

ABSTRACT

Training the next generation of public health practitioners to promote health equity requires public health graduate programs to cultivate students' skills in community partnership. The Council on Education for Public Health (CEPH) requires Master of Public Health (MPH) students to produce a high-quality written product as part of their culminating Integrative Learning Experience (ILE). Because CEPH recommends that ILE written products be useful to community partners, ILEs can draw lessons from the field of experiential education, especially the social justice aligned principles of critical service-learning (CSL). However, the current literature lacks descriptions of how to operationalize CSL's principles within graduate-level culminating experiences. To help fill this gap, we discuss a CSL ILE for MPH students, called Capstone. We describe CSL's key components as well as explain and assess how each is operationalized within Capstone. We hope Capstone's model will help other educators engage more deeply with CSL practices to advance health equity.

USING A CRITICAL SERVICE-LEARNING APPROACH TO PREPARE PUBLIC HEALTH PRACTITIONERS

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Introduction

To promote health equity, public health practitioners must enter the workforce prepared to collaborate with communities on addressing complex problems (*Core Competencies for Public Health Professionals: Revised and Adopted by the Council on Linkages Between Academia and Public Health Practice*, 2021; DeSalvo et al., 2017; Grimm et al., 2022; Schober et al., 2022). Public health training programs are therefore responsible for cultivating students' skills in community partnership (*Core Competencies for Public Health Professionals: Revised and Adopted by the Council on Linkages Between Academia and Public Health Practice*, 2021; Papadopoulos et al., 2013). The accrediting body for schools and programs of public health, the Council on Education for Public Health (CEPH), requires Master of Public Health (MPH) students to complete an Integrative Learning Experience (ILE).

The ILE represents a culminating experience and may take many forms, such as a practice-based project, essay-based comprehensive exam, capstone course, integrative seminar, etc. Regardless of form, the student produces a high-quality written product that is appropriate for the student's educational and professional objectives. Written products might include the following: program evaluation report, training manual, policy statement, take-home comprehensive essay exam, legislative testimony with accompanying supporting research, etc. [...] Ideally, the written product is developed and delivered in a manner that is useful to external stakeholders, such as non-profit or governmental organizations (Council on Education for Public Health, 2021).

To maximize ILE products' usefulness to external partners and students' experience working with communities, ILEs can benefit from lessons learned and best practices developed in the field of service-learning.

Jacoby (1996) defines service-learning as "a form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development" (p. 5). Literature on service-learning documents positive impacts on students' critical thinking, leadership, communication, problem-solving skills (Celio et al., 2011; Espino & Lee, 2011; Gupta et al., 2021; Huang & Lei, 2023; Jacoby, 1996; Mitchell, 2008; Schober et al., 2022) and academic success (Celio et al., 2011; Coombs et al., 2019; Huang & Lei, 2023). Another benefit of service-learning is its potential for mutually positive relationships between universities and communities (Coombs et al., 2019; Gupta et al., 2021; Jacoby, 1996). At the same time, service-learning has been criticized for maintaining the status quo of systems (Mitchell & Latta, 2020; Stoecker, 2016), reproducing dominant power relations (Donaldson & Daughtery, 2011; Foulis & García, 2022; Mitchell, 2007; Stith et al., 2021), oversimplifying solutions to social issues (Eby, 1998), and being skewed toward student professional development (Clifford, 2017; Mitchell, 2007, 2008) while failing to enhance students' skillsets for advancing social change (Marullo et al., 2009; Mitchell & Latta, 2020; Stith et al., 2021).

In response to these limitations, "critical" service-learning has an explicit focus on social justice (Mitchell, 2008). Mitchell (2008) explains that operationalizing a critical service-learning approach requires 1) working to redistribute power among participants in the service-learning partnership, 2) developing authentic relationships rooted in connection, and 3) operating from a social change perspective. Many service-learning programs have adopted the discourse of social justice; however, few have published about the critical service-learning structures and practices that yield positive impacts for students and community partners. In particular, the literature lacks descriptions of how to operationalize critical service-learning principles within graduate-level culminating experiences. To address this gap, we describe "Capstone," a community-led, yearlong, group-based critical service-learning ILE course within the Department of Health Behavior (Department) at the Gillings School of Global Public Health (Gillings) at the University of North Carolina at Chapel Hill (UNC). Next, we present our pedagogical framework for each of Mitchell's (2008) three elements of critical service-learning, describing their key components and explaining how we operationalize and assess them in Capstone. Finally, we reflect on the successes and limitations of our approach. We hope the processes, outcomes, and lessons learned distilled in this paper will support other

educators within public health and beyond to engage more deeply with transformative potential of critical service-learning practices to advance health equity.

Learning Environment

Setting & Historical Context

Capstone is a graduate-level course that serves as the ILE and UNC's Graduate School master's thesis substitute for students in the Health Behavior (HB) and Health Equity, Social Justice, and Human Rights (EQUITY) MPH concentrations at UNC Gillings. The Department, which has an eighty-one-year history of community-engaged coursework, administers and resources the program. Created in 2009, Capstone was designed in response to faculty concerns about the variable investment in and quality of master's papers (Linnan et al., 2010), coupled with a desire to design a practice-based culminating experience that is a mutually beneficial for students and community partners (Linnan et al., 2019). Although Capstone's program objectives and staffing model have remained consistent over the past fourteen years, project recruitment, selection, and matching processes; course assignments; and use of class time have evolved in response to ongoing quality improvement processes, changes to accreditation criteria, the EQUITY concentration joining Capstone in 2020, and the COVID-19 pandemic.

Program Overview

Capstone's aims are to 1) increase capacity among students and partner organizations to address public health issues and promote equity; 2) create new and or/improved public health resources, programs, services, and policies that advance health equity; 3) enhance student preparedness and marketability for public health careers; and 4) strengthen campus/community partnerships. During this year-long course, which occurs during the second year of a residential two-year MPH program, students synthesize and apply their MPH training to community-designed public health projects. This community-led approach prioritizes community partners' specific interests and gives students an opportunity to work on a range of approaches to social change (e.g., community organizing, policy advocacy, education) with a variety of organization types (e.g., nonprofit, government, health care, social services, academic) on a wide array of public health issues (e.g., harm reduction, food access, tobacco control, affordable housing, aging, substance use, etc.). Over an entire academic year (August-April), each team of four to five MPH students works with a partner organization and its constituents to produce a set of four to six deliverables (e.g., literature reviews, data collection instruments, program and evaluation plans, needs assessments, policy briefs, training materials, presentations, manuscripts, etc.) that are responsive to the community partner organization's self-identified needs. The project examples included in Table 1 demonstrate the range of partner organizations, approaches to social change, and deliverables present in Capstone.

Table 1: Sample Capstone Projects

Partner Organization	Project Title	Deliverables
ACHIEVE Project	Utilizing community-engaged participatory methods to inform implementation strategies and advance respectful care for birthing people experiencing gestational hypertension in Chatham and Caswell Counties	<ol style="list-style-type: none"> 1. Community Needs Assessment Report 2. Charette Report 3. Speak Out Planning Guide
Chatham Habitat for Humanity	Assisting Chatham Habitat for Humanity (CHFH) in creating and implementing surveys and interviews with CHFH homeowners to gather and analyze data on the long-term health, educational, economic, and social outcomes of affordable homeownership	<ol style="list-style-type: none"> 1. Dual Language Script & Interview Guide 2. Dual Language Codebook 3. Data Collection & Analysis Protocol 4. Final Report Presentation
Orange County Health Department	Assisting the Orange County Health Department in understanding racial equity in the department and community to review and update policies, practices, work culture, and department leadership to better serve residents in Orange County equitably	<ol style="list-style-type: none"> 1. Evidence Table 2. Racial Equity Capacity Assessment Tool 3. Racial Equity Capacity Assessment Report 4. 360 Evaluation Process Report 5. Racial Equity Curriculum and Facilitation Guide
Rural Opportunity Institute	Evaluating an adaptation of the Social Accelerator Model for rural public institutions focused on healing trauma and building resilience	<ol style="list-style-type: none"> 1. Interview Guides 2. Interview Codebook 3. Summary Code Report 4. Manuscript
Southern Coalition for Social Justice	Analyzing and evaluating strategies to decriminalize adolescence and developing a participatory research plan to work with youth impacted by the Criminal Legal System	<ol style="list-style-type: none"> 1. Landscape Analysis 2. Interview Guide 3. Interview Transcripts 4. Program Plan 5. Partner Case Studies & Recommendations Report 6. External Report
TABLE-PORCH-IFC	Developing a meaningful collaboration plan for IFC, PORCH, and TABLE	<ol style="list-style-type: none"> 1. Organization & Community Profile Report 2. Qualitative & Quantitative

Partner Organization	Project Title	Deliverables
	to most effectively distribute healthy food to hungry residents of Chapel Hill and Carrboro, North Carolina	Assessment Tools – Interview Guide and Dual Language Survey 3. Qualitative & Quantitative Data Report 4. Recommendations Report
UNC School of Social Work	North Carolina victims of crime needs assessment to improve access to services and programs for individuals who experience crime victimization, with a focus on historically marginalized populations	1. Organizational Survey Tool 2. Methods Protocol 3. Facilitation Guides 4. Codebook & Do-File 5. Summary Report

Personnel & Resources

Each Capstone team is led by one to two preceptors (i.e., main points of contact for the partner organization) who create a vision for and direct the project work. One faculty adviser per project provides technical expertise and quality assurance. The Capstone teaching team, which consists of one instructor for every 10 teams and one teaching fellow for approximately every five teams, provides structures, guidance, and support to promote mutually beneficial experiences for all involved parties. Departmental administrative staff manage Capstone-related program expenses such as mileage and travel, services (e.g., interpretation), and project supplies. Students pay a one-time university-approved \$600 field fee to help cover program expenses once enrolled in the course.

Course Format

Capstone is three credits per term and spans the fall and spring semesters. To maximize shared availability to collaborate, most class sessions are protected time for teams to work on their projects. Select class sessions are used for project onboarding, check-in meetings, and reflection sessions to evaluate the impacts and implications of the project work. Students are expected to spend six to nine hours per week on Capstone activities outside of class time while classes are in session. Table 2 shows the tasks and timelines associated with implementing this programming. Landfried et al. (2023) provides details on Capstone’s staffing model; project recruitment, selection, and matching processes; course format; and assignments.

Table 2: Capstone Program Gantt Chart [authors]

Responsible Party/Task	Month											
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
Key TT = teaching team ST = student teams FA = faculty advisor Capstone team = students, FA, preceptor, Capstone ■ = Tasks for current year's projects ■ = Tasks for next year's projects												
TT administers pre-course survey to students, preceptors, and FA.	■											
TT hosts orientation for students, preceptors, and FA .	■											
ST co-create work plans and team charters with preceptors and FA.		■										
ST apply learning from MPH training to implement work plan.		■	■	■	■	■	■	■	■			
ST sends weekly updates to TT, FA, and preceptor.		■	■	■	■	■	■	■	■			
ST facilitates check-in meetings with TT.		■		■		■		■				
ST produces project summary visual and script.					■							
Students complete [school] course evaluations.					■				■			
TT facilitates whole-class reflection sessions.			■		■		■		■			
TT administers mid- and end-of-semester evaluations.			■		■		■		■			
TT solicits potential Capstone projects for the next academic year.					■	■						
Community partners submit project proposals for the next academic year.					■	■	■					
A committee selects which projects will be presented to incoming Capstone students.								■	■			
TT presents selected projects to incoming students.								■	■			
Incoming Capstone students and FA rank top five preferences for Capstone projects.								■	■			
TT matches incoming Capstone students and FA to projects.								■	■			
TT announces next academic year's selected projects and team composition.									■	■		
ST submit final deliverables.									■			

Responsible Party/Task	Month											
	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
<u>Key</u> TT = teaching team ST = student teams FA = faculty advisor Capstone team = students, FA, preceptor, Capstone ■ = Tasks for current year's projects ■ = Tasks for next year's projects												
TT hosts a celebration of Capstone projects.									■			
FA assess application and synthesis of competencies in student exit interviews										■		
TT meets with each incoming Capstone team.										■		
TT prepares for incoming projects (e.g., submits IRB applications).										■	■	■

Program Evaluation

This study was exempted by UNC Chapel Hill's Institutional Review Board (IRB 21-0510) because it falls under the exemption category of "educational setting," which includes research on pedagogical approaches and their efficacy. As such, consent was not required by UNC's ethics board. The teaching team administers mid- and end-of-semester evaluations to students, preceptors, and faculty advisers to collect their perspectives on Capstone and assess students' work. These internal online evaluations are non-graded assignments for students. Gillings also administers course evaluations at the end of each semester to students that provide additional insight on student outcomes and satisfaction with the course. Capstone evaluations were not specifically designed to assess elements of critical service-learning; however, they contain proxy measures that help us evaluate Capstone's pedagogy.

To ensure findings and reflections represent current programming (e.g., inclusion of EQUITY concentration and COVID-19 adaptations), we analyzed data from academic years 2020 and 2021. During that time, 98 students and 22 preceptors participated in Capstone. The teaching team received a 100% response rate from students and preceptors on the eight internal evaluations (four per year) and an overall response rate of 72% from students on the four Gillings course evaluations (two per year).

Our own positionality—as current and former teaching team members, operating and trained within a predominantly white Tier 1 research university—may have biased our interpretation and presentation of evaluation findings. For example, our proximity to power may unintentionally obscure some of this course's drawbacks. At the same time, Capstone is a practice-based course led by a professor without a doctorate; advocating for Capstone in an environment that prioritizes research over practice necessarily frames our evaluation and discussion of the course. We describe our assessment of the three elements of critical service-learning in Capstone below.

Operationalizing & Assessing Critical Service-Learning

Working to Redistribute Power

Traditional service-learning programs often neglect the power dynamics innate to community-academic partnerships and in doing so can perpetuate systems of inequity (Mitchell, 2007, 2008). Mitchell (2008) explains that "A critical service-learning pedagogy not only acknowledges the imbalance of power in the service relationship, but seeks to challenge the imbalance and redistribute power through the ways that service-learning experiences are both planned and implemented" (p. 57). Redistributing power requires service-learning efforts to act on community-identified needs (Mackenzie et al., 2019; Rodríguez et al., 2021); incorporate all participants' perspectives (Mitchell, 2007, 2008; Rodríguez et al., 2021); recognize community expertise (Black et al., 2013); acknowledge the unique strengths all involved parties bring to the partnership (Black et al., 2013); share resources (Israel et al., 1998; Mitchell, 2008); and ensure mutual benefits for all involved parties (Israel et al., 1998; Mitchell, 2008).

How Capstone Works to Redistribute Power

The teaching team strives to acknowledge and challenge power differentials throughout Capstone's structures and activities. Specifically, they designed the course to be community led to help ensure community interests are as central to the experience as student learning and development. Moreover, Capstone project work is sustained through university funds and staffing, which helps to redistribute power by funneling resources back to community organizations. To identify community needs, the teaching team solicits project proposals from community-based organizations by sending out an email to current and former Capstone partner organizations and community partner listservs. The teaching team encourages recipients of the call for Capstone project proposals to share the communication with their networks. Before submitting a proposal, each prospective partner organization has an informational meeting with a course instructor to discuss their project ideas and receive advice about the proposal process. Next, prospective partner organizations submit project proposals that outline a scope of work to address their self-identified needs. This process of soliciting proposals directly from community partners redistributes power by prioritizing community expertise in identifying project goals, activities, and deliverables, ensuring projects act on community-identified needs.

The teaching team typically receives twenty project proposals. To identify which projects to present to students, a committee comprised of the teaching team and current Capstone student representatives uses the criteria in Table 3 to score project proposals. The teaching team presents the 15 highest scoring proposals to students. To maximize buy-in and ensure agency in project selection among incoming Capstone students and faculty advisers, the teaching team matches them to projects based on their ranked preferences. Involving multiple constituents in the project selection process honors the varied perspectives on what types of projects are most likely to yield positive experiences and helps share decision-making power among participants.

Table 3: Capstone Project Selection Criteria

Selection Criteria	Description
Project Clarity	The proposed deliverables have clear purposes and steps, are interrelated, and connect to the overall project goal.
Project Feasibility	The breadth and depth of deliverables and proposed timeline is appropriate for 4-6 students to produce over two academic semesters (August-April while classes are in session). The proposal accounts for the time and effort needed to onboard students.
Learning Opportunities	The project will facilitate acquisition of knowledge and skills that will enhance students' growth as public health practitioners.
Mentorship	The preceptor has the time (2-4 hours per week), expertise, and interest needed to mentor MPH students.
Organizational Capacity	The partner organization has capacity and funding to sustain support for a Capstone project over the upcoming academic year. Leadership at the Capstone partner organization demonstrates full support of the Capstone project. Sustainability and contingency plans are clear and feasible
Approach	The Capstone partner organization demonstrates commitment to equity, inclusion, and social justice in their approach to addressing public health problems. The project work is designed to be equitable and sustainable.
Engagement	The project work is informed by and responsive to project stakeholders including those most directly impacted by the issue. Students will have an opportunity to interact with the intended beneficiaries of the project work.
Public Health Impact	The project has strong potential to make a meaningful difference in the health of the beneficiary communities and population(s).

Once assembled in teams, students, preceptors, and faculty advisers cocreate workplans based on scopes of work outlined in the project proposals. During project implementation, distributing mentorship supports across preceptors, faculty advisers, and the teaching team capitalizes on the expertise of all involved parties to maximize student development while reducing burden on community partners. To further honor the expertise and perspectives of all parties and share power, students, preceptors, and faculty advisers recommend grades for students' project management (i.e., management of Capstone project relationships, processes, and tasks) and project participation (i.e., individual contributions to the project work). The greatest weight is given to the preceptors' grade recommendations. By prioritizing the preceptors' perspectives, Capstone redistributes power through ensuring that Capstone work is directly responsive to community partners' needs.

Assessment of Redistributing Power

Service-learning is often critiqued for benefiting students more than community partners (Chupp & Joseph, 2010; Mitchell, 2008). Capstone aims to alter this dynamic by shifting power typically held by the university into community partners' hands. We assessed "mutual benefit," defined as positive takeaways for

both community partners and students, as a proxy for successful redistribution of power. Two authors analyzed 88 student qualitative responses to the Gillings course evaluation question, “What will you take away from this course?” and 22 preceptor qualitative responses to the internal evaluation question, “Please describe how, if at all, your organization benefited from hosting a Capstone team.” All data were analyzed using thematic analysis (Braun & Clarke, 2006; Kiger & Varpio, 2020). The authors familiarized themselves with the data, inductively created a codebook, then applied codes to the data. To apply codes consistently, two authors simultaneously coded approximately 25% of transcripts to establish shared coding practices. The remaining transcripts were then coded separately and compared. Coding discrepancies were discussed and resolved.

Through our thematic analysis of students’ responses, skill development emerged as a theme for student benefit to participating in Capstone. Skills related to collaboration (e.g., communication, teamwork, conflict management, facilitation, community engagement, coalition building) were mentioned most often. However, students named a mix of interpersonal and technical skills in their responses. For example, one student explained that they will take away “Skills such as collaboration both with an internal team as well as with partner organizations, flexibility and setting realistic and feasible deadlines and timelines, and hard skills such as strengthening quantitative and qualitative skills.” Application of collaboration skills during the project work may allow for increased redistribution of power within the Capstone partnership. Collectively, the interpersonal, project management, and technical skills students gain through Capstone help increase their capacity to work with communities to promote health equity.

Community partners also identified increased capacity as a benefit of Capstone. In the past two years, Capstone students have provided over 35,280 hours of in-kind service and produced 80 deliverables with Capstone partner organizations. In some cases, students’ efforts enhanced partner organizations’ internal operations as described by a preceptor:

I believe every deliverable the team created moves [our department] further into our racial equity work. Every deliverable was an action step in our Strategic Plan; therefore, we can now say some things in our plan are completed. The Capstone team kept racial equity work in our [department] going, especially over the last year when most of our racial equity team could not dedicate time because of their additional duties related to COVID. While other organizations put their equity work to the side, [our organization] was able to keep going because of the students.

The community-led and power-sharing nature of Capstone yielded positive impacts for this community partner's strategic plan, increasing their capacity, and advancing their commitment to racial equity. In other cases, students’ contributions helped partner organizations expand their reach. One preceptor shared:

Our org NEVER would have had the capacity or budget to write a manuscript, and now we have an asset of a manuscript that can be used for other rural communities to replicate our systems mapping process. It's a pretty incredible feat by the student team and will benefit our org/ community for many years to come. It brings real legitimacy to our community work and the assets that exist in our community.

Increased capacity for this organization yielded a product that adds credibility to their approach and allows other communities to adopt their process. Shifting power and resources from the university to the community benefits Capstone students and community partners for years after project work ends.

Developing Authentic Relationships

Authentic relationships are rooted in connection, collaboration, reciprocity, mutuality, respect, and trust (Cashman & Seifer, 2008; Mitchell, 2008; Stith et al., 2021). A commitment to developing authentic relationships is a defining characteristic of critical service-learning (Mitchell, 2008). Stith (2021) explains, “To better understand and intervene on systems, it is prudent to get to know individuals organically” (p. 12). Developing authentic relationships requires a significant time commitment and ample preparation of all parties involved in the partnership (Mitchell, 2008). To support the creation and maintenance of authentic relationships to promote social change, existing literature underscores the need to understand the history of community-academic relationships (Stith et al., 2021); collaborate to identify shared norms, expectations, and goals of the partnership (Clifford, 2017; Israel et al., 1998; Mitchell, 2008; Stith et al., 2021); create opportunities to exchange feedback and assess the partnership (Mitchell, 2008); and focus on “process rather than product, and solidarity instead of reciprocity” (Clifford, 2017, p. 17).

How Capstone Develops Authentic Relationships

To cultivate authentic relationships, the teaching team begins preparing community partners for the Capstone experience nine months before the class starts (see Table 2). Once the teaching team assembles project teams, the course instructor meets with each student team, their preceptor, and their faculty adviser. These initial team meetings are designed to support community building, review expectations for the Capstone experience, and plan for project onboarding.

When the project work officially begins in the fall, the teaching team hosts an orientation session for all preceptors, students, and faculty advisers to provide participants with the historical context of Capstone, review program structures (e.g., class format, assignments), and reinforce roles and responsibilities. Each team cocreates a team charter to document strategies the group will employ to promote authentic partnership. This document outlines team values, processes such as task management, communication, decision making, conflict management, support and celebration, and an accountability plan for upholding expectations. Team charters are working documents that are formally revisited at the mid- and endpoints of each semester. Twice a semester, whole-class reflection sessions provide an opportunity for teams to learn from one another’s experiences and update their processes accordingly.

To strengthen relationships, share information, and exchange feedback, the teaching team conducts check-in meetings throughout the Capstone experience. The teaching team meets with each student team three times per semester and with preceptors and faculty advisers in a group setting twice a semester. Furthermore, the teaching team augments the feedback exchanged during check-in meetings by administering mid- and end-of-semester evaluations. These evaluations ask students, preceptors, and faculty advisers to reflect on accomplishments and challenges to date; assess students’ project management and project participation; and evaluate all parties’ adherence to roles and responsibilities. The teaching team shares the

results of the mid- and end-of-semester evaluations with all members of each Capstone team to promote accountability, transparency, and mutual benefit between all parties.

Finally, to encourage interactions among students, preceptors, and faculty advisers outside the project work, the teaching team gives each team a community-building budget. Teams typically use these funds to share meals or participate in extracurricular activities together. The teaching team finds that these extracurricular interactions help deepen relationships and investment in the project work.

Assessment of Developing Authentic Relationships

To assess Capstone's efforts to develop authentic relationships, we examined preceptors' "satisfaction with their teams' adherence to agreed upon roles and responsibilities, group norms, and team processes as specified in the Team Charter" on a scale of extremely satisfied to extremely dissatisfied. The teaching team surveyed preceptors on this topic once in the academic year 2020. Wanting to measure change, the following year the teaching team collected this data at two timepoints. In Fall 2020, 86% of preceptors were extremely satisfied with their teams' adherence to the contents of the team charter. In Fall 2021, 89% of preceptors were extremely satisfied with their teams' adherence to the contents of their team charters. By the following spring, 100% of preceptors were extremely satisfied. This high level of satisfaction among preceptors underscores the effectiveness of the team charter to promote equitable engagement and authentic collaboration between students and community partners.

Additionally, two authors thematically analyzed 98 student and 22 preceptor responses to the spring end-of-semester evaluation question, "What were your team's greatest achievements this year? What factors contributed to those successes?" to identify recurring themes. One author reviewed and summarized each response to develop possible codes and avoid implicit bias in the coding process. After the summarization of all responses, possible codes were developed based on the initial review. Each response summary was then reviewed and coded appropriately.

Effective collaboration emerged as a theme within both data sets. In some cases, respondents described the impact of this accomplishment. As one preceptor explained:

All of our deliverables were great achievements this year but the most valuable achievement was working together with [our coalition] to develop a sense of community that will serve us as we work towards our collective goals of alleviating hunger in our community in the most efficient way, working together.

This example demonstrates how effective collaboration, rooted in authentic relationships, led to community building that created efficiencies for the partner organization to advance its mission.

The below quote from a student respondent sheds light on the specific process used to promote effective collaboration:

Overall, I think creating a collaborative, equitable, and welcoming teamwork culture was the greatest achievement of the semester. Creating time for check-ins/check-outs, prioritizing time outside of our meetings to share food and get to

know each other as people allowed us to show up as our full selves, ask for what we need, and ultimately work more productively together!

By attending to the relational aspects of the project, the student highlights how both equity and productivity can be encouraged. Through attention to the processes that create the potential for authentic relationships, students create the possibility of more meaningful interpersonal and professional impacts.

Students also noted how effective collaboration yielded impactful deliverables: Our greatest achievements this year were creating products that truly will help [our partner organization] grow and improve (and their effects are already being felt!) There were several factors that contributed to that success: a supportive preceptor and faculty mentor, a wonderful team dynamic, and the trust between all the members of the team.

Community partners and students alike highlight the interconnectedness of authentic relationships to Capstone's benefits and impacts. Capstone's unique emphasis on process and relationship-building strengthens students' and partners' ability to effect change through their work.

Working from a Social Change Orientation

Whereas traditional service-learning tends to emphasize student development through volunteerism, critical service-learning pedagogy requires educators to shift students' focus from addressing immediate needs toward dismantling structures of inequity to promote social change (Boyle-Baise & Langford, 2004; Mitchell, 2008). Available literature recommends preparing students for social change approaches by guiding them on how to engage in dialogue and discussion to build critical consciousness (Espino & Lee, 2011; Stith et al., 2021); identify strategies to recognize, understand, and dismantle oppressive systems and power differentials (Clifford, 2017; Mackenzie et al., 2019; Mitchell, 2008; Stith et al., 2021); and recognize how these systems operate and how individuals and institutions contribute to social injustices (Clifford, 2017; Mitchell, 2007, 2008). Universities can best support social change efforts within service-learning courses by facilitating cross-sectoral collaboration (De Montigny et al., 2019; DeSalvo et al., 2017); prioritizing community-identified needs over student outcomes (Hidayat & Stoecker, 2021; Mitchell, 2008); actively involving community partners in creating and defining the experience (Mitchell, 2008); and operating from an assets-based approach (Israel et al., 1998; Mitchell, 2008). Although there are numerous documented strategies for working toward social change, the semester model is a noted barrier to enacting critical service-learning (Clifford, 2017; Mitchell, 2007, 2008; Shostak et al., 2019). Mitchell (2008) explains, "Social change oriented service takes time. Social justice will never be achieved in a single semester nor systems dismantled in the two-to four-hour weekly commitment representative of many traditional models of service-learning" (p. 54).

How Capstone Works from a Social Change Orientation

Prior to Capstone, students complete two semesters of coursework and a practicum, which is a planned, mentored and evaluated applied practice experience that gives students an opportunity to use their MPH training in a professional public

health setting. This foundational training equips them with critical public health knowledge and skills that they can apply to their Capstone projects. Moreover, their foundational MPH training helps them understand root causes of social problems and how to reckon with systems that create and surround them. Capstone check-in meetings and reflection sessions help reinforce and expand on students' knowledge and skills surrounding social change.

The primary ways in which Capstone works from a social change orientation are through the course's design and project selection process. Designing Capstone to be a year-long experience helps maximize the potential for social change and student development. To further extend our Capstone partnerships, we encourage community partners to host practicum students before and after the Capstone project work. Also, when appropriate and feasible, we urge partner organizations to propose sequential Capstone projects to deepen relationships and extend impact.

In addition to designing the timeline of our program to maximize potential for social change, we also seek out and select partnerships with organizations that have an explicit commitment to social justice and health equity. Organizations that focus on equity and social change are a valuable training ground for our students to develop a social change orientation while our students' efforts support the organizations' enactment of social justice. We partner with organizations within and outside the traditional public health sector who take a variety of approaches to social change (e.g., community-based participatory research, direct service, education, policy advocacy, etc.). As part of our project selection criteria, we evaluate project proposals for evidence of a commitment to social change. Specifically, we look for organizations that have a social justice-oriented mission, are working on systems/policy change, and/or apply a health equity lens to their work.

Assessment of Working from a Social Change Orientation

Social change orientation is difficult to assess given both a lack of published examples and a wealth of potential indicators. Given these limitations, two authors examined each of the academic year 2020 and 2021 Capstone project proposals for a specific commitment to social justice or health equity. The authors reviewed each proposal together, identified project work that explicitly addressed structural oppression, and came to consensus. Fifty-two percent of the 21 project proposals had an explicit focus on social justice or equity-related work.

Although our course evaluation tools do not include social change measures, some qualitative feedback organically noted a shift in social change perspective. For example, a preceptor shared:

The work the team did for [our organization] is work that we've talked about doing for several years - but we never had the time. The protocols are important for injured children, so we're grateful for the team's work. We also have never addressed social equity as a group. Working with this team has prompted us to take a look at our practices. The evaluation plan the students developed will provide a mechanism for us to assess and trend our implementation of the protocols and our efforts to reduce inequities in trauma care.

The above example underscores how students' familiarity with equity allowed the organization to reexamine practices and reduce inequities. On an individual level, a student reported acquiring specific tools and knowledge to advance social change:

I learned a lot about abolition through working with our community partner organization. Additionally, I was able to develop interviewing skills and learn more about CBPR [Community-Based Participatory Research] and YPAR [Youth Participatory Action Research] while completing the deliverables.

Capstone is an opportunity to develop knowledge, skills, relationships, and orientations toward social change that can have ripple effects for our partner organizations' work and students' career trajectories.

Discussion

Public health training programs are responsible for equipping students with the knowledge, skills, and tools they will need to navigate the complex public health challenges they will confront during their careers (Grimm et al., 2022; Schober et al., 2022). To effectively address challenges and promote health equity, students must gain experience in collaborating with communities (*Core Competencies for Public Health Professionals: Revised and Adopted by the Council on Linkages Between Academia and Public Health Practice*, 2021; Papadopoulos et al., 2013). Service-learning courses can facilitate such experience; however, the field of service-learning has been criticized for its discursive commitments to justice that are unmatched by the practices and material commitments that support the enactment of justice (Mitchell, 2007, 2008). In this paper, we use the critical service-learning framework to describe the practices we believe both prepare our students to address complex public health challenges and contribute to social change.

While the literature within critical service-learning suggests that power redistribution involves a range of approaches, e.g., acting on community-identified needs (Mackenzie et al., 2019; Rodríguez et al., 2021), incorporating all participants' perspectives and expertise (Black et al., 2013; Mitchell, 2007, 2008; Rodríguez et al., 2021), ensuring mutual benefit (Israel et al., 1998; Mitchell, 2008), etc., literature is less clear on depth of collaboration and power sharing necessary to achieve a more equitable power arrangement. Literature from approaches such as Community Based-Participatory Research highlights that inclusion and participation do not always equal power sharing (Israel et al., 2017; Sánchez et al., 2021). While our proxy measure of mutual benefits suggest that a more equitable power sharing arrangement may be occurring in Capstone, future evaluations of our program could more specifically seek to understand students' and preceptors' perceptions of power redistribution. Despite these limitations in measuring power redistribution, we believe that Capstone's practices of following community-identified visions for projects, grading according to preceptors' perspectives, and building in structures for ongoing accountability and transparent communication offer instructive lessons for others to apply when designing culminating experiences that yield benefits for students and community partners.

While Capstone does not yet fully address every aspect of building authentic relationships that the literature suggests, the teaching team works to continually integrate practices that deepen relationships. During orientation programming, the teaching team touches on the history of community-engaged scholarship within the department; however, they do not cover UNC's complex history of relationships with communities. Especially given the range of partner organizations present in Capstone, it is difficult to generalize the dynamics at play across the community-academic partnerships. The evidence presented suggests that students and preceptors are generally happy with the quality of the relationships within Capstone.

However, students struggle with the amount of time the relationship-building assignments, such as the team charter, take. Additionally, every year some relationships fall short of hoped-for quality, underscoring the gap between the teaching team's intent for these relationships and the reality of these partnerships under the constraints of the experience. Relationship challenges between students, preceptors, faculty advisers, and the teaching team continue to push the teaching team to refine how they promote authentic relationships within Capstone. Future programming could better emphasize why the teaching team deeply values authentic relationships and the importance of structures to promote them. The teaching team is also working to clearly communicate the department's culture of engaged work during every moment of the students' experience, from application to graduation. Through building a culture within our department where engaged practice is celebrated in similar ways to research accomplishments, the teaching team hopes to support students in bringing the intention, energy, and integrity needed for authentic relationships within Capstone. Further refining the quality improvement assessments to identify what factors are associated with developing healthy authentic relationships is another opportunity for improved assessment within our Capstone experience.

Finally, the literature suggests that working from a social change perspective entails changing systems, rather than simply working inside the status quo. Because Capstone is a culminating experience with most class time dedicated to project work with partners, whether student teams build skills for social change and accomplish social change through their Capstone work varies significantly between teams. While equity is a criterion in project selection, some proportion of partner organizations are not explicitly focused on social change in their mission or the support they request is not focused on social change. Additionally, current evaluation practices do not adequately assess whether students are more effective agents of social change after the Capstone experience or whether organizations more effectively implement their social change work through the Capstone partnership, though encouragingly many organizations do report increased capacity for their missions through the Capstone experience. The varied nature of the Capstone projects, coupled with the lack of impact evaluation, limits our ability to understand how much social change is accomplished for students or community partners. Measuring social change orientation for both preceptors and students is a challenge within existing evaluation frameworks. Future research could contribute to better defining and creating measures for this important construct.

The results from existing measures of both satisfaction and impact, combined with their alignment with the principles of critical service-learning suggest that Capstone has many promising practices for others in the fields of public health and service-learning. The primary weaknesses in our assessment of these practices are twofold. First, our evaluation efforts have been primarily focused on course improvement, and thus have resulted in us using proxy measures for several critical service-learning constructs of interest. Second, within the literature on critical service-learning, there is no consensus on how to assess each of the named constructs.

Conclusion

Despite limitations of our existing quality improvement evaluations to assess our operationalization of the elements of critical service-learning, we believe the Capstone model holds important insights both for the field of public health and service-learning. Capstone is an experience that has challenges and complexity commensurate to those students will face during their public health careers. For critical service-learning, Capstone serves as a model for moving beyond naming a desire for social change into enacting the processes that might bring it about. By sharing the practices, outcomes, limitations, and lessons learned through our fourteen years of implementing Capstone, we hope other educators will consider the limitations and possibilities of critical service-learning practices to promote health equity.

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