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**Exploring Learning Experiences of Students in an Experiential Community Health
Practice Course**

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ABSTRACT

Introduction: Students in their first and second year of their Master of Public Health (MPH) programs worked in teams to collaborate with and assist local community partners in developing solutions to problems immediately relevant to local community health organizations. The course's unique emphasis on co-generation of knowledge between students and community partners aimed to develop students' practical skills relevant to working in practice-based community public health agencies as well as enhance their research skills as community-engaged academics. This study aims to identify lessons learned and key elements of the course that were most impactful on students' learning experiences.

Methods: Students were required to submit essays reflecting on their experience in the course at the end of the semester. E-mail outreach to 212 students resulted in consents from 104 students. A rapid qualitative analysis approach with both deductive and inductive lenses was used for analysis.

Results: Overall, students reported having had positive experiences in the course. Six major themes emerged: 1) turning theory into practice, 2) navigating the complex environment of public health practice, 3) skills learned, 4) personal reflections, 5) challenges, and 6) strengths.

Conclusions: Analysis of student reflections may make visible the learning processes that evolve as students strengthen important research skills and explore their identity as public health professionals. Collaboration with community partners allowed students to gain a deeper understanding of health disparities in a way that cannot be conveyed through readings and discussions alone. Methods used in this study demonstrate how reflection can be used as a teaching tool and a method for generating research data.

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INTRODUCTION

Bridging the gap between research and practice is essential to addressing real-world public health issues. Experiential learning in conjunction with rigorous coursework has been shown to be a promising strategy for training students to translate academic research into praxis that will mitigate disparities and improve the health of diverse communities (Marriott et al., 2015; Woods-Jaeger et al., 2021). The Council for Education in Public Health (CEPH) is the accrediting body for public health training programs and seeks to provide a framework for public health education that is responsive to the needs of diverse communities (CEPH, 2016). Since 2014, CEPH has revised its accreditation requirements to emphasize a set of competencies that highlight the science of public health as well as the skills needed to practice public health in the real world (Foster et al., 2014). Applied practice experiences are essential because they allow students to immerse themselves in the practice of public health in a guided environment (Humphries et al., 2021). Practice-based Community Health Research (PBCHR) is a practicum offered by the Yale School of Public Health that provides a unique opportunity for students to strengthen their research skills while learning to work within the complex dynamics of public health practice.

Since 2008, the current course instructor has oriented the course to center on recognition of community members as experts of their own lived experiences and valuable partners in public health promotion and the importance of community partnerships for student and community capacity building. In other words, the insight of individuals in the communities impacted is needed for a deeper understanding of health issues being studied (Filler et al., 2021). Engaging community agencies as active and equal partners creates space for the elevation of knowledge and ideas not typically represented in health literature (Culhane-Pera et al., 2021; Filler et al., 2021; Han et al., 2021). Capacity building as a result of these partnerships is a non-linear process because it is deeply intertwined with an iterative process of mutual learning (Hacker et al., 2012). Previous research has often defined capacity outcomes as the community's

empowerment and acquisition of new skills; however, these outcomes can also be reflected in the academic's increased capacity to pursue authentic research partnerships (Belone et al., 2016; Hacker et al., 2012). Academics are able to move towards building more equitable university-community relationships when they recognize the value of community insight and the implications of power hierarchies inherent in the language of scientific research (Green et al., 2019).

To evaluate the impact of applied practice experiences in public health training, we would need to understand how students perceived their experience working in a more local, community-centered context. Previous studies have identified the potential for analysis of reflective essays to illuminate students' meta-cognitive processes in experiential learning (Ash and Clayton, 2009; Kelly et al., 2014). The combination of applied learning and critical reflection is essential to a continual process of thinking and doing (Ash et al., 2009). Similarly, Ball et al's framework suggests that epistemological change is generated when learners are simultaneously engaged with theoretical frameworks and people directly impacted (Ball et al., 2021). Several pedagogical strategies exist for teaching this strengths-based approach to community health; however, there is a gap in the literature on the impact of such teaching methods on public health students (Leung Rubin et al., 2012; Mejia, 2021).

Thematic elements gleaned from these studies can help educators better understand how students construct meaning from their experiences during the course. This project will involve qualitative analysis of reflective essays from an experiential public health course to identify key elements of the student learning experiences. By analyzing reflection papers from two-thirds of the way through the semester, we will be able to describe commonalities in learning experiences and elements students experienced as most impactful.

Ethical Review

This study was determined to be exempt from review by the Yale University Social Science, Behavioral, and Educational Research Institutional Review Board.

METHODS

Course Information

Course preparation and organization have been described previously (Hartwig et al., 2004; Humphries et al., 2021). Briefly, the course instructor solicited community project proposals during the fall semester. Proposals are guided through review by previous course students and public health faculty. Students read the proposals and identified their top three ranked projects. The instructor and teaching fellow matched students based on project interest and group skill sets, to assure groups with the needed resources. During the spring semester, students met weekly for two hours for support and guidance in the process. Lecture materials were designed to bridge the divide between theory and real-life public health practice. Course content included readings and discussions on best practices in community health research and practice. Equal emphasis was placed on teaching students to better understand the intricacies of the many sociopolitical systems in which these problems are embedded. Foundations for the course curriculum drew from the ecological framework as well as concepts from community based participatory research (CBPR) and implementation science. Throughout the course, students were assigned to graduate teaching fellows and faculty advisors to provide ongoing guidance and support. Student teams were encouraged to establish regular meetings with their community partners early in the semester.

TABLE 1

Project Topics (n = 61)

AIDS Care	8
Housing & Homelessness	5
Nutrition & Food Security	7
Health Behaviors	6
Community Health & Preventative Care	21
Youth Education	2
Child and Maternal Health	8
Senior Services	3
LGBTQ Services	1

Table 1: Describes topics covered by student projects between 2008-2018

In addition to these meetings, teams also met with their teaching fellow advisors on a weekly basis. The importance of maintaining iterative feedback loops was emphasized to ensure that both students and community partners felt supported and respected throughout the course. Students were instructed to identify concrete goals and outputs in order to work towards a final deliverable that was then presented to their preceptors and fellow classmates at the end of the semester. Towards the end of the semester, students were required to submit 1-2 page reflection papers on their experiences in the course. Completion of this course could be used to fulfill the Applied Practice Experience (APE) required by the Yale School of Public Health. This practice requirement was intended to engage all MPH students in real-life public health work environments.

TABLE 2.A			TABLE 2.B		
Community Partner	Number of Students		Community Partner	Number of Students	
	Consented to Essay Analysis	Total		Consented to Essay Analysis	Total
AIDS Connecticut	5	9	HAVEN Free Clinic	2	4
AIDS Project New Haven	2	4	Hill Health Center	0	2
Bella Vista	1	4	Jewish Senior Services	4	6
Christian Community Action	2	2	Leeway	2	7
City Seed	7	9	New Haven Farms	1	3
Common Ground High School	7	12	New Haven Health Department	2	8
Community Health	2	5	New Haven Public Schools (NHPS)	3	6
Community Mental Health	1	1	New London Homeless Hospitality	4	8
Community Renewal Teams	4	8	Norwalk Department of Health	4	8
CT AIDS Resource Coalition	3	7	Optimus Health Care	10	21
CT Legislative Medicaid Managed Care Council	0	2	Planned Parenthood of Southern New England	12	23
CT Legislative Medicare Council	0	1	Southwestern Area Education	7	13
Downtown Evening Soup Kitchen (DESK)	3	4	VNA Health	0	2
Fair Haven Community Health Center	1	3	Wellness Community of Southern Connecticut	1	3
Farmington Valley Health District	2	3	Yale Aids Project	2	4
Fetal Infant Mortality Review	1	5	YNHH	9	15

Table 2: Describes the number of students in community partnerships from 2008-2018

Data Collection and Analysis

This project utilized rapid qualitative analysis of student reflections from a community driven experiential public health course (EPH 542: Practice Based Community Health Research) at the Yale School of Public Health from 2008-2018. End-of-course reflection papers were analyzed to gauge students' understanding and takeaways from the class. See Appendix B for detail on essay prompts.

Former students were contacted through email by the course's instructor. The emailed invitation to participate included an overview of the proposed project as well as a consent form. Out of 212 former students for whom e-mail addresses were obtained that did not lead to a bounce-back error, 104 consents were obtained after two rounds of invitation.

Data Analysis

Rapid qualitative analysis was used to efficiently identify themes underlying student experiences with practice-based community health curricula. Qualitative research is known to be a methodology requiring extensive time for data collection and analysis. Although data for this project was readily available, rapid analysis allowed researchers to efficiently work through the data without sacrificing richness in findings.

TABLE 3

Sample Characteristics (response rate = 49.1%)	Consented to Essay Analysis (n=104)	Total (n=212)
Gender		
Male	28 (26.9%)	50 (23.6%)
Female	76 (73.1%)	162 (76.4%)
Department		
Advanced Professionals	11 (10.6%)	24 (11.3%)
Biostatistics	2 (1.9%)	4 (1.9%)
Chronic Disease Epidemiology (CDE)	14 (13.5%)	27 (12.7%)
CDE/SBS	5 (4.8%)	10 (4.7%)
Social & Behavioral Sciences (SBS)	11 (10.6%)	22 (10.4%)
Environmental Health Science	0	2 (0.9%)
Epidemiology of Microbial Diseases	15 (14.4%)	20 (9.4%)
Health Policy and Management	13 (12.5%)	23 (10.8%)
Other	5 (4.8%)	13 (6.1%)
Missing	28 (26.9%)	67 (31.6%)

Table 3: Demographic information and departments represented in study sample

Rapid analysis methods have been extensively refined and adapted by researchers needing to reduce the time required for research (Watkins, 2017; Sangaramoorthy, 2020; Beebe, 2014; Vindrola-Padros et al., 2020).

Essays from consenting alumni were anonymized by the course instructor prior to analysis. Analysis of these reflective essays was independently done by a separate researcher using rapid qualitative methods. First, essays were organized by cohort. A deductive lens was used to create summary templates. These were created for each cohort based on the corresponding prompts. See Appendix B for more detail on assignment instructions by year. Quotes and themes of interest were pulled from each essay to create one-page summaries. All materials from each template were reviewed and transferred into a matrix in Excel. Themes and quotes were organized by year and with column headings representing themes identified. Weekly meetings were conducted to review and discuss themes identified during this process. All essays were independently analyzed multiple times to identify a priori and emergent themes. Quotes of interest were then transferred to a separate Excel workbook to identify umbrella themes.

RESULTS

Overall, differences in department representation between the group of students who consented to essay analysis and the overall sample were minimal. Six major themes emerged upon analysis of student reflection papers: turning theory into practice, navigating the complex environment of public health practice, skills learned, personal reflections, challenges, and strengths. See Appendix A for quotes.

Theme 1: Turning Theory into Practice

Working directly with community partners not only gave students the opportunity to put their research knowledge into practice, those partnerships also expanded students' understanding of what it meant to practice community-engaged public health. Students learned to apply the theories and frameworks they had learned in the classroom to real world problems and strengthen skills relevant to their future careers. Students found the experience of working on real projects that were timely and relevant to neighboring communities to be fulfilling. Students were motivated by the knowledge that their work could directly benefit the community members served by their preceptor organizations.

“Most importantly, we felt like our project was worth something. We were reminded time and time again throughout our project, especially during difficult times when it seemed we would have no interviewees, that our project was important and that it was serving to “plant the seed” of a necessary endeavor that [preceptor] had been wanting to do on their own for a long time but they needed someone to collect the necessary information first.” (Female 4, 2014)

Theme 2: Navigating the complex environment of public health practice

Hands-on experiences exposed students to the dynamics of public health practice and allowed students to immerse themselves in the complex process of developing solutions to immediate issues. Several students reported feeling overwhelmed by the realization of how politics and social dynamics can impact the direction of their project.

“Soon after, I learned of how politics heavily surrounded our project in [community name redacted], and it became very overwhelming at times to find myself immersed in politically charged environment. What I took away from these stressful situations is how

essential flexibility is moving forward in any collaborative public health project and how complex/delicate power can be. I learned of how my words via email or over the phone can be mistaken with some [institution name redacted] baggage and as a result I am more mindful of the ways in which I choose to convey my thoughts, feelings, and intentions.” (Female 1, 2015)

This complexity led some students to understand the importance of interprofessional collaboration and communication. Students also learned to balance the different needs and expectations that may arise from within a single preceptor organization.

Power was another running theme throughout many of the reflection pieces. Power was realized when students reflected on their position as outside researchers and specifically, as graduate students from a well-known educational institution. One student noted how their partnership with the community agency forced them to critically reflect on the relationships between their preceptor and other institutions.

“Expanding on application of formal course work, working with [agency name redacted] required an understanding of systems and the way that constructs of power inform the way community actors and organizations function at different levels in ways that both hinder and strive to promote equity.” (Female 1, 2018)

While unequal power dynamics were often cited as challenges, some students also recognized this as a sign of a deeper issue of mistrust between community organizations and academic research institutions.

“The runner was also the holder of the keys, and because of this, I was seen as having power by the inmates...However, building trust and rapport with the inmates was crucial for successful execution of the study and I often felt I held a level of power that I didn’t deserve.” (Male 2, 2008)

These power dynamics were also evident in the community agencies' hesitancy to criticize institutions, especially when the organizations are dependent on outside stakeholders for donations and financial support.

“Cultural and political factors play into the donations [agency name redacted] receives from [institution name redacted]. [institution name redacted] donations are difficult to incorporate into [agency name redacted] meals, and often do not meet sanitation guidelines and must be discarded. [agency name redacted] has not addressed these issues with [institution name redacted] because their relationship is skewed, with [institution name redacted] having much more social and political power. Similarly, [agency name redacted] cannot do much to change the donations they receive from other organizations.” (Female 2, 2018)

Aside from differences in power, students also identified differences in value systems. The reflexivity demonstrated in these essays revealed ways in which the students realized that their perceptions of health may not always align with the values that communities deem important. In addition to becoming more sensitive to the social context of their project, students learned to pivot quickly in order to ensure that their project met their preceptors' needs.

“I’ll admit when I first started on this project I was concerned the intervention might be damaging to the kids’ self-esteem: who wants to discuss their weight in a group with a bunch of strangers? Immediately, however, I saw this was not the case. Our culture’s obsession with privacy makes group health care relatively unusual, yet in communities like [community name redacted], it is a reasonable and perhaps desirable option. It allows providers to reach more patients, it is cost effective for clinics, and it has the important potential to foster a sense of social support among individuals with similar health issues.” (Female 2, 2008)

Theme 3: Skills Learned

Students highlighted a myriad of research and project management skills including data analysis, problem solving, interviewing, conducting focus groups, communication, and teamwork. Skills relevant to academic public health were also noted as valuable lessons from the course. Students felt that the practicum-oriented curriculum allowed them to not only strengthen their skills in the field, but also learn how to disseminate their findings. Students who had not participated in formal public health research before especially appreciated guidance on the IRB process as well as poster preparation. Students also gained experience in developing program planning tools such as logic models, program theories, and budgets. Outside of strengthening existing skills, true collaboration with community partners allowed students to learn the real-life application of skills learned in class and thus bridge the gap between research and practice.

As part of this practicum, my group has worked to developed a program theory and logic model, which has allowed us to us to assess our short- and long-term project goals as well as the theoretical basis for our project to impact positive change within and beyond [community name redacted]. We have also enhanced several skills necessary for community health practicum work, including developing a project budget and completing an IRB application for the project. Additionally, by having guest speakers who are conducting community-based participatory research at Yale and within the New Haven community, this practicum has improved our knowledge of similar work within the field.

(Female 2, 2013)

Bridging this gap between research and practice came with some growing pains. As the students worked on their project, they realized that standard research practices may not be

applicable to every public health program. One student described how her team had to adapt their initial recommendations to avoid overburdening the preceptor agency:

“We had to consider a sustainable system that would not generate mountains more of paperwork, lead to resentment on the staff members’ part of being given another item on their to-do list, or alienate participants in [the program] by making them feel forced to fill out a lengthy personal survey. These considerations led us to cut out huge portions of our original evaluations, including weight and diabetes status, and inspired us to think of efficient ways to administer surveys, like through QR codes.” (Female 2, 2016)

Additionally, some students noted how their experiences in the PBCHR course strengthened skills learned in other classes.

“Much of the work we did in [statistical analysis] paralleled the work in the Applied Analytics of Epidemiology class that I am currently taking. It was helpful to have real-world utilization of the skills I am learning as it helps cement the learning process, and encourages thinking of real-world applications during class.” (Female 3, 2013)

Communication, leadership, and teamwork skills were also frequently discussed throughout student essays. Although there were clashes in different working and learning styles at times, students described how they learned to quickly resolve conflicts and avoid miscommunication.

“During this course, I feel as if I’ve strengthened my group communication skills... I believe that the coordination that we’ve had to do as a group has been truly impressive, and I’m proud of us for being to find time to travel to [community name redacted] for meetings and interviews. It takes a surprising amount of effort to coordinate the schedules of five MPH students, but we were able to manage it. I’m more understanding

of other people's schedules and conflicts, and I feel as if I'm become a much more flexible person." (Female 5, 2018)

Theme 4: Personal Reflections

In addition to reflecting on the impact of their project, students also acknowledged the ways in which they had benefited from existing relationships between course instructors and community agencies. The course's experiential model allowed students to catch a glimpse of the reality of public health practice. Some admitted that it was only after intimately working with community organizations that they learned to appreciate the unique strengths of these agencies - traits that may have been overlooked in the literature.

"[agency name redacted] epitomizes a complex adaptive system, with changing external factors in the form of donation sources from foodbanks or institutions. Prior to this class I would have deemed [agency name redacted] as chaotic, an unproductive surface-level conclusion that connotes a certain inability for change. Now I would characterize [agency name redacted] as dynamical and uncertain, which indicates a different set of expectations and approaches." (Female 1, 2018)

After working so closely with a community partner over the span of 4-5 months, many used this opportunity to reflect on their roles as researchers and think critically about the tools and metrics they had been taught to use. Some questioned the impact of their work as researchers and future public health professionals - there was a question of *how* they should conduct research instead of simply *if* they should research.

"As a researcher I suppose the question to grapple with is whether you should do research to collect descriptive statistics alone, or if you should go one step further to help solve the problem; I think that the latter is the only way to make an impact." (Female 1, 2008)

Time and resource constraints forced students to be creative and utilize novel approaches to solving public health issues. Upon reflecting on their experience working within these bounds, one student described changes in the way that they conceptualized problems and analyzed data.

“I feel that this practicum experience has also introduced me to new methods and theories of ways to analyze data, and even consider what “data” is and how research questions can be derived from within the community for tangible and practical needs.”
(Female 3, 2015)

Theme 5: Challenges

Challenges were commonly associated with differing expectations, limited support from preceptors, unfamiliarity with research practices, and time and resource constraints. Differing expectations between teams and preceptor organizations led to confusion and delayed progress. Sometimes, the public health issues that preceptors wished to address were too large to accomplish in one semester. Honest conversations between preceptors and student teams made it possible to determine more specific and manageable goals. One student explained:

“Through multiple preliminary conversations and meetings with stakeholders, we were able to determine which programs to focus on and which health outcomes [agency name redacted] as a whole was most interested in assessing. In that way, we “defined the issue” to analyze and address. I found this part of the process the most challenging, since each staff member expressed different priorities and even different target groups. It certainly provided practical experience in working and communicating with a diversity of stakeholders.” (Female 2, 2015)

Although preceptors and project teams were eager to collaborate, time and resource limitations proved to be another common challenge.

“They were really hoping for our team to evaluate almost every aspect across the organization including the community programs, urban farm, and high school. We had to communicate to them that we did not have the time or capacity to do this, and that we could focus on a few priorities in order to do a thorough job.” (Female 4, 2015)

In some cases, preceptors did not have the infrastructure to support a research-based community health project. Students found it difficult to seek guidance when the community agency itself was facing management issues. Administrative delays and unfamiliarity with research practices could also hinder progress. Some expressed the need for preceptors to undergo basic research ethics training in order to avoid setbacks related to IRB non-compliance.

Some teams struggled to design their project in a way that best fit the community partner's needs while balancing competing interests from within the preceptor organization. Internal politics were difficult to navigate but proved to be valuable learning experiences in inter-professional collaboration.

“A lack of communication between [preceptor names redacted] required us to negotiate the organizational politics and hierarchy. This is the type of work that I can read about all day long, yet is essentially trial by fire in terms of internalizing the concepts and testing the practice. Overall, I strengthened my knowledge and capacity of developmental evaluation principles and CBPR values through being a part of the [agency name redacted] team.” (Female 1, 2018)

Theme 6: Strengths

Adequate *support* from both stakeholders and faculty members can help teams overcome communication challenges. While this student previously noted communication challenges between their team and the community partner, they were able to move forward with the help of their preceptor:

“To my knowledge, I do not think any of the staff at [agency name redacted] have Public Health degrees or if they would consider themselves to have public health expertise. However, the agency and [preceptor name redacted] provided more support than I originally expected. He was very thoughtful in providing a theory of change and a logic model to us at the beginning of the course and continued to have excellent input on the content of the survey and the focus group questions.” (Female 2, 2015)

Many teams also found it helpful to *consult with experts* such as faculty members and representatives from organizations outside of their partnership. Mutual *communication and respect* were key elements of a positive relationship between preceptors and student teams. *Gratitude* also went a long way - students described how showing appreciation for one another and recognizing each team member’s unique strengths helped them form tighter bonds. Many students found it helpful to set up informal with their peers before the course began.

“Before the fall semester ended, we met up to create guidelines and expectations for the project and communication. Being able to step and delegate tasks is also very important. Having these clear guidelines allowed for the project to run smoothly. In previous group projects, there was often miscommunication. Meeting regularly with the preceptors also allowed for us to have clear communication with the lead center. We also discussed our expectations and learned about our preceptor’s expectations.” (A6-2018-F13)

Other Observations

In 2008, the assignment for student reflection papers simply asked students to reflect on ideas raised in course readings and apply these themes to their own current community project or past work. Students were also asked to include reflections on one of the public health code of ethics guidelines. Beginning in 2009, these reflective essays shifted away from a more narrative style when students were asked to link their learning experiences in the course to guidelines dictated by the YSPH Public Health Practice Requirements. Student essays began to resemble a list of competencies they had addressed through their project. While this yields valuable information about the concrete skills that students identify as important, it limits the educator's view of the student's processes of identity construction throughout the course. However, several of the essays from 2009 onwards did include discussions of the personal lessons that students had learned by building authentic relationships with their preceptors. Reflection is where we would learn how experiences in the course impacted the students' understanding of both public health in general and their role as researchers. Probing for more personal reflection may make visible the factors that shaped students' beliefs and values as future public health professionals.

DISCUSSION

Overall, students had positive experiences in the course. Results from rapid analysis of student reflection essays suggest that experiential learning in community health research engages students at a depth that cannot be reached in the classroom alone. In this context, learning occurred through meaningful collaboration between students and their preceptors. Working directly with community organizations gave students the opportunity to apply their public health knowledge and skills to real world problems. Although some students entered the course with background knowledge of community health, their experiences in building community-research

partnerships through the PBCHR course allowed them to gain a deeper understanding of public health practice.

Key elements for success included: support from preceptors and course instructors, clear communication between team members and community partners, coursework about topics relevant community health practice, and guidance on program planning tools. Students consistently report the importance of having strong support and guidance from preceptors and course instructors. Challenges associated with conflicting expectations suggest a need for processes to determine preceptor and student readiness before collaboration can begin.

Communication, leadership, research, and project management skills were commonly reported to be some of the most valuable lessons learned from the course. Because the PBCHR course is designed to be completed within a five-month semester, students have a relatively short time frame to adapt and pivot as needed when they are inevitably faced with unexpected challenges and roadblocks. While many students described themselves as “type-A” individuals who have a natural tendency to take on leadership roles in the past, the collaborative nature of the course forced them to quickly adapt to each other’s working styles. In this context, the practice-based learning environment served as both a valuable tool for knowledge acquisition as well as socialization. Building close relationships with their preceptors allowed for students to become embedded in the culture of their preceptor organization - giving them another perspective of the reality of public health practice. This finding is consistent with previous research on experiential course design for clinical students (Kelly et al., 2014; Takamura et al., 2017).

For many, this “hands on” experience allowed them to more clearly see the connection between big data and lived experiences. Reflections from student essays demonstrated the value of experiential learning in exposing students to the different ways in which they can apply their existing skills to problems addressed by local service organizations. Especially for students who

did not plan on staying in the realm of community health research or practice, experiential learning in this context was a rare opportunity to directly engage with the people affected by public health issues that they may address later in their careers.

Implications

Aside from identifying key elements and lessons learned from the course, this study also demonstrates the value of essay analysis as a tool for exploring students' learning experiences. Leveraging reflective practices is crucial for examining how experiential learning can play a role in developing students' professional identity as well as understanding and passion for public health (Kumagai and Naidu, 2015; Blenner et al., 2021). Analyzing student reflections through a social justice lens may reveal thought processes that occur as students begin to see how health inequities manifest in the specific context of their project. Encouraging reflection throughout the course may not only provide narratives for future analyses but also encourage students to critically examine their role as public health practitioners.

Limitations

While reflection papers were always due 2-3 weeks after spring break, not all teams were on the same stages of their project at this point in the semester. This discrepancy may explain slight variances in student reflections because not all students had finished their project at the time their essays were written. Since most of the essays analyzed were written by the 2017-2018 cohorts; results from this study may not be representative of student experiences from earlier years. Lost contact over time may explain differences in response rates. Furthermore, variances in response rates among cohorts may obscure themes that are unique to certain groups of students. Because this study includes the analysis of essays written over the span of 10 years, student experiences may differ due to changing social contexts and emerging theories in public health research.

Although this study was able to capture immediate reflections, its retrospective design limits our understanding of the processes by which students construct meaning from the relationships they built with their peers and community partners. Beliefs and attitudes formed during the years after the course were not included in this study. Longitudinal investigation of alumni experiences would be needed to understand the long-term impact of the course. Because essays included in this study predate the COVID-19 pandemic, some findings will not be generalizable for experiential public health courses after March 2020. Adapting to a world where COVID-19 remains a threat would require flexibility to accommodate for students' needs while being mindful of budget and resource constraints on community organizations (Mejia, 2021).

CONCLUSION

Experiential learning in public health provides students with a unique opportunity to collaborate with local community organizations and directly engage in public health practice. The themes identified in this study reveal lessons learned and challenges faced by students in the Practice-based Community Health Research course. Student reflections also revealed key elements of the course that facilitated success in their projects. Observations made throughout the course helped shape students' beliefs and values about public health, which in turn, will likely influence the approaches that they take in their future work. The methods used demonstrate potential for harnessing reflective practices in teaching and understanding students' learning experiences.

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APPENDIX A: Themes

Theme	Quote	Participant ID
Hands on experience	<i>One of the most valuable aspects of this project was being able to see firsthand the dynamics at work in a community health center. Conducting informational interviews and observing the resources available to [agency name redacted] provided insight in a way that reading an article from Health Affairs cannot touch.</i>	Female 1, 2014
Opportunity to do meaningful work	<i>Most importantly, we felt like our project was worth something. We were reminded time and time again throughout our project, especially during difficult times when it seemed we would have no interviewees, that our project was important and that it was serving to "plant the seed" of a necessary endeavor that [preceptor name redacted] had been wanting to do on their own for a long time but they needed someone to collect the necessary information first.</i>	Female 2, 2014
Turning theory into practice		
Relevance to future work/study	<i>As I referred to the mechanisms and teachings from previous public health coursework, much of the concepts, principles and methodologies learned provided a framework or lens to view the issue at hand, but not necessarily what the best course of action would be to most effectively address it. The course work I study and engage fellow students on daily has empowered me to diagnose and address public health issues, however the tools to proceed beyond identifying the problem is a vital skill the project has revealed as perhaps the next critical step in advancing my public health professionalism.</i>	Male 1, 2016
Connecting big data to lived experiences	<i>In working with the [agency name redacted] data set, our group has been able to think both about the dynamics of reproductive health in communities of Connecticut and Rhode Island and how it compares to national trends, and in doing so, envision the numbers both as a health care provider and as a client.</i>	Male 1, 2013

Theme	Quote	Participant ID
Power dynamics in public health research and practice	<i>Expanding on application of formal course work, working with [agency name redacted] required an understanding of systems and the way that constructs of power inform the way community actors and organizations function at different levels in ways that both hinder and strive to promote equity.</i>	Female 1, 2018
Learning to view public health issues from new perspectives	<i>The runner was also the holder of the keys, and because of this, I was seen as having power by the inmates...However, building trust and rapport with the inmates was crucial for successful execution of the study and I often felt I held a level of power that I didn't deserve.</i>	Male 2, 2008
Differing value systems	<i>I have learned that my insight as a researcher and implementer is not particularly helpful until I have some degree of "insider" understanding of the social, political, and economic landscape of the organization, and this realization will help me better apply public health concepts in the future.</i>	Female 2, 2018
Navigating the complex environment of public health practice		
Influence of social and political factors	<i>Our culture's obsession with privacy makes group health care relatively unusual, yet in communities like [community name redacted], it is a reasonable and perhaps desirable option. It allows providers to reach more patients, it is cost effective for clinics, and it has the important potential to foster a sense of social support among individuals with similar health issues...when assessing needs, defining goals, and planning projects in any community we must be aware that our values might (and often do) differ from those of the individuals we are trying to serve.</i>	Female 2, 2008
Understanding the importance of interprofessional collaboration	<i>Soon after, I learned of how politics heavily surrounded our project in [community name redacted], and it became very overwhelming at times to find myself immersed in politically charged environment. What I took away from these stressful situations is how essential flexibility is moving forward in any collaborative public health project and how complex/delicate power can be. I learned of how my words via email or over the phone can be mistaken with some [institution name redacted] baggage and as a result I am more mindful of the ways in which I choose to convey my thoughts, feelings, and intentions.</i>	Female 1, 2015
Balancing needs and expectations	<i>The relationships I have built with the rest of the students in the class have been phenomenal...These relationships are so important, I feel, because as this class has shown me, the practice of public health is so complex and interconnected, that I will need these relationships with other public health professionals so that we can work together towards common public health goals.</i>	Female 1, 2010
	<i>Through multiple preliminary conversations and meetings with stakeholders, we were able to determine which programs to focus on and which health outcomes [agency name redacted] as a whole was most interested in assessing. In that way, we "defined the issue" to analyze and address. I found this part of the process the most challenging, since each staff member expressed different priorities and even different target groups. It certainly provided practical experience in working and communicating with a diversity of stakeholders.</i>	Female 2, 2015

TABLE 4.C

Theme	Quote	Participant ID
Problem solving skills and flexibility are essential in public health practice	<i>[This] experience showed me that there are occasions in which, after undertaking your research, it becomes clear that the question you are examining is much more complex and circuitous than you first anticipated. I learned that being able to recognize that situation and adapt to its circumstances is an important skill for public health professionals to develop. A flexible approach is essential in such an interdisciplinary field.</i>	Male 2, 2013
Applying lessons from outside the course	<i>While we needed assistance in creating a plan for analyzing the data in [statistical analysis], much of the work we did in [statistical analysis] paralleled the work in the Applied Analytics of Epidemiology class that I am currently taking. It was helpful to have real-world utilization of the skills I am learning as it helps cement the learning process, and encourages thinking of real-world applications during class."</i>	Female 2, 2013
Strengthening skills in program management and research	<i>The project did, indeed, afford me the opportunity to participate in the full spectrum of defining a real public health issue such as obesity through a mixed-method research approach. I have engaged with relevant readings, participated in meetings and activities surrounding acceptable research protocols, consulted with public health experts about the problem, and currently conducting independent research by collecting, cleaning, analyzing, and reporting data.</i>	Male 1, 2015
Value of using different approaches to research	<i>While personal interviews could have helped us learn more about the patients who use the services provided under [agency name redacted], because [agency name redacted] specifically wanted us to see if the program effectively helps reduce unplanned pregnancies, we needed to focus on a project that was more data analysis heavy. This project allowed me to understand the benefits of doing data analysis work to potentially help a program secure funds to allow for an existing program to sustain itself.</i>	Female 3, 2014
More experience in academic public health	<i>Another valuable component of the practicum course was exposure to poster creation and conference applications. Our group applied to three different presentations during this course, which helped to familiarize us with the process and to develop additional skills in conveying information through the form of an abstract and later as a poster.</i>	Female 2, 2014
Conducting interviews and focus groups	<i>From our interactions with key informants, we also honed in our interview and professional skills that are so necessary to maintain in the public arena.</i>	Female 1, 2009
Data Analysis	<i>Lots of things that seem straightforward in a classroom suddenly look much more complex in a practice-oriented setting. For example, when we began this project I had already enrolled in many biostatistics courses for my MPH concentration. However, biostatistics courses tend to emphasize theory over practice, leaving me relatively skilled at reciting the calculus behind the relationships between survivor functions but not so clear on how to wrestle [electronic medical record] data into a format to which I can apply those statistical tools.</i>	Female 1, 2016
Learning from teammates	<i>While the preceptor and class exercises helped in my understanding of community health planning, a substantial amount of my growth as a public health student and professional stemmed from my group members.</i>	Female 1, 2012

TABLE 4.D

Theme	Quote	Participant ID
thinking critically about the tools used in public health research and practice	<i>I began to question the outdatedness of the tools and frameworks we use today. This course has made me evaluate and re-evaluate certain norms and standards of practice in public health practice through various readings and class discussions.</i>	Male 1, 2008
reflections on the role of research in mitigating public health issues	<i>As a researcher I suppose the question to grapple with is whether you should do research to collect descriptive statistics alone, or if you should go one step further to help solve the problem; I think that the latter is the only way to make an impact.</i>	Female 1, 2008
recognizing strengths	<i>[agency name redacted] epitomizes a complex adaptive system, with changing external factors in the form of donation sources from foodbanks or institutions. Prior to this class I would have deemed [agency name redacted] as chaotic, an unproductive surface-level conclusion that connotes a certain inability for change. Now I would characterize [agency name redacted] as dynamical and uncertain, which indicates a different set of expectations and approaches.</i>	Female 1, 2018
innovating new approaches to solving public health issues	<i>I feel that this practicum experience has also introduced me to new methods and theories of ways to analyze data, and even consider what "data" is and how research questions can be derived from within the community for tangible and practical needs.</i>	Female 3, 2015
thinking about the impact of their project	<i>The stakes were higher for this project as we didn't just have a grade on the line. Instead, we were standing on the reputation and responsible for maintaining the bridge of proxy trust established and held by [instructor name redacted] and advanced by students before us.</i>	Female 1, 2018

TABLE 4.E

Theme	Quote	Participant ID	
Challenges	limited infrastructure to support a research-based community health project/preceptor readiness Preceptor organizations need to have a basic understanding of best practices for data management	<i>I felt as if our preceptors and group were all at the same level of confusion in terms of what was to be completed. Though the preceptor provided us with a bullet point list of items that she wished for us to work on, those items were unclear from the start and we were not quite sure what was expected from us. I think that this was too premature of a project to have students work on. Because of this, I have learned how to work with a team within an atmosphere of uncertainty.</i>	Female 1, 2013
	Internal politics/competing interests from within the organization	<i>During the initial phase our project, we inadvertently received data that was not de-identified data from our project preceptor and, subsequently, completed necessary paperwork through the IRB to address this issue. This occurrence reinforced the importance of clear communication and afforded us with the opportunity to administratively address an IRB non-compliance issue.</i>	Female 2, 2013
	Strong mentorship and support from preceptors can help teams overcome challenges	<i>Lack of communication between [preceptor names redacted] required us to negotiate the organizational politics and hierarchy. This is the type of work that I can read about all day long, yet is essentially trial by fire in terms of internalizing the concepts and testing the practice. Overall, I strengthened my knowledge and capacity of developmental evaluation principles and CBPR values through being a part of the [agency name redacted] team.</i>	Female 1, 2018
	Time and resource limitations	<i>To my knowledge, I do not think any of the staff at [agency name redacted] have Public Health degrees or if they would consider themselves to have public health expertise. However, the agency and [preceptor name redacted] provided more support than I originally expected. He was very thoughtful in providing a theory of change and a logic model to us at the beginning of the course and continued to have excellent input on the content of the survey and the focus group questions.</i>	Female 2, 2015
		<i>The first challenge that we encountered was the overwhelming expectations from [preceptor names redacted] at the onset of the project; they were really hoping for our team to evaluate almost every aspect across the organization including the community programs, urban farm, and high school. We had to communicate to them that we did not have the time or capacity to do this, and that we could focus on a few priorities in order to do a thorough job.</i>	Female 4, 2015

TABLE 4.F

Theme	Quote	Participant ID	
Strengths	Support from preceptors	<i>Our preceptor [preceptor name redacted] from the DOH had been very helpful in connecting us to individual stakeholders in [community name redacted] who might be able to provide some great insight, or might know other appropriate people to talk to us."</i>	Female 3, 2015
	Communication and Respect	<i>[agency name redacted] offered us the space we needed to conduct our research, and since our project was for the shelter and staff itself, it was helpful to be able to do site visits and get a feel for who we were serving, as well.</i>	Female 1, 2015
	Recognition of individual strengths	<i>Before the fall semester ended, we met up to create guidelines and expectations for the project and communication. Being able to step and delegate tasks is also very important. Having these clear guidelines allowed for the project to run smoothly. In previous group projects, there was often miscommunication. Meeting regularly with the preceptors also allowed for us to have clear communication with the lead center. We also discussed our expectations and learned about our preceptor's expectations.</i>	Female 3, 2018
	Consulting with other experts	<i>It was important that we continued to respect our preceptor's larger goals as we shaped this project. Our strong relationship with our preceptor would not have continued if we did not have this openness and respect for her ideas.</i>	Male 1, 2018
		<i>It's amazing how the 'thank-you's' from the group bring everyone together, and the gratitude shared with the team member who steps up energizes not only the person but the entire team. This initiative is so valuable in a teammate, and I had never realized how important this is until working on an extended project in the absence of job descriptions.</i>	Female 4, 2018

APPENDIX B.1: 2008-2015 Essay Prompts

Table 5.A

YEAR	ASSIGNMENT
2008	<i>Students were asked to reflect on ideas raised in course readings and apply these themes to their own current community project or past work. Students were also asked to include reflections on one of the public health code of ethics guidelines</i>
2009 - 2015	<i>Students were asked to present their reflections on the learning and tasks of their project within the context of the YSPH Public Health Practice Requirement Guidelines.</i>
YSPH Public Health Practice Requirement Guidelines:	
1	Practicum may occur in a wide variety of settings at the local, regional, national or international level but must be outwardly focused on a public health problem or issue. Acceptable venues would include governmental entities, nongovernmental, and private sector organizations with a public health component such as pharmaceutical companies, hospitals, managed care/health maintenance organizations, and consulting firms.
2	Practicum affords opportunity to participate in the full spectrum of defining, analyzing and addressing a “real life” public health problem or issue, either directly or through observation, consultation with others working on problem, participation in relevant meetings or activities, and pertinent reading.
3	Practicum entails one or more of the following roles: Assessment, monitoring, and/or surveillance of population health indicators, social determinants of health, inequities associated with race/ethnicity and socioeconomic status, environmental/occupational hazards and exposures, and other public health issues; Participating in the development and/or execution of applied public health research in the biological, environmental and social/behavioral realms, that has an immediate impact on public health, including translational, evaluation and epidemiological research efforts that contribute to the evidence-base and efficacy of public health practice; Planning, designing, implementing and evaluating public health interventions; Developing disease prevention and health promotion, media advocacy or risk communication materials; Developing, implementing and evaluating public health laws, regulations and policy; Participating in administrative/management activities of governmental and non-governmental public health agencies and/or health service delivery systems such as hospitals or community health centers. Activities could include organizational analysis and restructuring processes, strategic and business planning, organizational policy and protocol, financial management, budgeting and reimbursement processes, preparation of internal or external reports, human resources management, workforce development and credentialing, and addressing regulatory compliance issues such as audits and accreditation processes; Supporting the development and goals of public health coalitions through community organizing and advocacy efforts, needs assessments, strategic and participatory community planning, leadership development, and assisting with the development and implementation of community health improvement plans that respond to local needs and priorities.
4	Practicum integrates public health theory, knowledge, and skills, and applies and reinforces the learning objectives in MPH course work.
5	Practicum aligns with the student’s area of specialization.
6	The practicum project and student role are appropriate for the MPH level.
7	The practicum agency and preceptor have requisite population health orientation, public health expertise, and infrastructure to support MPH level student learning experience.
8	The practicum has deliverables of tangible value to the mission of the placement agency /site.

APPENDIX B.2: 2016-2018 Essay Prompts

Table 5.B

2016 - 2017	<i>Students were asked to reflect on how their project has enhanced two to three MPH Core Competencies and two to three cross-cutting competencies. They were also asked to describe their challenges and learning opportunities, particularly as they relate to the core and cross-cutting competencies.</i>
YSPH Core Public Health Competencies	
1	Demonstrate a knowledge base in the disciplines of biostatistics, chronic and infectious disease epidemiology, health systems, public policy, social and behavioral sciences, and environmental health.
2	Apply basic research skills to specific public health problems in both group and individual settings, including the ability to define problems; construct, articulate and test hypotheses; draw conclusions; and communicate findings to a variety of audiences.
3	Explain the interrelationships between a multitude of factors that can impact on a public health problem, including scientific, medical, environmental, cultural, social, behavioral, economic, political, and ethical factors.
4	Review, critique, and evaluate public health reports and research articles.
5	Apply public health concepts, principles, and methodologies obtained through formal course work to actual problems experienced in the community or work environment.
6	Critically evaluate programs, interventions, and outcomes that relate to public health practice.
7	Apply ethical standards and professional values as they relate to the practice of public health.
8	Demonstrate sensitivity to the social context within which public health professionals practice.
YSPH Cross-Cutting Competencies	
Communication and Informatics	Collect, manage and organize data to produce information and meaning that is exchanged by use of signs and symbols; to gather, process, and present information to different audiences in-person, through information technologies, or through media channels; and to strategically design the information and knowledge exchange process to achieve specific objectives.
Diversity and Culture	Interact with both diverse individuals and communities to produce or impact an intended public health outcome.
Leadership	The ability to create and communicate a shared vision for a changing future; champion solutions to organizational and community challenges; and energize commitment to goals.
Professionalism	Demonstrate ethical choices, values and professional practices implicit in public health decisions; consider the effect of choices on community stewardship, equity, social justice and accountability; and to commit to personal and institutional development.
Program Planning	Plan for the design, development, implementation, and evaluation of strategies to improve individual and community health.
Systems Thinking	Recognize system level properties that result from dynamic interactions among human and social systems and how they affect the relationships among individuals, groups, organizations, communities, and environments.
2018	<i>Students were asked to identify two to three MPH Core Competencies and reflect on how their project has enhanced these competencies. In addition to describing some of their challenges and learning opportunities, students were also asked to choose two leadership, communication, or collaborative skills that they have strengthened during this course and describe how the class affected those skills.</i>
YSPH Core Public Health Competencies	
1	Demonstrate a knowledge base in the disciplines of biostatistics, chronic and infectious disease epidemiology, health systems, public policy, social and behavioral sciences, and environmental health.
2	Apply basic research skills to specific public health problems in both group and individual settings, including the ability to define problems; construct, articulate and test hypotheses; draw conclusions; and communicate findings to a variety of audiences.
3	Explain the interrelationships between a multitude of factors that can impact on a public health problem, including scientific, medical, environmental, cultural, social, behavioral, economic, political, and ethical factors.
4	Review, critique, and evaluate public health reports and research articles.
5	Apply public health concepts, principles, and methodologies obtained through formal course work to actual problems experienced in the community or work environment.
6	Critically evaluate programs, interventions, and outcomes that relate to public health practice.
7	Apply ethical standards and professional values as they relate to the practice of public health.
8	Demonstrate sensitivity to the social context within which public health professionals practice.