing data, and finally represented their results within formal research posters—all while collaborating in small groups on a digital platform with individuals they may have never met in person. Initially, the social and logistical difficulties posed by teamwork during a global pandemic overshadowed those directly related to research requirements; yet, students quickly developed the soft skills necessary to surmount these obstacles, while additionally improving their research abilities. Still, one barrier to students' research success was identified consistently throughout the semester, namely discomfort with numeric data. Such discomfort may be handled proactively in future semesters, with additional instruction dedicated to the basic statistical terminology. The instructors might also follow the suggested solutions of student respondents themselves, namely, to expand opportunities for practice and offering numerous examples where possible. Moreover, this evaluation points to both the important contributions of student research partners in the online classroom and the potential to leverage their experiences more extensively. For the current project, only one student partner was deployed in each course section, a model that left them little time to assist every group. In future iterations, a single student partner might work with each research group within each course, a modification that would not only expand, but enrich, instructional facetime. Such a move would additionally enhance the evaluation process, informing real-time course adjustments, the generation of participant-observation data, and an ever-stronger analytic team.

Faculty reflection: Improved rigor through partnership

From a faculty perspective, the involvement of student partners in the analysis discussed here immeasurably enhanced the rigor of the evaluation. Beyond allowing for the establishment of intercoder reliability, student researchers brought unique viewpoints to the interpretation of course reflection data from their lived experiences as not only student participants in the CURE, but first-year college students in the first year of the COVID-19 pandemic. Thus, in many ways, student researchers were in a unique position to better discern

themes lost to faculty and perhaps obscured by instructional insecurities. It should be noted that such blind spots were not easily eliminated, but were instead defended through several rounds of coding; a review of coding memos showed that one student partner had proposed "more examples needed" after the first stage, yet, this widely-applied code was only integrated before the sixth, final, stage. It is possible that an online meeting space facilitated faculty members' strategic ignorance of this code or the disempowerment of student voices via a flat interactional space. Overall, this anecdote shows how power asymmetries may undermine the benefits of SaP without both student persistence and faculty reflexivity (Mercer-Mapstone et al., 2017). Still, this revelation points to an advantage of faculty-student research collaboration, namely, increased attention to the analytic process. Where the lead author was accustomed to coding in a pair or alone, this project required her to take time with each step, an opportunity that yielded richer, more accurate results.

It is important to highlight that the benefits of engaging in multi-campus CUREs with SaP extend to faculty. Members of the faculty research team brought with them diverse skillsets related to research that were transposed onto other staff and student members. Engaging with students in various types of research methods through the CURE and post-semester research required faculty members to learn new skills and use unfamiliar methodologies—thus enhancing their own skillset through a low-stakes project. Moreover, the CURE established a research relationship between instructors and students from different campuses, representing not only unique interests but distinct backgrounds. With each participating campus enrolling a small student body (roughly 500 to 1,000 students), the collaborative nature of this project connected faculty to additional research-curious students. Moreover, the resulting research team reflected the geographic and ethnic diversity across three institutions, a fact that allowed student research partners to recognize and give voice to different student experiences. Ongoing collaboration within the research team may also have been encouraged by every member's increasing comfort with online meetings.

Reflecting on this project, the faculty authors can also see ways in which we might collaborate more productively with students in future SoTL studies. For example, previous student respondents might be approached as partners at an earlier stage so that they might co-design the data collection instruments (i.e., reflection prompts) as well as relevant teaching materials. Students in post-semester research roles can also help faculty provide direct instruction to groups of students in future classes or consult on the logistics of course delivery within online, hybrid, or socially-distanced classrooms (Riddell et al., 2021). Indeed, the documented benefits of using peers as mentors in undergraduate research experiences are myriad, trumping the benefits of research experiences that rely on faculty-only mentorship (Dunbar et al., 2012).

Student partner reflection: Heightened interest in research

Student members of the study team also saw improvements in our research ability and confidence, although our involvement came with more challenges, particularly as college life moved online. A second-year student in Fall 2020, I, Samantha, had the opportunity for extended involvement in this project, having first participated (as a student) in a single-section pilot of the CURE in Fall 2019 and then joining the Guns on Campus team as a teaching and

research partner in Fall 2020. As such, I helped students complete their research projects. After each project was finished, I collected each student's reflection papers and, to maintain confidentiality, graded them myself. Going from a student to a research partner is incredibly different, from constructing my own research to reading the results of other students' research. There are immense differences between being a student versus being a research partner—but the biggest change during this time was the shift from being at school to being at home during a global pandemic. In Spring 2021, I took on another role as a coder of qualitative reflection data. I found this part most challenging since I had never coded before. Throughout this process, I felt more and more comfortable with how to properly code with the help of my fellow coders. With the completion of these three stages – student, teaching partner, and research partner - I have taken away the knowledge I need to generate and execute my own research. I found this process incredibly interesting and hope to perform my own research studies based on the questions I have about the criminal justice system. This whole experience has opened my eyes to a realm I have never thought I would consider, taking on research.

As first-year research partners, we – Jazzmine, Rachel, and Kerian - were forced to navigate a very sharp transition from freshmen to CURE student researchers and then to research partners in the course of only four months. Our analysis of the above data was inextricably informed by our shared experience performing complex undergraduate research in the midst of a pandemic; like other respondents, we related to challenges in group communication and the effective use of limited class time when practicing new research skills in a novel class environment. Despite all the uncertainties presented by our first semesters in college, we were excited about conducting research and inspired by the impact we could make in the criminal justice field through research. As a first-generation college student with aspirations toward law school, I, Jazzmine, was launched me into multiple opportunities that allowed me to excel academically and have greater confidence in my abilities as both a student and a researcher. Taking part in research my first semester led me to several opportunities like joining a research lab where I was able to create my own research project. I learned many valuable skills through my involvement in the CURE and as a research partner, such as learning how to write proper research questions that are clear and concise, how to create and interpret a survey, and, lastly, how to code. Before joining the research lab I had little to no knowledge of how to code and what the coding process consisted of. Learning how to code was at times challenging, but as I practiced, I understood the process more and more. Without implementing CURE into the curriculum I wouldn't have developed my interest in research, had the opportunities accessible to me today, learned the skills mentioned above, or had so much confidence in my capability as a researcher. Overall, this project showed me first-hand how significantly research can influence the criminal justice field.

This study was reviewed and approved by the Pennsylvania State University Institutional Review Board.

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