© Journal of Higher Education Outreach and Engagement, Volume 26, Number 1, p. 179, (2022)
 eISSN 2164-8212

Transforming Barriers Into Opportunities: Teaching Environment and Sustainability Service-Learning Courses During the 2020 COVID-19 Pandemic

Charles E. Button, Sara E. Ghezzi, Phoebe Godfrey, Suzanne E. Huminski, Jesse Minor, and Linda Silka

Abstract

In response to the onset of the COVID-19 pandemic, many institutions of higher learning locked down their campuses and altered their ways of teaching. This article discusses changes made to courses at five highly varied public universities in New England participating in the multiyear Campuses for Environmental Stewardship (CES) program. The primary aim of the CES program is to integrate environmental service-learning (SL) into college curricula through workshops, faculty fellowships, and mentoring. We detail how teaching strategies were altered in fall 2020 to accommodate the threat of COVID-19 in the classroom. The authors transitioned significant portions of their instruction to online formats or outdoor classrooms. Specifics about the impacts of the shift to virtual teaching–learning are discussed, with particular focus on the impacts to the service-learning components of each of the courses.

Keywords: campus garden, community engagement, environmental sustainability, outdoor classroom, service-learning, COVID-19

Higher education service-learning (SL) increasingly plays a crucial role in training the next generation in environmental stewardship (Singletary, 2013; Smith et al., 2011). By definition, SL "incorporates community work into the curriculum, giving students real-world learning experiences that enhance their academic learning while providing a tangible benefit for the community" (Campus Compact, 2019, para. 1). In practice, SL takes many forms and has been variously defined (Celio et al., 2011; Smith et al., 2011), but most definitions of SL share a common integrated approach to blend service, guided reflection, and engaged application of academic content in a way that can be dynamically and mutually beneficial. SL continues to grow in its presence on many campuses, in part as a result of increased evidence that SL is an effective way to meet many learning goals (Celio et al., 2011). SL takes numerous forms, but all involve students being given opportunities in and across courses to move the ideas they are learning in college to action. The "ivory towers" come down (Hart & Silka, 2020), and students see pathways to use their learning beyond the classroom.

The Campuses for Environmental Stewardship (CES) program offered through Maine Campus Compact, in partnership with Campus Compact for Southern New England and New Hampshire Campus Compact, offers training in SL pedagogy and helps faculty follow an interdisciplinary model to create community partnerships and address critical sustainability and food insecurity challenges (Maine Campus Compact, 2021). The CES program is built around hands-on and experiential SL in which students work with partners to engage in environmental stewardship and food insecurity challenges to address student learning outcomes and

21st-century skill development (Bednarz et al., 2008; Buckingham-Hatfield, 1995; Minor & McCourt, 2021). The CES program offers a faculty fellowship program to support development and enhancement of SL in environment and sustainability-related courses via a collaborative network of scholars from many New England campuses.

The 2018–2020 CES Fellows cohort, including the authors of this article, was successfully approaching its final semester of collaboration when COVID-19 broke out in the United States in March 2020. We spent the remainder of 2020 responding to steep and unprecedented challenges for maintaining SL goals at our respective campuses. We adjusted and adapted, often in unpredictable and rapidly changing circumstances. We pursued important opportunities for change, and have learned lessons from our collective experience. We see value in reflecting on teaching SL courses during a pandemic, including the skills we have gained in forging adaptive capacity as educators, and the challenges we observe in effectively training our students and fostering a healthy community of learners. By the fall semester, for example, some universities restricted off-campus student activities, and travel became impractical under social distancing requirements. At other campuses, face-to-face contact was reduced or eliminated through a conversion to online or hybrid coursework, which made it difficult or impossible to continue community-based work with partners as it had occurred before.

We take seriously the need to continue community and partnership-based environmental SL work, even as that work was and remains altered by a global pandemic. Similarly, we recognize the need for sharing successes and lessons learned to foster and incubate educational innovation to address pressing societal issues. Our experiences reinventing environmental stewardship and responses to food insecurity in the face of rapid and unpredictable change may provide useful insights for other faculty engaged in SL pedagogy. An important theme is that abrupt change exposes factors that impact students in different ways that are crucial to consider. These factors, such as race, class, and gender, have been researched as playing significant roles in relation to SL (Becker & Paul, 2015; Green, 2003). Although student identities are not central to all our case studies, we recognize the need for future analyses in relation to the changes we identify under COVID-19 and which we anticipate will continue. A second theme is increasing awareness and incidence of student mental health struggles related to illness (their own or that of family members), financial challenges, or other changes to living and learning conditions (Anderson, 2020; Czeisler et al., 2020; St. Amour, 2020). A third theme is that reflection, a core practice of SL, can on the part of faculty lead to continuous curricular improvement and innovation.

After briefly summarizing goals of the CES program and campuses involved, we use five case studies to describe and reflect on the innovations and changes made to our environmental and sustainability coursework. Each case study describes course adaptations for navigating the pandemic, how the adaptation differed from original plans, and an explanation of these decisions. We discuss how we retained the CES program's overarching goals while accommodating COVID-related instructional changes. The case studies contain practical solutions that can be adapted and applied in different circumstances. We conclude by describing what we continue to learn from each other as we teach amidst the COVID-19 pandemic.

Brief Summary of Goals of the Campuses for Environmental Stewardship Program

Maine Campus Compact is a 17-member coalition whose purpose is to catalyze and lead a movement to reinvigorate the civic mission of higher education (Maine Campus Compact, n.d.). Maine Campus Compact's Campuses for Environmental Stewardship (CES) program is funded by a multiyear grant from the Davis Educational Foundation that supports SL enhancements on their campuses and with partners aimed at creating innovative environmental stewardship through strengthening curriculum and student learning outcomes. This competitive program provides start-up funding and facilitates opportunities for campuses to learn from and with each other. Ten campuses obtained CES faculty fellowship funding to support their innovative plans (Figure 1).

Aware that today's young adults are entering a world of unprecedented change and complex challenge, we directly engage students through the CES model to develop

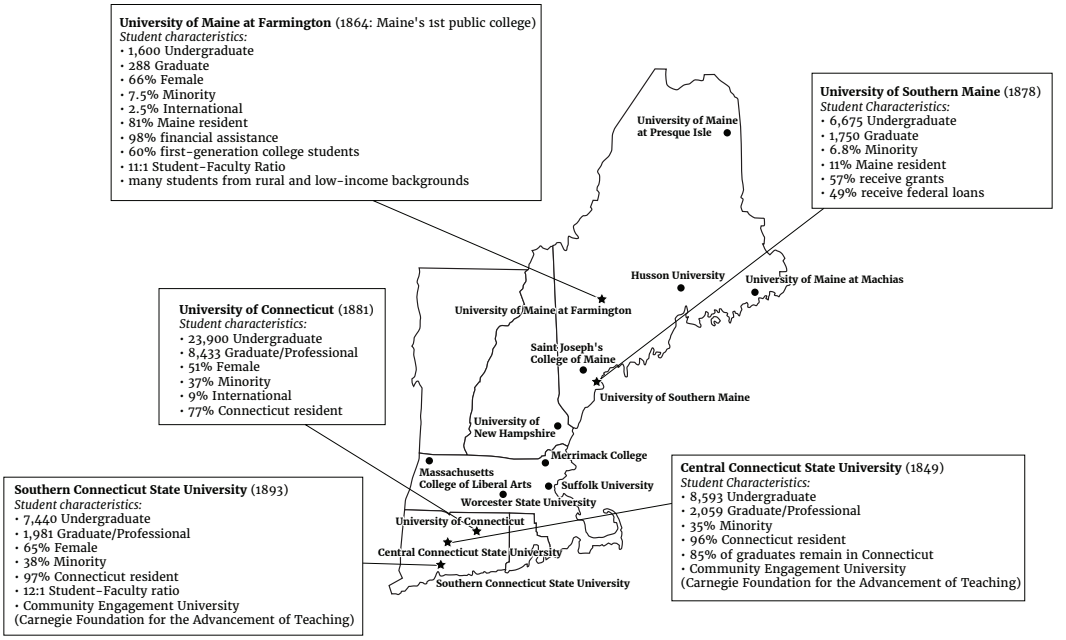

Figure 1. Campuses for Environmental Sustainability (CES) Program Locations, 2018–2020
Note. Locations of the 14 2018–2020 Maine Campus Compact faculty fellow participants in the Campuses for Environmental Sustainability (CES) program. ★= Case study locations described in this article, with information provided in the text boxes. (Map by Jesse Minor).

competencies needed to function, thrive, and effect positive change in an increasingly interdependent world. The development of 21st-century skills is embedded in our project design, implementation, and assessment to ensure that students are well equipped to address similarly complex issues in future workplace and citizen roles. Because of their interdisciplinary nature, critical issues, such as environmental stewardship and food insecurity, translate into timely community projects that allow students to develop and apply real-world skills like self-motivation and resiliency that can be used to respond to other real-world challenges such as COVID-19.

SL is an especially valuable approach at campuses serving students from historically underrepresented groups or who represent a number of intersecting marginalized backgrounds. The universities profiled in the case studies below serve precisely these diverse students, who are disproportionately vulnerable to pandemic-related disruptions to their educations and workplaces. Continuation of SL-based courses described in these case studies is believed to have been especially important, given the student bodies served by participant campuses (Table 1).

Case Studies and How They Reflect Needed Innovation and Changes

Case Study 1: University of Connecticut, Turning Service-Learning Inward: Applying Intersectional Compassionate Pedagogy (ICP) Online

Pre-COVID-19

Previously, in writing with several students about our experiences in my 2018 Sustainable Societies class, we prioritized student mental health alongside other overlapping social and ecological crises and in relation to the intersecting identities of race, class, and gender, resulting in our proposal of what we call Intersectional Compassionate Pedagogy (ICP; Godfrey et al., 2018). We recognized that "ICP seeks to create classroom climate conducive to helping students repropagate their 'mind-body-spirit-nature unity' (Sipos et al., 2008) and thereby begin a very intimate, yet collective, healing journey" (Godfrey et al., 2018, p. 58). As the instructor I used ICP with the class

> to challenge power inequalities in micro spaces, as in students' socially constructed concepts of self/others and macro places, as in the

Table 1. Universities and Courses Described in the Case Studies

Case study #	Institution: instructor, departmental affiliation	Course title	Course description
1	University of Connecticut: Phoebe Godfrey, Department of Sociology	SOCI 2709W, Society and Climate Change	*Enrollment:* 19 students (as for all UCONN writing-intensive classes) *Major assignments:* 12 hours of self-healing SL; individual reflective journal using readings and SL experiences; 15-page research paper revised over semester; 10 discussion postings; final paper presentation
2	Southern Connecticut State University: Suzanne Huminski, Division of Research and Innovation/ Sustainability	HON 300, Introduction to Service Learning	*Enrollment:* 20 students (required for Honors minor) *Major assignments:* 15 hours community service as class; free choice book review; reflective reader/service responses; research paper on environmental topic; interview service professional; final presentation
3	University of Maine at Farmington: Jesse Minor, Department of Geography & Environmental Planning	EPP/GEO 207, Environmental Field Methods	*Enrollment:* 15 students (required for Environmental Policy and Planning major) *Major assignments:* 13 labs; 8 field observation sets; 4 analyses of scientific literature; 2 full environmental research projects; final poster, oral, and PowerPoint presentation
4	University of Southern Maine: Sara Ghezzi, Tourism & Hospitality Program, Muskie School of Public Service	TAH 222, Food & Beverage Management	*Enrollment:* 27 students (required for Hospitality Management Concentration within the Tourism & Hospitality B.A.) *Major assignments:* Plan, execute, and serve a three-course meal; restaurant management simulator; food waste plan; farmer's market standardized recipe
5	Central Connecticut State University: Charles Button, Department of Geography	SUST 140, Introduction to Sustainability	*Enrollment:* 24 students *Major assignments:* 5 critical thinking essays/discussions; 1 community engagement event; 1 group poster

> social structure of the classroom, including the furniture, the use of the board and other traditional educational geometries of inequality. (Godfrey et al., 2018, p. 58)

The goal was to "invite our class to become 'sustainable souls' individually/collectively" (Godfrey et al., 2018, p. 58) by offering them information and tools to better navigate their lives in relation to their personal and social struggles. Given my seeming success using this approach (including coauthoring the aforementioned article with students from that class), I have sought to use ICP in my other classes, including my SL-based Society and Climate Change course. As a result, in fall 2019 we again focused on addressing student mental health along with other overlapping social and ecological crises, taking the University of Connecticut campus as our community partner. After many collective brainstorming classes that built on recent student activism on campus focused on climate change and racial justice, we initiated what became known as Buddy Bench Project for Difficult Dialogues, wherein students built two wooden benches that are now placed on campus across from each other (we had noticed that none of the

benches on campus faced each other). The benches have signs on them stating their purpose: to bring people together for "difficult dialogues" on topics such as racism and climate change. This SL project involving the campus community via writing-intensive research papers and that resulted in a new addition to our campus in the form of two beautiful student-made benches, could be deemed a SL success. Yet, how does one go about translating such dynamically in-person pedagogical approaches to a newly designed online SL class that accounts for all the CDC requirements, my specific campus's pandemic protocols, and my own health needs as well as those of my students?

COVID-19

Given the combination of my ICP pedagogy and concern for student mental health, which has only worsened under COVID-19 (Anderson, 2020; Czeisler et al., 2020; St. Amour, 2020), I decided not to seek SL opportunities that would require students to spend even more time on the computer. Rather, I sought to continue my commitment to ICP while having them actually "do something" by applying it loosely to SL, wherein the community partner this time was the students *themselves*, under the mantra of "physician, heal thyself." The class was conducted online through a combination of asynchronous prerecorded lectures and synchronous student group meetings (monitored by me and three upper level student mentors who had taken the course previously). I sought to invite students to use their group meetings to look at themselves and to question *who* they are as socially constructed intersecting identities, in order to gain a deeper understanding of themselves in relation to others and their own intersecting identities, as well as in relation to physical spaces and places. In relation to the course's focus on SL, in the syllabus I wrote,

> We are going to frame your SL as an act of "self-healing" / "grounding" / "creative recovery" . . . or however else you would like to think about what in you needs to be "healed" / "made whole" so that you may be of *service* to your family / community and to play a role in creating a more just, peaceful and verdant world.

I provided a list of embodied activities (dance, meditation, cooking, hiking, painting, playing, etc.), all of which if performed intentionally can support mental health (Payne, 2020). Further, students were advised to

> choose something that makes you happy . . . that is non-competitive and that you can do without judgment but also that invites you to move outside of your comfort zone and that your "spirit" feels drawn to even if your mind / thoughts resist.

As for helping see connections to climate change, I stated,

> Once we frame climate change as a *social* problem, as we will be doing in this course, we can begin to recognize that a society that would *knowingly* destroy its life support system, thereby engaging in self-destruction, is obviously *not* healthy either in mind or body.

Students kept a log of their hours (2 hr/week for 6 alternating weeks), listing what they did for embodied activities, what it meant, and what it led to. Finally, they had to journal about their experiences from an intersectional (Crenshaw, 1989) perspective (the theoretical lens of the course), reflecting on how during the activities they chose, their feelings and experiences were connected to their race/class/gender identities, as well as how all those identities connected to their spaces and places, thereby engaging ICP.

An example of how this all came together can be illustrated through one of the few activities still accessible to the students: going outside to walk, bike, hike, and so on. Many students, and in particular those with class privilege and who were White, chose these options. For one class, students were asked in their online groups to draw mind maps using Google Draw and to critically analyze their SL activities from the perspectives of their intersecting identities. They were also invited to explore readings by and about people of color critically analyzing their experiences "outside," such as the now notorious racist incident inflicted upon Christian Cooper, a Black birder in New York's Central Park, in which a White woman called the police and theatrically

claimed that Mr. Cooper was threatening her, to help all students see their SL activities in a larger social context. Other examples included viewing cooking and knitting specifically in relation to gender, and horseback riding specifically in relation to social class, as well as the other intersecting identities. Although the link between engaging in an intersectional analysis and promoting self-healing would be difficult to prove, student reflections shared informally with me and/or with their mentors indicate that the overall outcome has been a positive one. Students expressed being "better able to understand myself," that "taking care of myself is a responsibility," that it "helped me get through difficult times," that "I was able to become more in touch with myself and the Earth," and that "being still for ourselves is all we got when we begin to become adults." Of course, these are just selected vignettes, but I think that, in context, they stand out as significant.

Post-COVID Reflections

In the future, hopefully we will be able to go back to more campus/community-focused SL projects, but it is nevertheless essential that SL students are increasingly invited to unpack their intersecting identities, and in particular, where applicable, their Whiteness (Becker & Paul, 2015; Green, 2003), while, as shown here, additionally "turning SL inward." In fact, I plan to keep this aspect of my SL courses, combining it with the external community partners for more balanced and holistic SL experiences. For, as predictions for ever more extreme social and ecological crises become the new reality, all our students, including our SL ones, will need more and more support as provided through ICP, as well as self-healing tools to better navigate their complex and unpredictable ways through an ever-changing world.

Case Study 2: Southern Connecticut State University, Practicing Fundamental Service-Learning Principles in Teaching: An Experiential Approach During COVID-19

HON 300: Introduction to Service Learning is a SL course required in the Honors program at Southern Connecticut State University (SCSU). Taught by interdisciplinary faculty, HON 300 sections are capped at 20 students, mostly sophomores. The HON 300 section described here is titled Service Learning for Sustainability Solutions and meets once a week for 2.5 hours to enable service fieldwork during class.

Pre-COVID-19

Prior to the pandemic, students typically spent three to five class sessions and one 5-hour Saturday service day helping community partner organizations build rain gardens that divert water from city sewers and revitalize public green spaces in New Haven neighborhoods within walking distance of campus. The remaining class sessions focused on engaging and exploring course content in a more traditional indoor classroom setting: climate change and environmental solutions, principles of service leadership and followership, and experiential learning as a didactic model. Students maintained a reflective journal throughout the semester to explore their own learning through course materials and through activities and interactions with community partners and with each other. One challenge of teaching this course prior to the pandemic was effectively engaging students of diverse backgrounds, academic majors, and varying motivation to actively contribute to climate change solutions and invest themselves in SL activities.

COVID-19

With a sudden move in March to online operations followed by a strictly enforced 6-month campus closure because of the pandemic, it was abundantly clear that fall 2020 course planning for HON 300 would need to accommodate continued unpredictability. Extensive course revision was required, which in turn meant a significant time commitment in unstable circumstances. For context, Connecticut was in the midst of a significant COVID-19 outbreak throughout spring and early summer 2020. Infection levels gradually dropped as summer progressed. From my spring viewpoint, I did not know what fall would bring, and the safest way to mitigate unpredictability was to plan online courses. I was concerned this would compromise SL goals, reduce interactions with community partners, and increase risk of social isolation for students and faculty. In late spring, SCSU announced a hybrid fall 2020 semester with options for courses to run one of four ways: on-ground, synchronously online, asynchronously online, or through a hybrid mode. Each option had boundaries

so students knew what to expect: an online asynchronous course needed to be *fully* asynchronous. Hybrid courses were required to be offered simultaneously in-person and online for all sessions. Online synchronous courses would run with virtual classrooms in real time, and on-ground courses would meet in person with no online classroom. Teaching HON 300 as an on-ground or hybrid course was not a workable option for me, since I made a choice for safety reasons to teach in person only if I could do so outdoors for all sessions. Our class was scheduled for early evening, and with the possibility of darkness, rain, or snow during class meetings, those options wouldn't work.

The fundamental nature of the course presented a second set of challenges: For safety reasons, SCSU prohibited off-campus fieldwork during fall with community partners. A foundation of HON 300 SL is an experiential approach to teamwork, group dynamics, and camaraderie through participating together throughout the semester in environmental projects in the local community. It was important to preserve in-person teaching and learning if possible. I elected to offer the course online synchronously, and I *hoped* to invite students to SCSU's Campus Community Garden, maintaining social distancing and wearing masks, as an option for completing service work. However, any student electing to complete the service requirement online would be able to do so. Prior to the pandemic, the SCSU Campus Community Garden donated its annual harvest, approximately 800 pounds of fresh produce, to soup kitchens in New Haven. This seemed to be the best available solution for maintaining close community ties and offering meaningful service to the local community in a time of crisis while still adhering to university COVID-related restrictions.

To address the challenge of time management for adaptive capacity, I invited a coinstructor, Elisabeth Ott, to teach with me. Coteaching lowered my pay for the course, but this decision was critical to adapt academic course content to focus on the campus garden rather than rain gardens, and it was extremely helpful for effectively managing student activities online and in person simultaneously. It also was much more fun, which is highly important in a crisis. When SCSU campus facilities partially reopened in August for the fall semester, faculty, staff, and students were allowed on campus for the first time since March. The garden, abandoned for the whole season, was overgrown with weeds and invasive plants and needed extensive work to clean up, grow any late-season harvest, and prepare for the 2021 season. The pandemic brought a notable benefit: As part of SCSU's COVID-19 response, outdoor campus Wi-Fi range, speed, and reliability had been upgraded to encourage and accommodate socially distanced learning and teaching. Because of this upgrade, we could teach at the campus garden synchronously, both in person and virtually.

Post-COVID Reflections

It was only with hindsight and discussion with the CES faculty cohort that I realized planning and teaching HON 300 during the pandemic helped Elisabeth and me better incorporate the SL fundamentals of shared governance and experiential education into course activities and assignments, fostering our learning community's resilience in notable ways. HON 300 students have always examined *principles* of SL as part of the curriculum, but this semester necessitated a greater shift from studying principles to developing *practices* for all. Much of the result was born of necessity in real time—I cannot claim truthfully that we strategically planned it all in advance. During the first class session, which was online, multiple students reported feeling lonely and experiencing elevated anxiety and stress related to isolation caused by the ongoing pandemic. We observed together that most students were joining the class online while sitting in their dorm rooms alone, even though most people were in the same building. Elisabeth and I sat alone in our respective homes. We asked students to specify their preference for attending class sessions at the campus garden, weather permitting, until Halloween, or for attending class online. I was not sure this was allowed, but no one had told me I could not. All students except one elected to attend class at the garden. We talked about it as a group and decided that the student attending online could contribute meaningfully to our class experience by creating and managing a class blog chronicling our garden service experiences. She participated in class discussions and activities by having her classmates carry her, via iPad, to see, hear, and experience everyone's activities at the garden site. This arrangement worked well for small group

discussions and activities, for student blog interviews, and for learning specific gardening tasks like invasive plant identification and preparing root-bound potted plants for raised beds in the garden. We all planned together that if students needed to quarantine during the semester, which happened to several of them, this method of online participation could be expanded.

Elisabeth and I adopted an additional shared governance strategy that improved our time management by directly involving students in planning two assignments. For Assignment 1, students each designed and facilitated a 10- to 20-minute class activity and follow-up discussion to share with their peers, demonstrating and practicing one of seven service leadership and followership principles included in course readings. Students' activities were imaginative, fun, and increased their investment in our learning community and willingness to share with each other as a way to learn. Many of the activities they planned were game-based, and all maintained social distancing. For Assignment 2, we asked students to "crowdsource" a 3-week unit of readings. The first week's assignment was a common read of "Landscape and Wellbeing" (Abraham et al., 2010) to introduce the topic of green space access as a potential health determinant for individuals and communities, to ensure students understood the concept of peer review, and to instruct them on how to independently search academic journals in campus databases. For Week 2, every student searched for and selected a journal article on this topic and prepared a single summary slide with a link to the article to share with the class in a short oral presentation. For Week 3, each student selected and read articles from two of their peers' slides, then wrote a two- to three-page reader response exploring what they learned from synthesizing the three articles. The range of reading choices and autonomy to synthesize and share what they learned seemed to result in a higher level of engagement with topics than occurred during semesters in which I chose the readings.

Teaching during the pandemic provided a stark reminder that student affect and disposition for learning can play a significant role in achieving learning goals. The pandemic has heightened overall need for stress relief, calming, and fostering positive emotions, which spending time outdoors and with peers, in person, can provide (Abraham et al., 2010), as similarly discussed in the UConn case study. Spending time outdoors also enhanced safety and reduced risk of COVID-19 transmission because of natural air movement and sunlight. The assignments described above, coupled with service work at the garden, meant that as a learning community and as individuals, we were maximizing the time we spent outdoors and learning about the importance of spending time outdoors *while we were outside.* It is possible that this additional time outdoors improved students' learning and would be an interesting avenue of future study. Increased outdoor instruction and activities for my students seemed to heighten their value of the garden as a shared community learning space (Abraham et al., 2010) and reinforced bonds and active communication with each other. Because of the course revisions described in this case study, the garden served as a safe and inviting location for group camaraderie, relaxation, informal conversation, physical separation from daily stress, close observation of intricate natural detail or wide landscape views, and multisensory experience. These changes improved the course in important ways, and I will maintain them postpandemic. Students responded positively to increased freedom to choose and shape activities and readings according to their personal interests, and to assignments and activities designed for fostering a sense of investment and belonging in the learning community. These shared governance practices are central to improving a didactic model for service-learning, and teaching during the pandemic helped me better understand how to "walk the talk."

Case Study 3: University of Maine at Farmington, Campus as a Service-Learning Partner for Environment and Sustainability Coursework

EPP/GEO 207: Environmental Field Methods introduces the fundamentals of fieldwork-based research methods and scientific report writing. The class focuses on concepts, techniques, and equipment pertinent to physical and environmental geography and related fields. Students develop a toolkit of basic skills for fieldwork, data analysis and interpretation, data visualization, and presentation of results through oral, poster, and digital media. Along with a class project, students work on a group research project that results in a final report and presentation based on fieldwork they have planned

and data they have collected and analyzed.

This course is offered in the fall semester to take best advantage of weather for field-based lab activities and student-led research. In the first half of the semester, outdoor lab activities teach a variety of tools and techniques for field-based work, with additional labs providing background in map reading, analysis, and orienteering; data types and scales of analysis; and how to plan and implement a field study. Lectures and activities introduce the content and background necessary to understand and conduct the lab assignments. As a class, we design and conduct a pilot research project using the campus environment, which provides additional practice with data collection and field techniques, and introduces data analysis, visualization, and reporting. In the second half of the semester, students identify and plan off-campus research projects that they conduct in groups of three or four.

A series of assignments provides structure to the group research projects, supporting students as they conduct a literature review, make maps of their field site, collect and analyze data, and accomplish the challenging tasks of reporting their results. Lab assignments in the latter portion of the semester stress scientific reporting in the form of poster, oral, and PowerPoint presentations, and a series of iterative writing assignments involve peer editing and revisions of the sections of the research report as the various groups conclude their projects. Environmental Field Methods is an unusually comprehensive class in that it scales beyond individual assignments and the lab-based activities in a typical science class. The course concludes with genuine and meaningful environmental research projects that pose considerable challenges: working in groups across multiple time horizons and deadlines while simultaneously collecting and making sense of data and contextualizing those results in light of previous research. In this way, this class targets multiple levels of Bloom's taxonomy (Bloom et al., 1956) in nearly every assignment and across the entire semester.

In a typical semester, the class would partner with a local land trust or watershed organization to conduct field-based SL research that benefits local conservation or resource management, or helps answer questions or provide data for ongoing monitoring of environmental change. In 2018, the class conducted a rapid geomorphic analysis and a biological and physical assessment of the input stream to Wilson Lake in the nearby town of Wilton, Maine on behalf of the local watershed organization Friends of Wilson Lake (FOWL). This partnership yielded valuable data for the watershed organization, which they have used to apply for grant support, while simultaneously providing a real-world project for the class. The partnership represented a robust integration of community-engaged service-learning in which the service and the learning were productive and met objectives for both the college students and the community partner.

COVID-19 Challenges: Conversion to Campus-based Research Projects

After courses were abruptly shifted to online delivery in March 2020, UMaine Farmington's fall 2020 semester was offered with a blend of fully in-person, hybrid in-person/online, and fully online (synchronous and asynchronous) web-delivered classes. Because of limitations on university travel, including restrictions on how many students could ride in a 15-passenger van (two), and concerns about potential exposure of our students and community partners to the SARS-CoV-2 virus, course activities in fall 2020 were limited to the UMF campus. By necessity, we had to eliminate the community-engaged SL research projects, which meant that the community partner with whom we were previously scheduled to work had reduced access to data collected through our SL partnership.

The Environmental Field Methods course proved ideal for a conversion to almost entirely outdoor delivery: Many of the lab assignments and activities are conducted outdoors even in a normal semester, and Maine's 2020 summer and fall drought provided unusually good weather for field-based instruction. To accommodate outdoor learning, I converted what would typically have been short in-class lectures to remotely delivered online discussions, and I took more time for hands-on practice with the field equipment and data collection techniques. Students were masked and physically distanced in this outdoor environment, which further improved general safety during the COVID-19 pandemic. The positive result of these instructional adjustments was that I had to move more slowly through content and concepts, and students reported greater comfort and familiar-

ity with the field tools and data collection techniques.

As a class, we embarked on two side-by-side environmental research projects that represent SL work with the UMF campus as our community partner. One project investigated the microclimate conditions in the brand-new UMF campus community garden, which had been designed and built by students in summer 2020. This project involved transects of microclimate variables (air and soil temperature, relative humidity, wind speed and direction) in relation to features of the garden and the campus built environment that could create heat island effects or otherwise alter growing conditions for plants. This project was supplemented by a 5-week campaign of remote data collection in which students installed iButton data loggers in various features of the garden to capture time series data on the important microclimate features. Because the UMF community garden is a new feature of the campus environment, understanding how built-environment features and microclimate variability might affect plant growth is useful for the upcoming growing seasons and supports the important work of improving this vital space. Environmental Field Methods was one of several classes that used the campus garden as an outdoor meeting space and an object of study, but this was the only course in fall 2020 that applied scientific research methods to the garden. In future semesters, my courses will expand on this relationship, providing data and results in support of the campus community garden project.

The second campus-based SL research project was a study of the carbon sequestered in the UMF campus forest. Students conducted plot- and transect-based measurements of trees, shrubs, forbs, grasses, and ground cover. In these plots and transects, students measured tree diameters, tree heights and crown heights, and the proportion of canopy cover versus open sky, while also tallying seedlings and saplings. This allowed the students to characterize the current forest in terms of structure and species composition, and also make projections about future species compositions based on regeneration patterns. Students then designed a study in which tree diameters were sampled using belt transects. Diameter measurements were fed into allometric equations that convert diameter into standing biomass, and from there, the amount of carbon contained in each tree. Students then estimated the total aboveground carbon sequestered in the UMF campus forest, as well as finer estimations of carbon sequestered by species, by tree type, and across biomass components such as foliage and coarse roots. This project is ongoing and will be expanded to include the remainder of the UMF campus, which contains small groves, isolated landscaping trees, and patches of wild forest along a stream, as well as a 4.3 acre (1.7 ha) hemlock forest surrounding a quaking bog. The carbon-sequestering peat in the quaking bog was mapped using ground penetrating radar in spring 2021, in concert with tree-based measurement of aboveground carbon sequestered in the hemlock forest. This class project and its follow-on extension support UMF's environmental and sustainability initiatives, and provide a basis for understanding UMF's capacity to capture and store carbon.

Post-COVID Reflections

The SL partnership with the campus community garden had direct benefits to a newly established and rapidly growing part of the campus environment and UMF's educational and community-serving programming. The course-based learning was robust and equally successful compared to pre-COVID SL projects. The benefits to the garden program were also good, although its multifunctional programming and the horizontal "ownership" of the garden program make it less certain who should own the data and take recommendations based on our research project. The campus-based carbon sequestration has similar limitations: The course-based learning was likely better than that conducted in pre-COVID conditions with community partners, but the service to the community is much less clear. The campus-partner SL project does set the stage for ongoing course-based surveys of campus carbon sequestration, which may yield benefits to the university through carbon credits in the future. It is clear, however, that by turning inward during a global pandemic, the university campus community and some of its environmental programming likely benefited from activities that would typically be performed in partnership with local organizations.

Both of these campus-based SL projects provided meaningful, real-world applications of environmental research methods, analysis, and reporting while simultane-

ously supporting campus sustainability efforts and initiatives. The UMF campus environment proved to be a robust outdoor classroom in which course-based objectives could be safely and efficiently conducted while collecting useful data on important elements of the campus environment. These data provide a baseline by which future change can be assessed, as well as the first year of data that can be added to by future iterations of this project-based SL class. In both cases, the campus environment projects will be extended and built upon, with the SL "partner" being the campus itself. The UMF campus community garden will help guide data collection based on their identified needs, and the campus forest project will build onto a larger initiative, the Abbott Park Project, as well as my larger research agenda.

Case Study 4: University of Southern Maine, Service-Learning in Hospitality Education: The COVID-19 Impact

TAH 222: Food and Beverage Management introduces basic management principles and practices for the food and beverage service industries, such as preparation, safe food handling, budgeting and operations, menu development, human resources, marketing, catering, and event planning. Instructors and guest speakers from the industry offer expertise and guidance on day-to-day management, strategic planning, and other areas of restaurant and food service management. Students become acquainted with the social, economic, and environmental context within which the foodservice sector of the hospitality industry operates. The course offers an understanding of the history, structure, nature, and operating characteristics of the foodservice sector while promoting an appreciation of the various functions of management and the interrelationships of these functions with other key concerns of managers, such as marketing, finance, and human resource management in the context of foodservice operations. The course brings attention to identifying the role of managers in all major types of foodservice operations and highlights their principal responsibilities. In addition, the course gives students the opportunity to work collaboratively in groups to achieve various specified goals. SL is vital in hospitality education and helps build on important skills such as leadership and teamwork, which are essential to success in the hospitality industry (Lin et al., 2017). The course satisfies the University of Southern Maine's Core Engaged Learning requirement by giving students an opportunity to apply their knowledge, skills, and abilities beyond the traditional classroom through sustained application, reflection, and collaboration on issues of relevance beyond the university.

An example of an assignment included in the course that allows students to demonstrate their mastery of the key learning goals is the development of a standardized recipe. Students are instructed to develop such a recipe from ingredients obtained at a local farmers market. The assignment brings focus to the importance and benefits of using local food items. A culminating activity involves student engagement with local vendors and farms to obtain donated food goods. Students are directed to incorporate the donated items as part of a special dinner to be planned and carried out by the class. The dinner is also a collaborative effort as USM students work with culinary students at Southern Maine Community College. The SMCC culinary students prepare the food for the dinner; the USM students are expected to carry out the preliminary logistics, serve the food, and create a food waste prevention plan. As part of their food waste prevention project, students are expected to coordinate and carry out donations of any leftover food to the local community.

COVID-19 Challenges for Food and Beverage Management Courses

Hospitality education demands a hands-on practical approach. The COVID-19 pandemic halted this teaching method. Due to the regulations and safety concerns created by the pandemic, major adjustments had to be made concerning the culminating assignment of the class. In an ideal situation, students would develop a marketing campaign to sell tickets for a dinner that they planned and developed. The main goal of this activity was to allow students to practice management skills, including financial aspects of running a kitchen. Unfortunately, the usual routine of this assignment was altered. Students continued to work in groups but planned the dinner in a mock online restaurant setting, instead of actually cooking and serving the dinner. Students still developed their leadership and team-building skills by their engagement in the mock sessions. It was important and helpful to allow students to maintain a sense of community and continue their participation.

A major learning objective included in the course is to highlight the environmental and sustainable benefits of using locally sourced food. Students contacted local vendors and farmers online instead of meeting them in person when choosing their food items to be used in a standardized recipe of their choice. Because the dinner was cancelled, an alternative to allow the students to observe and engage in implementing a typical restaurant dinner service was needed. An online restaurant simulator was used to mimic the experience. To ensure that all the students were comfortable in the use of the software, they were coached through Zoom sessions and teamed in breakout rooms. It was also necessary to be available for any student concerns and questions to help foster a supportive atmosphere as the changes took place. The introduction of the farm-to-table mindset gave students a better understanding and appreciation of the local economic impact of locally sourced food. In addition, students gained an understanding of how shipping in out-of-state foods can bring about negative environmental impacts. Eliminating the face-to-face engagement due to the pandemic did hinder the teaching effectiveness of the course; however, new learning outcomes emerged that showed the students the importance of practicing resiliency, patience, and adaptability in a real-world setting.

Because several activities of the course could not take place, students were given the option to complete a food safety certification. This useful certification was incorporated as a class assignment on a voluntary basis. Students were encouraged to complete the food safety course ServeSafe, which provides valuable instruction concerning food safety and the prevention of foodborne illnesses. Students were given class time to complete the ServeSafe training, with a lenient timeframe to alleviate any additional stress. ServeSafe certification is a valuable asset when seeking employment in the foodservice industry.

The original plan concerning the dinner would have donated leftover food to a local homeless shelter. The students decided to donate what they could on their own, with several students donating nonperishable food items. Their participation in finding and providing food to hunger organizations proved to be a worthwhile community involvement during a troubling time. Even though the students did not actively participate in the actual dinner setting, the course led to several positive experiences. The simulation activities did provide a benefit in the reinforcement of learning objectives and could be an asset in a post-pandemic course.

Case Study 5: Central Connecticut State University, Challenges to Adapting Service-Learning Course Components to COVID-19 Crisis Limitations

SUST 140: Introduction to Sustainability introduces students to the concepts and tenets of sustainability. During a typical semester, students learn about actions and activities they can initiate and engage in that promote the broader concepts of sustainability (Purvis et al., 2019). During a standard semester, students are expected to seek out nongovernmental organizations or governmental agencies located in one of the communities bordering the CCSU campus that are seeking to improve social, economic, and/or environmental justice. As the semester unfolds, students learn about systems operating individually and collectively within each of the three pillars of sustainability (i.e., environmental, social, and economic). More important, students learn that when humans change the dynamics of a system within one of the pillars of sustainability, they paradoxically change all the other operating systems within all three. The objectives of the course are for students to develop (1) a thorough understanding of the concept of sustainability, (2) an empirical grasp of systems thinking, and (3) a critical understanding of how individuals and modern civilization can shift to a sustainable existence. To achieve these objectives, students are taught about actions, methods, policies, and procedures that can move humanity toward a more sustainable coexistence with other living creatures and the life-sustaining forces of the Earth. This course employs an applied approach to teaching about geography, environmental science/management, and sustainability science that is useful for most academic disciplines. Students develop a set of skills for researching, analyzing, interpreting, presenting, and applying improvements to social and economic systems. Students work on individual and group projects throughout the semester and present the concepts of their work through verbal, visual, digital, and poster modalities.

Typically, the first half of the semester is focused on defining the three pillars of sustainability, discussing some sustain-

ability challenges facing society (e.g., overconsumption of natural resources, climate change, and overpopulation), and introducing tools (e.g., poster design, PowerPoint) that students will use to complete their individual and group projects. In addition to absorbing information from lectures, videos, and the online textbook, students are expected to elaborate on certain sustainability concepts by writing critical thinking essays that require each student to research an aspect of sustainability, define the challenges it represents, and discuss possible solutions and changes needed to improve a "system" that has been degraded and/or depleted. Each student is required to engage in a "community engagement" event or activity, because community engagement is an effective tool in teaching students about environmental justice, economic justice, and social justice (Clark & Button, 2011). Community engagement is integral for students as they work on their two group projects. Each student group consists of three or four students that work together for the entire semester. The first group project was to require each student group to develop and host an hour-long Earth Week event on the Central Connecticut State University (CCSU) campus. To do this, each group was to collaborate with a CCSU student group, off-campus community nongovernmental organization (NGO), and/or local and/or state governmental agency. The second group project was to require them to create and present a poster about an environmental sustainability challenge at the Annual Global Environmental Sustainability Symposium on the CCSU campus.

COVID-19 Challenges for Conversion to Campus-based Research Projects

In March 2020, COVID-19 had reached the CCSU campus, and all courses immediately switched to online modalities. By the end of March, the university had instituted a prohibition on all faculty and student travel and on-campus group gatherings and events. Students were required to vacate all the residence halls, and faculty were not permitted to return to campus until further notice. For the Introduction to Sustainability course, as with all courses at CCSU, this meant all course materials, activities, lectures, in-classroom activities, and other components now had to be converted to online formats. Choices were limited to facilitating the course online and live during the normal scheduled class time (i.e., synchronous) or online but not live (asynchronous). The best option for this course was to conduct the remainder of the semester asynchronously. This afforded students the greatest flexibility to deal with all the challenges they faced in order to complete the semester successfully. This decision was driven by an understanding that many students do not own a computer or other device that would enable them to access course content easily and instantaneously. As a result, significant changes were implemented to the Introduction to Sustainability course assignments and community engagement components.

All community SL activities had to be eliminated or altered. For the "community engagement" assignments, this meant altering the expectations from in-person events and activities to online opportunities. Now, students would be required to attend an online webinar, conference, workshop, TED Talk, or similar activity. The two group projects were also impacted. The most significant impact to this course was the elimination of the group project that entailed the students collaborating with NGOs, governmental agencies, or community groups to host an Earth Week event on the CCSU campus. With the loss of this component of the class, students were not afforded the benefit of learning how to organize a community event centered around the tenet of public action to educate students, citizens, and politicians about an environmental challenge and working together to institute corporate and political change to ameliorate an environmental and/or social injustice.

The assignment to create a poster regarding an environmental injustice facing society was retained, but as mentioned earlier, students had no opportunity to deliver their research at a peer-reviewed, professional conference (the Global Environmental Sustainability Symposium). This represents yet another significant loss of course content and lessons to be experienced by the students. The remaining critical thinking essays were retained, and WebEx software was used to conduct online, live discussions with all students in the synchronous mode. This was the one component of the class that was impacted the least. Students were still able to engage in live class discussions, and true transdisciplinary learning was realized by all students and the professor (Clark & Button, 2011).

Because of all the instructional adjustments made to the course, lectures unfolded at a significantly slower pace, resulting in the loss of a substantial amount of academic material. This was a necessary sacrifice to reduce student stress because of mental health, computer and technology, economic, and other challenges while still covering a significant amount of the intended course content, concepts, and outcomes. It is worth clarifying that although the course was completed and students received grades, much content and learning was lost for the students. Teaching this particular course online is far from ideal, and there is no intention of teaching it fully online again unless an emergency situation requires it. However, as a result of the lessons learned, there is potential to teach the course as a hybrid course that provides some material and activities online in combination with a reduced number of in-classroom meetings.

Conclusions

Much can be learned from seeing the range of approaches adopted within environmentally focused service-learning courses. In the examples above, which represent very different courses at very different academic institutions, we can see how an abrupt change such as COVID-19 required innovation, problem solving, and new forms of SL. Despite the differences, three themes emerged across all the cases. One theme explored through our case studies is that abrupt change exposes factors that impact students in different ways and are crucial to consider. These factors, such as race, class, and gender, have been researched as playing significant roles in relation to SL. Although student identities are not central to all our case studies, we recognize the need for future analyses in relation to the changes we identify under COVID-19 and that we anticipate will continue even as the pandemic recedes in severity. A second theme has been that of increasing awareness and incidence of student mental health struggles, related to illness (their own or that of family members), financial challenges, or other changes to living and learning conditions. A third theme undergirding this work is that reflection, a core practice of SL, can on the part of faculty lead to continuous curricular improvement and innovation.

These three themes will undoubtedly continue to be important because COVID-19 has demonstrated in stark terms that accelerated, volatile, and unpredictable change can and will occur on a continuing basis. At the time of this writing, our society remains in the midst of the COVID-19 pandemic, and we still struggle in almost all facets of education to offer curriculum in meaningful ways. It is critical for educators to foster interdisciplinary pathways for us to adapt together, to contribute to shared platforms with best practices and lessons learned, and to reflect on ways that we can build resilience in education, from preschool levels all the way through higher education. Reflection and resilience are equally crucial within our students and within us as faculty. How then do we do so, *especially in such difficult times*, given that conditions may improve in the future but will never fully return to "normal"?

As indicated by these case studies, the importance of resilience cannot be overestimated. Resilience of any type includes capacities to avoid harmful impact, reduce harm when it is unavoidable, and recover readily afterward. The case studies presented in this article illustrate the need for coherent and institutional-level strategies to address unexpected, unpredictable, complex change. Our diverse approaches to teaching in the pandemic illustrate ways we tried to maintain overall goals in the face of extreme change and reflect shared belief that the significance of SL as a didactic model is that it can promote resilience for a learning community as a whole, which is especially valuable in times such as the current pandemic. However, as creative as our individual crisis-based adaptations may have been, what stands out is the need for more collaborative and institutional-level preparedness. The case studies that retreated from community-based SL into campus-based partnerships were effective and pedagogically sound, but likely left community needs unmet as an unintended consequence. Similarly, shifting from in-person and off-campus SL with community partners to remote learning does not eliminate the possibility of SL work, but it requires considerable forethought and planning and proved nearly impossible to achieve under emergency conditions. It is clear that teaching postpandemic will be altered and that need for innovation in how we deliver educational content will not revert to prepandemic conditions. The need for capacity to teach in unpredictable circumstances will not go away as the pandemic recedes. The capacity for managing

and buffering unpredictability is, itself, a key way that educators and their supporting institutions can offer value to students, and addressing complex real-world problems is a cornerstone of the CES model.

The preceding case studies illustrate individualized strategies, opportunities, and innovations to increase resilient capacity. Future research to examine what works and what does not, as well as analyses of student identities, health, and learning goals, will improve and adapt SL models and help to create a new and emerging version of "best practices." Innovating during a crisis is difficult and yields imperfect results, but this process presents an important opportunity and critical need to do so, since some past practices may no longer be available and developing innovative approaches will build the future. Incorporated in whole or part, the innovations described in the preceding case studies aim to contribute to innovating and problem solving, while still meeting the changing and diverse needs of students and communities, as well as the world.

Statement of Research Ethics

Institutional Review Board (IRB) human subjects approval was not required for this article, as no systematic investigation of information obtained by observing or interacting with people, or by collecting and examining any form of identifiable private information about people, was conducted.

Acknowledgments or Notes

We would like to thank Maine Campus Compact's Campuses for Environmental Sustainability program for faculty fellowship support. We would also like to thank the Davis Educational Foundation for their financial support of the CES Program. Sally Slovenski provided guidance and support through the CES faculty fellowship and on this manuscript process. Thank you to two anonymous reviewers whose thoughtful suggestions improved the manuscript.

About the Authors

Charles E. Button *is a professor and department chair at the Central Connecticut State University Department of Geography.*

Sara E. Ghezzi *is an assistant professor of practice in the Haub School of Environment and Natural Resources and the College of Business at the University of Wyoming.*

Phoebe Godfrey *is an associate professor-in-residence in sociology at UCONN.*

Suzanne E. Huminski *is a sustainability coordinator and an adjunct faculty at Southern Connecticut State University.*

Jesse Minor *is an assistant professor of geography & environmental planning at the University of Maine at Farmington.*

Linda Silka *is Professor Emerita and Senior Fellow at the George Mitchell Center for Sustainability Solutions at the University of Maine*

References

Abraham, A., Sommerhalder, K., & Abel, T. (2010). Landscape and well-being: A scoping study on the health-promoting impact of outdoor environments. *International Journal of Public Health, 55*, 59–69. https://doi.org/10.1007/s00038-009-0069-z

Anderson, G. (2020, September 11). Mental health needs rise with pandemic. *Inside Higher Ed.* https://www.insidehighered.com/news/2020/09/11/students-great-need-mental-health-support-during-pandemic

Becker, S., & Paul, C. (2015). "It didn't seem like race mattered": Exploring the implications of service-learning pedagogy for reproducing or challenging color-blind racism. *Teaching Sociology, 43*(3), 184–200. https://doi.org/10.1177/0092055X15587987

Bednarz, S. W., Chalkley, B., Fletcher, S., Hay, I., Le Heron, E., Mohan, A., & Trafford, J. (2008). Community engagement for student learning in geography. *Journal of Geography in Higher Education, 32*(1), 87–100. https://doi.org/10.1080/03098260701731553

Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives: The classification of educational goals.* David McKay Company.

Buckingham-Hatfield, S. (1995). Student–community partnerships: Advocating community enterprise projects in geography. *Journal of Geography in Higher Education, 19*(2), 143–150. https://doi.org/10.1080/03098269508709298

Campus Compact. (2019). *Service-learning.* https://compact.org/initiatives/service-learning/

Celio, C. I., Durlak, J., & Dymnicki, A. (2011). A meta-analysis of the impact of service-learning on students. *Journal of Experiential Education, 34*(2), 164–181. https://doi.org/10.1177/105382591103400205

Clark, B., & Button, C. E. (2011). Sustainability transdisciplinary education model: Interface of arts, science, and community (STEM). *International Journal of Sustainability in Higher Education, 12*(1), 41–54. https://doi.org/10.1108/14676371111098294

Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *University of Chicago Legal Forum, 1989,* Article 8. https://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8

Czeisler, M. É., Lane, R. I., Petrosky, E., Wiley, J. F., Christensen, A., Njai, R., Weaver, M. D., Robbins, R., Facer-Childs, E. R., Barger, L. K., Czeisler, C. A., Howard, M. E., & Rajaratnam, S. M. W. (2020). Mental health, substance use, and suicidal ideation during the COVID-19 pandemic—United States, June 24–30, 2020. *Morbidity and Mortality Weekly Report, 2020*(69), 1049–1057. https://doi.org/10.15585/mmwr.mm6932a1

Green, A. (2003). Difficult stories: Service-learning, race, class, and Whiteness. *College Composition and Communication, 55*(2), 276–301. https://doi.org/10.2307/3594218

Godfrey, P., Larkin-Wells, J., & Frechette, J. (2018). Addressing students' mental health in a "sustainable societies" class: A collective case study in intersectional compassionate pedagogy (ICP). *Journal of Perspectives in Applied Academic Practice, 6*(3). https://doi.org/10.14297/jpaap.v6i3.379

Hart, D., & Silka, L. (2020). Rebuilding the ivory tower: A bottom-up experiment in aligning research with societal needs. *Issues in Science and Technology, 36*(3), 64–70. https://issues.org/aligning-research-with-societal-needs/

Lin, P. M. C., Kim, Y., Qiu, H., & Ren, L. (2017). Experiential learning in hospitality education through a service-learning project. *Journal of Tourism and Hospitality Education, 29*(2), 71–81. https://doi.org/10.1080/10963758.2017.1297716

Maine Campus Compact. (n.d.). *Mission & vision.* http://mainecompact.org/who-we-are/missionvision/

Maine Campus Compact. (2021). *Campuses for environmental stewardship.* http://mainecompact.org/campuses-for-environmental-stewardship/

Minor, J., & McCourt, M. (2021). Role-based assignments support student engagement during geography field trips. *The Geography Teacher, 18*(1), 24–38. https://doi.org/10.1080/19338341.2020.1861054

Payne, H. (2020). Embodiment, learning and wellbeing. *Link, 4*(1). https://www.herts.ac.uk/link/volume-4,-issue-1/embodiment,-learning-and-wellbeing

Purvis, B., Mao, Y., & Robinson, D. (2019). Three pillars of sustainability: In search of conceptual origins. *Sustainability Science, 14*, 681–695. https://doi.org/10.1007/s11625-018-0627-5

Singletary, J. L. B. (2013). *The role of service-learning on college students' environmental literacy: Content knowledge, attitudes, and behaviors* [Ph.D. thesis, University of Southern Mississippi].

Sipos, Y., Battisti, B., & Grimm, K. (2008). Achieving transformative sustainability learning: Engaging head, hands, and heart. *International Journal of Sustainability in Higher Education, 9*(1), 68–86. https://doi.org/10.1108/14676370810842193

Smith, B. H., Gahagan, J., McQuillin, S., Haywood, B., Cole, C. P., Bolton, C., & Wampler, M. K. (2011). The development of a service-learning program for first-year students based on the hallmarks of high quality service-learning and rigorous program evaluation. *Innovative Higher Education, 36*(5), 317–329. https://doi.org/10.1007/s10755-011-9177-9

St. Amour, M. (2020, August 17). Pandemic increasing suicidal ideation. *Inside Higher Ed.* https://www.insidehighered.com/news/2020/08/17/suicidal-ideation-rise-college-aged-adults-due-covid-19-pandemic