

The undergraduate field-research experience in Global Health

Study abroad, service learning, professional training or 'none of the above'?

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ABSTRACT

Interest in short-term international placements in global health training for U.S.-based medical students is growing; the trend is mirrored for global health undergraduate students. Best practices in field-based global health training can increase success for medical students, but we lack a critical framework for the undergraduate global health field experience. In what ways does an undergraduate field experience in global health resemble a medical student's first international health elective? Is it more similar to a study-abroad programme or a service-learning experience with a focus on personal development, civic responsibility and community engagement? This article suggests that an undergraduate global health field experience contains features of both the international medical elective and a traditional service-learning programme. I analyse a case study of a short-term U.S.-based undergraduate global health project and explore the intersections of research, professional training and service learning.

KEYWORDS

Africa, critical service learning, global health, health inequalities, research ethics, short-term training, undergraduate research, video case study

It's hard to imagine a better way to study abroad: you are welcomed into a family and a home, you are taught by local experts, learn the language, traverse the streets, eat delicious food, explore different cultural scenes, and at the end of the semester you are able to direct your own studies and *conduct original research*. Danielle, Washington University in St. Louis [emphasis added]

(SIT Student Abroad (World Learning) <http://www.sit.edu/studyabroad/#.URvNhbahBjc>)



Introduction

Recently an elite American university funded three undergraduate students from three different disciplines (engineering, documentary film, sociology) to conduct a summer research project on an important infectious disease in East Africa. Fully funded for seven weeks, they travelled to East Africa confident their university Institutional Review Board (IRB) approval would allow them immediately upon arrival to distribute ‘knowledge, attitude and practice’ surveys to clinic patients and conduct interviews with healthcare workers on best and worst clinic practices. Like many U.S.-based university students, they were motivated by the chance to ‘do good’ and contribute to ‘making the world a better place’. Also like many American students between their junior and senior years at college, none had ever travelled to the host country, nor did they speak a local language. However, rare for a summer student research project, one member of the team was solely focused on documenting their research process, not the local scene. The goal was to produce a film exploring the full range of their research experience to serve as an information source for future students interested in conducting research overseas in resource-constrained settings. The result was an exceptionally well-crafted, compelling, intimate and entertaining 30-minute film detailing their research struggles, interpersonal conflicts and philosophical musings. It is mostly wry and humorous, with the occasional frenetic atmosphere of a music video. At other times, however, it is self-reflective and critical of their privileged access to resources in their host country and their naïve thinking that they could, in fact, change the world in seven weeks. Ultimately, though, it offers a suspiciously tidy ending for such an unkempt experience. Surprisingly, the group did not upload their documentary to YouTube, nor is it available anywhere on the internet. It has the unfortunate status of grey literature.

The goals of this article are twofold: first, to analyse this film as a cautionary tale of some of the ethical challenges that unfold when U.S.-based undergraduates conduct health research in resource-constrained settings,¹ second, to use the student film as a unique contribution to the broader pedagogical literature on student training in global service learning and research. For four years, I conducted structured classroom conversations with U.S.-based undergraduate students before their departure for global health programmes of between eight and twelve weeks. One of the most striking insights I gained revealed the sharply divergent motivations of undergraduate



students choosing either research or service learning for their global health field experiences. These two groups were equally disdainful of each other and articulated clear reasons for selecting one path or the other for the same desirable outcome: 'doing good in the world'. This article suggests that an undergraduate global health field experience must contain features of both the international medical elective and a traditional service-learning programme, but ultimately the experience poses unique challenges that are best addressed through the emerging critical service-learning pedagogy. To highlight the issue, this article will focus on a relatively infrequent, but increasingly common case: the short-term undergraduate health research project. That is, a U.S.-based student, independently conducting global health research, in a resource constrained country.

Global health field research for medical students

Interest in short-term international placements in global health training for U.S.-based medical students is growing (Panosian and Coates 2006).² Nearly all medical schools in the U.S. offer some type of global health training and many medical students travel overseas for training or service (Merson and Page 2009). Between 2008 and 2012, the trend for graduating U.S. medical students reporting a global health experience increased from 27.5 per cent to 30.4 per cent (AAMC 2012). The trend is mirrored in the U.K. (Gilbert et al. 2013). Similarly, since the mid-2000s, explosive undergraduate student interest in global health enabled U.S. liberal arts and sciences schools to redirect existing, or solicit new, resources to introduce global health into the undergraduate liberal arts curriculum. A recent analysis of the 50 top-ranked liberal arts colleges found 42 per cent offered formalised concentrations or programmes in global health, while nearly 60 per cent taught global health courses (Hill et al. 2012).

As with medical students, undergraduate global health students travel overseas to supplement their academic training, but their experiences are often more diverse and less structured than an international placement for a medical student. Medical students typically spend two months or less on global health placements, while undergraduate global health experiences can range from two weeks to one semester. When medical students travel overseas for their international placement, they are almost always engaged in an academic sponsored programme, often for degree credit. Undergraduate global health experiences range from formal study-abroad programmes for

academic credit to self-directed, independent community service. Although the structural features of the medical school and undergraduate liberal arts short-term international experiences may be different, motivations for participation are remarkably similar. Pre-med or pre-health undergraduate students seek overseas experiences for the same reasons as medical students: the opportunity to participate in an emerging field of inquiry, the desire to reduce the burden of acute infectious disease especially for children in the Global South, a growing awareness of the global rise of chronic non-communicable diseases such as diabetes and cardiovascular disease and a chance to develop or gain exposure to professional health skills.

Does the experience live up to student expectations? For the medical school international health elective, a robust critical literature now examines all aspects of the experience. For example, the journal *Academic Medicine* devotes a special section in most issues to Global Health Education. Despite the ubiquity of international health placement electives in U.S. medical education, medical students often report unsatisfactory overseas experiences ranging from personal challenges to disappointing training opportunities (Jeffrey et al. 2011). Specific issues frequently cited by medical students participating in international health electives are: uncertainty about how they can ‘help’, discomfort when local patients mistake them for physicians and request medical services beyond the student’s training, consuming scarce local resources and diverting the time and attention of in-country mentors to serve the student’s training needs (Elit et al. 2011). Recognising that these difficulties are frequently rooted in unexamined ethical dilemmas, a recent working group of internationally recognised medical, public health, and global health researchers (WEIGHT) developed a comprehensive set of guidelines for best practices in field-based global health training that anticipate and attempt to resolve these ethical dilemmas before the health student’s placement begins (Crump et al. 2010).³ The Unite for Sight NGO sponsors the annual Global Health and Innovation conference; it also offers an online ‘Global Health University’ that presents practical solutions to some of the ethical dilemmas discussed by the WEIGHT group (<http://www.uniteforsight.org/global-health-university/>). However, a few authors are beginning to critique these guidelines as self-serving. They argue that a more critical analysis of the underlying motivations, paradoxes and ad hoc pedagogies of international medical electives is necessary before students can even begin to integrate an understanding of the historical and political roots of global health inequities into their personal experiences in the field (Hanson et al. 2011).



In contrast, we have very little critical evaluation of the undergraduate liberal arts and sciences global health experience. Current understanding of student learning or satisfaction is limited mainly to anecdotal descriptions found on university programme websites, student blogs and in marketing literature for non-university affiliated programmes such as World Learning (<http://www.worldlearning.org>). Successful experiences are highlighted at campus study-abroad recruitment fairs; although, not surprisingly, failures, dissatisfaction or critical assessments are rarely reported. As undergraduate global health education programmes continue to grow, it will be increasingly important to develop a critical framework for assessing their strengths and correcting their weaknesses. But where to start? In what ways does an undergraduate global health field experience resemble a medical student's first international health elective? In what ways is it more similar to a study abroad programme or a traditional service-learning experience with a focus on personal development, civic responsibility and community engagement? Is it more appropriate to evaluate undergraduate success and failure through the lens of international service learning, medical school training or both? And what of the emerging critical service-learning framework: could this be the most fruitful approach to assessing and improving undergraduate global health experiences?

Background to the emergence of undergraduate research

The number of U.S.-based undergraduate students participating in academic research has risen sharply over the past few decades. In the 1980s, the National Science Foundation initiated the 'Research at Undergraduate Institutions' programme.⁴ It was complemented by private funding for undergraduate health research from the Howard Hughes Medical Institute (<http://www.hhmi.org/index.htm>). By 1998, however, the landmark Carnegie Foundation Boyer Commission Report critiqued the continued separation of teaching and research and called for increased undergraduate research opportunities to reach beyond elite liberal arts colleges and research universities. In another comprehensive report, Healey and Jenkins argued that students in higher education are transforming their previous role as passive consumers of research into active producers of new knowledge (2009: 6–8). Although not disaggregated by discipline, the most recent National Survey of Student Engagement study reported an overall average of 20 per cent of graduating seniors participated in research under the guidance of a

faculty mentor (NSSE 2012: 21). Yet most university-sponsored undergraduate research continues to be concentrated in the STEM disciplines (science, technology, engineering and mathematics) and primarily conducted on campus. In fact, a recent study of the integration of research into the social science undergraduate curriculum in eight countries concluded there is little evidence that undergraduate research is systematically taught in the social sciences where it continues to remain limited in its enrolment and overall impact (Parker 2012: 28).

However, the Council on Undergraduate Research (CUR), a Washington, DC-based advocacy organisation with over 600 university members, promotes undergraduate research in the STEM disciplines, as well as in the social sciences (particularly psychology) and humanities. Recent CUR and Association of American Colleges and Universities publications explicitly encourage university leadership to increase resources for all types of undergraduate research (Kuh 2008; Brakke et al. 2009). These two organisations, among many others, argue that undergraduate research is a 'high-impact' activity and should be expanded because it has clear, consistent and measurable effects on student learning and engagement. Furthermore, many graduate programmes now consider participation in undergraduate research a requirement for admission into the best programmes, or to be competitive for industry jobs directly after graduation (Kuh 2008). Even outside the U.S., the British Higher Education Academy notes that the global undergraduate research movement is following the U.S. effort to position research as a distinctive feature of higher education (Healey and Jenkins 2009). For university administrators, perhaps the most powerful motivator of all is fundraising: highly visible undergraduate research programmes increase alumni interest and donor gifts, a fact that is clearly evident in the marketing materials of most leading academic global health programmes in the U.S.

Clearly we will see more undergraduates conducting research in the future, especially among students interested in undergraduate global health. Undergraduate research is defined by the CUR as 'an inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline' (http://www.cur.org/about_cur/fact_sheet/). For most educators in any discipline, research is an essential component of the development of higher-order thinking, eventually culminating in original work. But is undergraduate research merely a scaled-down version of graduate research, or is it something entirely different? The problem with the equivalency model, according to Kuh, is that while undergraduate research –



may mimic the mentor's methods and research design, in most cases, it fails to produce the outcomes that are the hallmark of successful research – sharing results and peer-reviewed publication (Kuh 2008). This is not due to poor preparation on the part of the professor or student, he argues; it simply reflects the fact that the student is necessarily in a preliminary phase of their training, intellectual development and commitment to their professional discipline. Despite that significant difference, the 'sole measure of the value of undergraduate research [continues to be] research productivity' (Kuh 2008: 11), not student learning outcomes. In contrast, undergraduates themselves value personal growth more highly than research experience. Assessing their summer research experience, undergraduate students rate developmental gains such as independence, increased self-confidence, and tolerance for uncertainty of higher value than gaining proficiency in laboratory techniques (Lopatto 2010). Is the undergraduate research experience more research or more cognitive development and training?

Models of service learning

Over the past 40 years, service learning has evolved from a social movement to a widely accepted values-driven pedagogy employed in higher education. In a recent literature review, Beatty identified three distinct models of service learning currently in practice: (1) professional career training and cognitive learning, (2) civic engagement and affective learning and (3) social change and activism skills. The most underdeveloped model is the social-change model, while a service-learning experience that fully integrates these three models continues to elude educators (Beatty 2010: 194). In the analysis below, I apply two of Beatty's models of service learning to analyse a global health research project. This enables me to demonstrate the overlap between undergraduate global health research and service learning. I focus the analysis on a single theme, 'power and privilege', chosen from Doerr's list of major components essential to promoting the social-change model of service learning (2011).

The professionalisation model is the most common model in service learning; it is also the principal goal of an undergraduate global health research experience. Both types of programmes offer an explicit project-driven experience, the opportunity to apply classroom training to real-world situations, the promise of learning practical 'marketable' skills, and the opportunity to observe the professional standards of their discipline in a global context



(Beatty 2010). The central goal of the professionalisation model of service learning and undergraduate research is to equip the student to excel at the next stage of their academic or professional career.

Global health research vs. service learning: how students see it

The mismatch between the goals of academic research in general and the experience of the undergraduate researcher is worrying on many levels. As is evident in the student quote at the opening of this article, many students confuse their international experiences with ‘conducting original research’, most likely because they are gathering knowledge new to themselves, not necessarily new to the scholarly community. In addition, the increasing tendency to require undergraduate students to submit project protocols to university IRBs, often just for the purpose of gaining experience with review boards procedures, misleads students to think that they are, in fact, conducting generalisable research that has the necessary components for consideration for publication. When we consider undergraduate global health research in particular, the concerns become even more ethically complex, and overlap with some of the ethical issues for medical student international placements. Should we scrutinise undergraduates’ interest in conducting global health research with the same ethical frameworks developed for evaluating the benefits and burdens of medical student placements overseas? Undergraduates conducting global health research in resource-constrained settings often need even more supervision and mentoring and are less likely than medical students to be in a country with an academic support system. Is it correct and right to expect host countries ‘in the south’ to bear the burden of training our undergraduates ‘from the north’ in global health research; or as Reisch writes, is it correct and right to ‘use the community as a vector for student education’ (2011: 94)? Hosting and mentoring an undergraduate student is labour intensive and involves a range of risks for both the mentor and the mentee, while the in-country mentor is usually not compensated as this might create a conflict of interest. Undergraduate research projects rarely reflect a well-orchestrated collaborative process, best conducted prior to the student’s arrival in the host country in order to establish a research topic of mutual benefit. Undergraduate research projects are also short-lived and depend on quick access to the field or study participants. They are often orphan or ‘one-off’ projects, and unlikely to be sustained.



Distinguishing medical research and clinical practice in the context of global health short-term medical outreach trips, DeCamp notes that the intention or goal of short-term medical programmes is often described as providing medical benefits to individuals and the community. But exactly what is that benefit, who benefits, and how much benefit is enough to justify the resources spent on the entire exercise (2007: 21–22)? ‘All too often’, he writes, people ‘involved in short-term global medical outreach uncritically assume that their actions are good’ (2007: 23). In a similar vein, undergraduate students conducting research in resource-constrained settings often are motivated to ‘do good’ through research. Students who choose a research project rather than a service-learning experience, explicitly value the ‘bundle of skills’ (Urciuoli 2008) they believe distinguish them from others applying to graduate school or professional jobs. These students crave membership in the cosmopolitan community of global health researchers. Some are driven by the ‘halo effect’ that confers the impeccable value of ‘doing good for one’s fellow man’ on to the student themselves; while others are inspired by the remarkable career of Paul Farmer, so well described by Citrin in his study of motivations for short-term medical volunteers in Nepal (2011). Others observed that professional global health skills are not taught in the U.S. classroom, but acquired in the field. Global health research opportunities for undergraduates are often funded through prestigious competitions sponsored by their home universities; when students return to campus, their projects are featured on blogs and in well-advertised research fairs. Students interested in research are often drawn to the opportunity to work alone, or at the most, in very small, select groups. Research methodology offers clear procedures that structure what could be an unruly and unpredictable experience. Most importantly, perhaps, is the belief of many undergraduate global health researchers that sustainable ‘change for good’ can only come from organisational change, that is from insights gleaned from research and implemented through health systems for long-term change. Students who explicitly choose global health research over service learning characterise service learning as less effective, less goal-oriented and ultimately less sustainable. At the same time, they recognise that change based on their research findings may be realised long in the future, but they have great faith in the ability of new knowledge produced from research to create real, lasting change for the local community.

In contrast, students who pursue service learning or study-abroad programmes often choose this path with an explicit rejection of a research project.



These students describe formal research as elitist, as part of a cold and self-serving university or national Ministry of Health culture far removed from the everyday concerns of people living at the community level. They see structured research as out of touch and useless, promoting a cynical ‘research industry’ of university graduates chasing research grants rather than directly serving the people. These students seek a ‘real experience’ (see Hickel this issue), an authenticity they believe is not possible when one is caught in the web of artifice that supports the production of research. Service-learning projects, or students who join ongoing projects, are often self-funded and deploy social media to raise money. Evidence of successful fundraising through crowd-sourcing technology confers on the service-learning project a unique type of legitimacy that a research project would never dare seek out. These students thrive on a loosely structured programme and believe the less preparation they pursue and the fewer preconceptions they bring with them, the more open and sensitive they will be to recognising original and meaningful insights when they pop up in the field. They believe ‘change for good’ comes from the bottom up, when issues are identified by the community and skills to address the problems are embedded in the community. For service-learning students, this approach produces change that is concrete, immediate, material, interactive and sustainable – everything they find lacking in formal research.

Global health research vs. service learning: how the students experienced it

The characteristics that distinguish research and service learning seem crystal clear to undergraduates. However, when I observe their actual experiences preparing for and returning from the field, the distinctions appear much less pronounced to me. In the final section of this article I turn to a single case study to consider the intersections of research, professional training and service learning for a small global health team research project. In this case, the clear objective of the three undergraduate students who travelled to East Africa was to conduct research about ‘knowledge, attitudes and practices’ of healthcare workers and their patients regarding an important infectious disease in order to ‘identify the strengths and weaknesses in the current system’. During seven weeks in-country (four weeks of active research), they visited 20 healthcare clinics, distributed 700 surveys, and arrived at the conclusion that the country needed to develop ‘a social under-



standing of the disease which facilitates the treatment and prevention in a culturally sensitive manner'.⁵ Not surprisingly, the students did not offer any novel suggestions on how to implement their conclusions. Fortunately, no serious adverse outcomes occurred as a result of their project. However, the students' sense of entitlement, rooted in the power and privilege accorded to them as 'researchers' with IRB clearance and a prestigious funding source, threatened to endanger their project, their in-country collaborators and possibly the ability of future students from their university to conduct research in this country. The following episode, the first of two examples presented here, is taken directly from the student film and reveals inappropriate, perhaps even illegal behaviour, a failure of moral judgment and a lack of respect for the authority of the national research review office.

Before leaving the U.S., the students applied for research clearance through the national research office and received an email acknowledging receipt of their materials, which ended with a cheerful, 'You are welcome to < ** >'. They assumed they had research clearance. When they arrived a few months later, they discovered that their proposal was still pending. For



Figure 1: Act One: Power and Privilege



the next three weeks they visited the research office every day to check on the progress of their application. One day they decided to ‘capture on hidden camera’ their verbal exchange with ‘God’, the secretary who was the powerful gatekeeper who controlled their communications with the review committee. This scene occurs about nine minutes into the 30-minute film. By this time, our sympathies are with the protagonists – the students – who, as the film is designed clearly to demonstrate, have endured all manner of outrageous and egregious delays, subterfuges and scams. As a result, we (the audience) are drawn into the students’ drama, we are rooting for them and their important project in their fight against the tyranny of illogical government bureaucracy. We snicker at the right moment and conclude that people like this woman (‘God’) are yet another reason why this country is so messed up. We might even fail to question the ‘right’ of the student filmmaker to enter the National Research Office with a hidden camera.

Yet it is only at the moment that the students successfully complete the in-country research clearance process that they stumble on their true motivation for the project. The filmmaker confesses in a voice over:

As soon as we got that letter, the research itself became unimportant in a lot of ways. It was almost as if it was never really about the research in the first place. It was really about three young Americans who took a larger step out of their comfort zone than they had ever taken before. And finding out what it means to do good in this world. The thing is, whether the letter came or not, whether we even stepped foot in the clinic or not, there was no way we could fail, because we couldn’t help but learn, and that has done us good, all of us good.

Although I do not share the optimism of his conclusion, this is a transformative moment of self-awareness for the filmmaker, an insight that comes not from the professional experience of conducting research, but from the aggregation of all the challenging moments of navigating daily life in an unfamiliar culture. Was this a successful service-learning experience following the professional training model? Perhaps. They did apply classroom skills in a real-world setting, and learned that they were under-prepared. They did gain an appreciation for the challenges of conducting successful research and clearly understood that their skills were weak. In terms of taking the next step in their professional careers, one is now finishing a Masters of Public Health graduate programme and one has left academia. The filmmaker



continues to pursue filmmaking, but because this film is not in circulation, it is unclear how this experience contributes to his career development. Could the students have experienced more success, less frustration and returned with positive lessons to share with others if they had been sent to conduct a project in the service-learning mode, rather than to conduct professional research? Yes, and perhaps they would have produced a very different film that we could share with other students about to embark on a similar journey. They did achieve great success, I would argue, and it came in an unscripted moment of frustration, thinking out loud about the possibilities for anyone 'to do good in this world'.

The social-change model is the most elusive model in service learning (Beatty 2010), yet it is the principal framework driving many U.S.-based students into global health. Both the social-change model and the social-justice frameworks of global health and social medicine share outrage at social and economic inequities and a desire to challenge the structures that allow those inequities to persist and to expand. They attempt to improve an individual's daily life, but also to understand and target the global structures that perpetuate poverty, encourage corruption and undermine or violate human rights. Both a social-change model of service learning and global health students striving for social justice work towards the redistribution of power in their daily interactions with the community and in the health systems that shape the community's ability to fulfil their potential. This approach requires the student to craft their own political stance and to consider the possibility of their own complicity in the inequities of the global system.

About two-thirds into the student film, it builds towards a climactic moment. We have seen the research team rise before dawn to search out remote health clinics and distribute surveys, wait for hours in hot and crowded hallways for the chance of a short interview with harried health professionals, and finally, most dramatically, to gaze on the faces of people suffering with the infectious disease they wanted to eradicate. After all the struggle to get clearance and begin the research, this seemed like it should be a moment of triumph, but instead it is their darkest moment of self-doubt. The philosopher on the team begins to question the value of their research project, and even the ability of research in general to improve people's health in this part of the world. And yet, they achieve one of their greatest insights about where they, as privileged young Americans, fit into an inequitable global system and clearly see their own powerlessness at the hands of the very system they are trying to change.

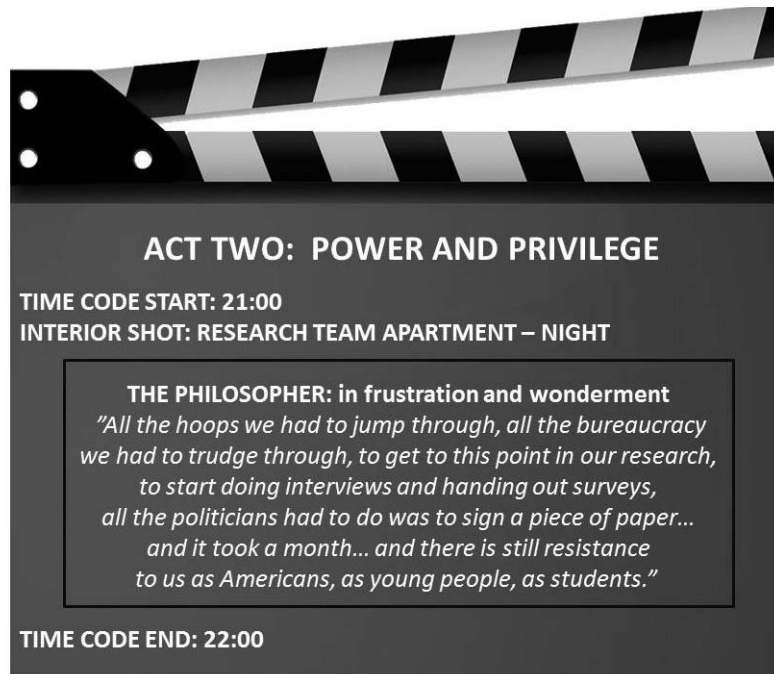


Figure 2: Act Two: Power and Privilege

They come face to face with the confounding and maddening logic of the seemingly senseless bureaucracy. But they also finally understand what it is they need to do to return to conduct meaningful research. The philosopher continues his soliloquy:

We had to go through this as researchers. We had to hand off the research to <our collaborating NGO>. It could be the best research in the world, but enacting those things, <pause>, it's just funny to me, it took a month just to be able to walk into clinics, to hand out surveys, and to set up interviews, but to enact actual change, I can only imagine how much work that would take and how much time that will take. And I know that's a defeatist attitude, but I'll never know what the result of our research is. Truly, the research could have opened someone's eyes, but it can just be a miniscule part. Until we are fluent in <local language>, until we have lived here several months, and met different people here, of different social statuses, lived in the congested areas that are plagued with <infection> and where the majority of deaths occur, and until we develop good relationships with the clinicians, even follow them around for a week, get into their minds,



into their lives, we won't do good. We can still hope to do good, and I think we will still do good with this project ... it is commendable and honourable to do good for other people, but we are in the prime position, we are tailored to help not these patients, not the inefficiencies of even the U.S. government, but ourselves, our own lives. We know the good things in our lives, the bad things in our lives, our histories, our goals. We know more than any other person about ourselves, so the only way we can surely do good is with ourselves ... is living, is being good, making ourselves good. If we lived here with these patients, for months or years, we could do so much good, I am sure, with our experience as students, with our research and analytic and filmmaking experience, but by the nature of our project now we are pretty disconnected. We are trying our best, but that is what concerns me, that is why I don't really know if we are doing good now.

Reflection

Traditional service learning, Mitchell et al. write, risks becoming 'a pedagogy of whiteness ... consciously or unconsciously reinforcing norms and privileges developed by, and for the benefit of, white people in the US' (2012: 613). Applying this formulation, it is clear that white students from the U.S. need to explore their race not as an unproblematic fact, but as a social construction that can prevent them from achieving a critical self-awareness of their motivation for 'doing good'. In a similar mode, we need to challenge our students' simplistic understanding of research as a brave and pure pursuit, so they recognise global health research as a social construct as well, and come to appreciate that the cost of devoting precious resources (both mentoring and money) to their training as undergraduates is neither neutral nor obviously beneficial to the host country. Without a critical framework within which to analyse their privileged research role, the students described here were caught by surprise in the field, made errors and wasted valuable time and resources. While these students initially understood that poor health in East Africa was the result of structural inequities on both a global and local scale, they lacked a critical awareness of how research, their research, was also a part of that structure. The epiphany that the student philosopher so eloquently shared with the camera should have been the starting point of the project, not the end point. This was a failure not of the students, but of the falsely enabling environment of their pre-departure 'training'. The students should have been challenged, no matter how insurmountable or idealistic it may seem, to move beyond the mere description and measurement of



observable health inequities to develop ideas to promote social change, not just to 'do good'. They also needed to be equipped with a framework for self-reflection, to consider the potential consequences of their role and presence in the field, and to ask themselves, was this the best use of scarce resources, and if yes, was this the best project for them?

Applying the criteria discussed earlier in this article, can we conclude that this was successful research? No. Did the research project ever have a reasonable chance of achieving the goals of the protocol as approved by the university IRB? No. Answering DeCamp's questions (2007), do the benefits justify the resources spent to support the project? No. Clearly this research project failed because it was impossible for three undergraduate students who did not speak the local language, had never been in the host country and had no previous experience with the research topic, to conduct successful research. Why were they funded to conduct research in the first place? Their university, their mentors, the IRB, and the collaborating NGO all set these students up for failure because funding them to conduct research, even at the undergraduate level, was regarded as more valuable for their professionalisation than training them to participate in a service-learning project.

Did we send them on a research safari? Mitchell might answer yes. She notes that students, and their faculty and in-country mentors, need to be involved in a dialectic and responsive process that encourages ideas about collective action, not just data collection for later analysis (2008). Of course, it is an ideal scenario when an undergraduate student on a short-term international independent research experience has frequent enough interaction with a faculty mentor that a moment of 'dissonance' can be captured and transformed into genuine learning (Doerr 2011: 75-76). Indeed, this is the core challenge of applying a critical service learning pedagogy to the independent global health research experience - to anticipate and capture moments of dissonance, engage students in self-reflection and then move them beyond the inevitable frustration to another level of awareness of how both they and their projects are shaped and determined by their power and privilege. Then the real learning starts.

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Notes

1. I chose this case study because it contained nearly all the standard problems that ill-prepared global health undergraduate researchers can encounter during their fieldwork experience in Africa. I have written permission from the team to discuss their film in this article. However, they requested that I obscure their identities as much as possible. They approved the way in which I refer to their project here. I was not involved with any aspect of their project, neither developing the research protocol, nor securing funding, nor reviewing their results. I gratefully thank these three students for giving me access to their film and allowing me to write about their experience.
2. Before enrolling in medical school, students in the U.S. and Canada typically complete four years of undergraduate education. U.S.-based medical students usually participate in an overseas placement experience after either their first or fourth years of medical school, or both.
3. These pre-departure global health training guidelines are distinct from the large literature on research ethics and the responsible conduct of research.
4. Now entitled 'Facilitating Research at Primarily Undergraduate Institutions' http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5518
5. This is a direct quote from the students' final research report submitted to the university.

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