Inquiry-Based Freshman Seminar on "What You Can (or Should Not) Do to End Global Poverty"

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ABSTRACT

Offering first year seminars and experiences is well-established as one of the high-impact educational practices. An inquiry-based freshman seminar in which students conduct poverty simulation term projects has been offered for five years at the University of Georgia. The students have four project options of: dressing the part and panhandling downtown or eating at a local soup kitchen, living on $5 per day for a reasonable number of days, and coming-up with their own similarly structured project. The key element in these projects is putting the student in the poor person's shoes. The students reflect on their experiences through a 1000-word essay. To date, 73 students have taken the seminar: 31 students chose the panhandling project, 20 chose the $5 per day project, 18 chose the soup kitchen, and 4 chose the independent project. Qualitative analysis of the panhandling 35 reflections revealed seven themes, while analysis of the 38 $5 per day/soup kitchen reflections revealed eight themes. Some of these themes suggest the experience aroused the students' empathetic (not sympathetic) feelings and thoughts. Of the 35 panhandling students, 20 exhibit the full extent of empathy. Of the 38 $5 per day/soup kitchen students, 29 exhibited the full extent of empathy. Full extent of empathy was counted from students who reported decisions they have or will make in response to the arousal. Whether these students will implement these decisions in the future or not is a question for a longitudinal follow-up study.

Key words: Inquiry-based learning; experiential learning; active learning; poverty; simulation; empathy; reflection.

INTRODUCTION

In response to first-year seminars and experiences being recognized as one of the high-impact educational practices (Kuh, 2008), the First-Year Odyssey Seminar (FYOS) program was rolled out

five years ago (2011) at the University of Georgia (UGA). In this university-wide program, professors (tenured and tenure-track) propose one-hour seminar courses that are approved with respect to how well they fit in the broader FYOS goals. The goals include introducing students to the importance of learning and to the concept that learning can occur both in and outside of the classroom. In these seminars, professors share their passion for research, teaching, and service in small class settings of approximately 16 students. The small class-sizes provide freshmen an escape from the large classes and promote student-student and student-professor interactions. Taking a FYOS is required of all freshmen during their first year. At the time of writing, there are over 300 seminars offering a wide range of topics from "Alzheimer's" to "Visualizing Athens".

The author developed a FYOS to introduce freshmen to the great experiences gained by the upperclassmen he has worked with for the past 15 years, on overseas projects. These projects have a central goal of poverty-alleviation through technologically-based interventions (Kisaalita, 2017). The topics of the seminar are presented in Table 1. UGA faculty, developing these seminars, are required to consider three pedagogical goals. To cater to these goals, the author engages students in the academic culture of the university (Goal 1) by bringing out the notion that there is no right or wrong answer to complicated issues of our times. Instead, we can come-up with the "best" answer given the context of the situation. For example, the author uses a class discussion on the pros and cons of giving aid. Students who are attracted to this FYOS are most likely to be in favor of giving aid to people or countries that are less fortunate. But the author explores many situations where giving aid hurts those we most want to help (Corbett and Fikkert, 2009). To encourage positive, sustained student-faculty interaction (Goal 2), the author works with students in small teams of 2-3 on projects discussed below and once or twice a semester, organizes a social function for the class. Also, the author shows-up 10 minutes early and stays behind to informally interact with the students through anything they want to talk about. To increase the student understanding of and participation in the full mission of the university (Goal 3), the author strongly encourages attending university-wide talks on undergraduate research, service-learning, and by distinguished speakers on any topic of interest. As an incentive, six points are awarded as participation grade for attending at least three events.

The author had an additional pedagogical goal/question and structured the FYOS to be characterized by three elements: 1) Inquiry-based instruction that facilitates a form of active learning, 2) Group and individual interplay where group/team activity can facilitate the solitary learning activity, and 3) Reflection that can bring the meaning or impact of the overall seminar experience in focus for most students. With these additional element, the central question the author wanted to answer was if reflections (Element 3) will reveal the hypothesized impact of the seminar – an empathetic understanding of poverty. Eighty percent of the grade is derived from five essays. As shown in Table 2, the

Topic No.	Topic
	Table 1. Seminar Topics.
1.1	**What is poverty?** From a freshmen's and poor person's viewpoints
1.2	**What is poverty?** From government and similar structured institutions viewpoints
1.3	**On the psychology of poverty** From psychology traditions and general intervention strategies
2.1	**Poverty alleviation** Pros and cons of poverty alleviation
2.2	**Poverty alleviation** Relief, rehabilitation, and development approaches
2.3	**Poverty alleviation** Top-down, bottom-up, and hybrid approaches
3.0	**Gender asset gap** Disparity between amount of work and income among women in developing economies, with emphasis on sub-Saharan Africa
4.1	**3p-Innovations (poverty-alleviating, prosperity/wellness-building, planet-sustaining)** Field lessons learned under this program, which focuses on technology-based solutions that are transitioned to innovations through success in the market place
4.2	**3p-innovations** Seven habits of undergraduate student change-makers

first four essays are deliberately set to lead the students to the inquiry-based term projects and the term essay (reflection on the project). While the project choices are individual, the execution is done in groups/teams. The student reflections are done individually, but the final presentations are done in groups/teams. This puts the students in situations where they have to expose their ideas to group/team scrutiny and to work as a group to develop and relay executable plans to the rest of the class, but maintain their individuality in the reflection essay. This way, students learn from each other and most importantly, their anxiety about executing the project is reduced or contained.

Empathy is defined as, "the art of stepping imaginatively into the shoes of another person, understanding their feelings and perspectives, and using that understanding to guide your actions". This is different from sympathy, which encompasses things like pity, sorry for the other person, with very little understanding of the person's feelings or perspectives (Krznaric, 2014; Schneider et al., 2009).

In the grand challenges of our times, such as the United Nations (2015) 2030 Agenda for Sustainable Development or the National Academy of Engineering (2013) Challenges for Engineering, it is evident that STEM majors have significant roles to play. However, for STEM majors to have an impact on challenges like, "Ending poverty in all its forms everywhere," it is necessary to embrace the "socially-situated nature of engineering work" (De Weck et al., 2011). Such views contradict the traditional conceptualization of STEM majors, such as engineering, as a field in which mathematics and science

knowhow are relied on to solve technical problems. As pointed out in a recent review by Walther et al. (2017), this tension between traditional education and the shifting demands of the profession is one of the reasons behind continuing engineering curricula reforms.

A key construct that has emerged in efforts to move the preparation of today's STEM undergraduate majors toward being socially-situated is "empathy", which is being explored as a core skill (Walther at al., 2017; Strobel et al., 2013). The question confronting STEM educators is how to foster the acquisition of empathy among undergraduate students. The answer to this question is complicated by two opposing views. On the one hand Riemer (2007) argues that it is teachable. But on the other hand Vallero and Vesilind (2006) argue that empathy is not teachable; one either has it or one does not.

The inspiration for the poverty simulation projects and the overall seminar came from observations from pre- and post-testing results of upperclassmen the author works with on overseas projects (with short – two-weeks, or long – eight-weeks overseas stays) in senior capstone design classes and/or summer inquiry-based/applied research experiences. The goal of summer activities is to help move design solutions to innovations. A key requirement in these projects is a deep understanding of context. Students are required to experience firsthand the problem to which they are generating solution concepts. For example, when the student design team worked on a solution to hand and stone Argan nut cracking among southwestern Moroccan women (Kisaalita et al., 2010), the first thing they did was to sit on the floor among the women and crack these nuts between two stones like the women did. In other words, they were required to step in the women's shoes. Testing of these students in comparison to controls (students that worked on local US industry supplied problems) conclusively reveal acquisition of a higher level of empathy (Kisaalita and Muyanja, 2016). So, the results of our field work are in agreement with the teachable view expressed by Riemer (2007).

The majority of students are attracted to the author's FYOS from a sympathetic viewpoint. This is discernible from their understanding of poverty in essay #1 (Table 2). At this point, for almost all (72 out of 73 essays), poverty is "seen" through a single lens of materialist depravation (clothes, food, medicine, etc.). At this point in their experiences with poverty, the emotional lens that is critical to deeper underdoing of poverty and therefore becoming better-equipped to come-up with solutions that can make long-lasting differences, is completely foggy.

It was hypothesized that by centering the FYOS on poverty simulation projects that put the freshmen in the shoes of the poor, the experiences would move them from sympathetic to empathetic understanding of poverty. It was further hypothesized that this movement should be "visible" in the students' reflective writings. In this paper the author shows that poverty simulation projects are an effective approach to empathetic understanding of poverty, and this understanding can be discerned from reflective writing by the students. As such, the effectiveness of the senior design- or

	Table 2. Essay/term projects assignments.	
Essay number	**Assignment**	**Comment**
Essay #1	In not more than 500 words, describe what comes to your mind when you hear the words "poverty" and "designer"	Designed to provide insights on what the students think poverty is.
Essay #2	"In NOT LESS than 800 words, describe what term project you will pursue (beginning) and why, how you will pursue it (middle) and what you expect to find (end)."	This writing calls for details and students are provided with feedback and rewrite until they get it "right"
Essay #3	As a "future change maker", come up with an idea with potential to make a difference (local or global) in an area of your choice (e.g., poverty, health, education, etc.). Write a persuasive essay, NOT LESS than 800 words, to get a population of your choice (e.g. students, national student organizations, funding agencies, university administrators, etc.) to join you in getting this organization/project started or funded or implemented.	This essay is designed to see if the skills from the previous essay on how to find answers to a question can be translated to a different way – making a pitch for something the students may be passionate about.
Essay #4	Study the Bill & Melinda Gates Foundation Rounds #11 and #12 Grand Challenges (URL provided). Come up with an idea of your own to any of the challenges you find most appealing and write a proposal following The Foundation Guidelines. A successful sample proposal submitted by Professor Kisaalita to a challenge in Round #11 is attached for your guidance.	We repeat the same thing as in Essay #3, but this time in a global context – mostly outside of the students' experiences – and on a restricted range of problems, and with very specific instructions including things like budgets.
Project #5.1	Panhandling	
Project #5.2	Eating at a local soup kitchen	
Project #5.3	Living on $5/day	
Project #5.4	Your own idea – needs Dr. K's approval	
Essay #5	Please write a reflective essay, NOT LESS than 1000 words, on your project experience. Even if you worked in a group, the essay is an individual write-up. In project-based learning experiences, similar to this class project, a reflective essay could provide some details of why and how the project was conducted, the observations made and an interpretation or deep thought about those observations, with respect to one or more of the following dimensions: knowledge, skills, attitude, identity, etc. You will be required to make a group (if you worked together) or single (if you worked alone) class presentation lasting 5 min (single presenter), 7 min (two or more presenters).	The major interest is to see if the project reflection captures decisions as a results of aroused feelings by the simulation

inquiry-based projects overseas, with regard to empathetic outcomes, can be translated in a freshman class with well thought-out local simulation projects.

As already shown in Table 2, four project options are presented to students including: 1) Panhandling downtown Athens, 2) Eating at a local soup kitchen (Our Daily Bread), 3) Living on $5 per day for not more than 5 days, and 4) Self-generated ideas. In all these projects, safety of the students is paramount. For example, panhandling students work in teams of 2 to 3 and the author insists on being present during the execution of the project, although at a distance not to interfere. Students only came to Our Daily Bread, the day of the week the author volunteers to cook and serve meals there.

The seminar has been offered five times (2011–2015) to 73 students. The most popular project is panhandling (31 students), followed by $5 per day (20 students). Eighteen students chose the soup kitchen and only 4 opted for the self-generated project ideas. These self-generated project ideas included randomly interviewing homeless individuals in downtown Athens, "shadowing" a homeless individual one afternoon, spending a night at a homeless shelter, and studying the effects of being hungry on one's cognitive function. To test the sympathy to empathy hypothesis, reflection essays were analyzed, following an approach published by Litke (2002). Briefly, two independent coders (Teaching Assistants, trained on the methodology) reviewed the reflections and identified units belonging to a theme. Units were discernible, isolated thoughts expressed by the students. In some instances, a whole paragraph could constitute a single theme. In other instances, multiple themes could be expressed in a single paragraph, and in rare cases, a single sentence. The coders met and reconciled differences. The results from the 31 panhandling and 4 independent projects are reported and discussed below with illustrative quotes. The results from the remaining 38 soup kitchen and 5$ per day reflections are presented and discussed without illustrative quotes, due to limited space.

SAMPLE PROJECT IMPLEMENTATION

In assignment #2 (Table 2), students came up with a plan on how they will pursue their chosen project. A representative sample of such a plan from one of the students is presented below for illustrative purposes.

We coordinated a day and time that worked with all of us as well as our professor and set out to go undercover in the field. Myself, I found the rattiest pair of sweatpants I owned and turned them inside out, wore them with old work boots, a tattered shirt and large puffy wind-resistant Dale Earnhardt NASCAR jacket that I had recovered from a thrift store a few years prior. My colleagues Jan and Kathy [not the real names] sported similar not-so-in-character outfits of old shirts, leggings and either tennis shoes (Kathy) or flip-flops (Jan). The flip-flops in the cold weather did appear to fit the look as a normal college kid would most likely be wearing socks and shoes, just as Kathy did with her untouched Nike free runs, setting her disguise noticeably off-balance. But nonetheless, we persevered as a group of impoverished misfits for the course of an hour.

We met with our professor outside the Starbucks on College Avenue where he briefed us with the general terms of our experiment. Meanwhile, I scribbled phrases in Sharpie on a

cardboard sign we found amongst the garbage on the street. Commonly viewed phrases that one would see when strolling the town in the evening as they pass by someone in need: "ANYTHING HELPS," "THANK YOU," we even went so far as to say that one of the girls was pregnant, and that we all had been kicked out of our respective homes. Who of the two girls that was allegedly pregnant remained ambiguous however, Jan did serve to hold the sign and we had previously discussed our background information that we were a couple, kicked out for said pregnancy. We walked up Clayton Street to its west end and found our home on a cement shelf housing a tree on the sidewalk, outside a dress boutique and adjacent to a frequented crosswalk. Kathy and I sat on the ends of the threesome, a cup with loose change in it in her hands, and a poorly made bongo of sorts clenched between my thighs that I drummed continuously to ensure some form of interaction from a subject passing by. Note that the loose change we started with was our own and served to provide the image that we had been panhandling for a small amount of time and to encourage others to add to it.

Other groups had variations in their plans, such as the messages on the signs, the locations chosen, the story line, clothes worn, and the preparation the day before. Some students skipped showering the day before, did not use make-up and did not care for their hair in efforts to look poor/homeless. They were instructed to come clean if they were not believable and someone insisted on knowing what was going on.

RESULTS AND DISCUSSION

Panhandling and Independent Projects

The reflections were read twice. The objective of the first reading was to identify the frequently occurring themes. In the second reading the themes occurring in each reflection were tallied. Themes with one or two hits were not included in the subsequent analysis. A total of seven themes were found and were categorized three ways. The distribution of the Themes in shown in Figure 1. Three themes belonged to the first category of "observation by the students about themselves". Two themes belonged to the category of "observations by students about the pedestrians and other panhandlers they interacted with". One theme belonged to the category of "the elements of the environment in which the students were operating."

The most common theme included a number of behaviors by the pedestrians observed by the panhandling students, such as avoidance either by crossing the street or by not making eye contact or by pretending to receive a phone call, etc. In some instances, pedestrians expressed some form of fear of the panhandling students. Students were offended by this treatment. They expressed their
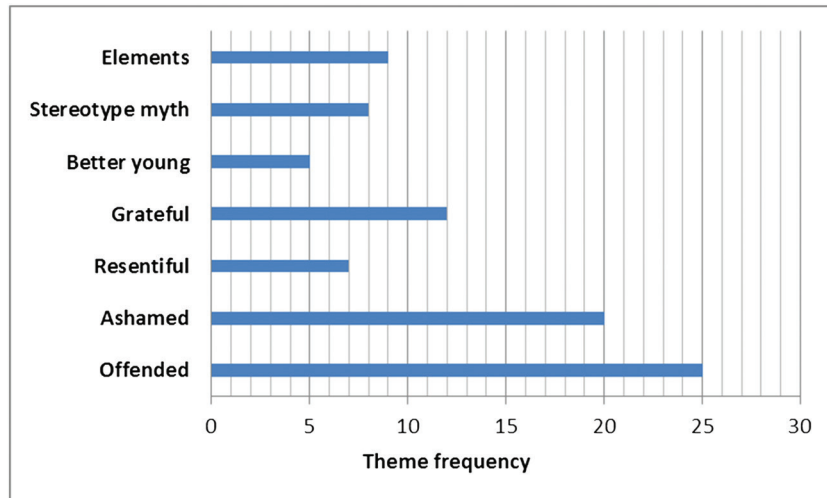
Figure 1. Relative distribution of themes from freshmen reflective essays written after completing a panhandling simulation project. "Offended" includes feelings resulting from reactions from pedestrians such as avoidance or no eye-contact. "Ashamed" includes feeling resulting from either fear of being seen panhandling or being 'dehumanized' by pedestrian's reactions coded under "Offended". "Resentful" includes negative feeling toward the offending pedestrians. "Grateful" includes feeling of thankfulness, appreciativeness, etc. for the privileged life the students have. "Better young" captured observations of young pedestrians more willing to positively engage the student panhandlers in comparison to middle aged ones. "Elements" includes realizations of how cold it can get and how uncomfortable it can be to sit on road pavements.

feelings with words like "dehumanizing", "feeling like outcasts", "being treated like a trash can", etc. One individual, who really got the attention of one student team, covered *his baby in his car as if the sight of us would damage the innocent child.* Such reflective observations were included in the "Offended" theme. The resultant feeling from this treatment were described with words like, "low", "sad", "ashamed", "embarrassed", etc. Some students worried about being seen by, for example, sorority sisters or family friends. Such reflective observations were included on the "Ashamed" theme. A fewer number of students (7 out of 31) going through these two phases of being ignored and feeling ashamed, resented the "offenders". Examples of words used to express this resentment were, "snobs", "cruel", "disgusting", "annoyed", etc. These feelings were coded under the "Resent-ful" theme. The last theme in this category was being "thankful", "grateful", etc., for the privileged lives the students have, valuing and not taking it for granted.

One of the students expressed her surprise with the difference in demographic of the pedestrians that paid "positive" attention,

…going into the simulation, I expected men and women in their 40's and 50s to be the age group that would reach out to us, because they would most likely have a family. I thought that seeing two 18-yesr old girls begging for food would break their hearts and make them think of their families and they would help us. But my expectations were entirely incorrect.

Similar observations, reported by five other students were coded under the "Better young" theme. In a few instances the students interacted with other panhandlers and in most of these cases, the panhandling students were surprised that these real panhandlers did not fit the stereotype of bums, mentally ill, etc. As an example, one student expressed this observation, as follows,

During these conversations I had while panhandling I learned that none of the upper middle class people who had walked right past me earlier in the day would give to me, but those who had little money or were poor themselves would offer me what they could. In these moments I realized those who know what it is like to have nothing are more generous than those who know what it's like to have everything.

Another student wrote,

I realized the profound falsehood of the "those who have more will give more" and "the poor are stingy" stigmas. While there are indisputably a large number of wealthy individuals who donate and are active in philanthropy and goodwill, I spent an hour being ignored, glared at, and distrusted by endless stream of Athens pedestrians of clear upper socioeconomic class. While the elderly upper class woman did give me a donation, it was only after she knew that I was not actually homeless, so it is unsure whether she would have donated to me without this knowledge. On the other hand, the only people to show genuine concern for my well-being or offer me help were other homeless people. I was welcomed wholly into their loop and trusted beyond reason.

It is possible that the panhandlers comfortable and willing to approach 18-year olds were those that were better adjusted. In other words, the outward appearance of the students skewed the observation.

The author's FYOS is a fall class; the panhandling takes place sometime late November. A number of students realized how cold it can get when you sit outside for one hour in homeless person-like clothes. Others observed how hard it is to sit on a hard pavement for the same amount of time. In other words, panhandling is not an easy job when it comes to the elements. One of the students after recognizing this, started an organization to collect winter coats from relatives and friends and distribute them downtown to homeless individuals.

How do the themes in the reflections reveal moving from sympathy to empathy in the poverty-alleviation space? There are two revelations of this transition. First, the students were extremely pleased with pedestrians that behaved in empathetic as opposed to sympathetic ways or just ignored them. The emotion of being offended, feeling low, being resentful and feeling grateful for the privileged life one has can be construed as revealing empathetic feelings toward the people they are simulating. Second, they were able to recognize an empathetic individual, however subtle the expression of empathy was. As an example, one student wrote,

There was one person who gave an interesting response to seeing us on the side of the street. He looked at us with sadness in his eyes, not pity, and said, "You've got to be kidding me." This took me by surprise. I didn't even know how to respond to him. His words were filled with sadness. It was as if he was asking, "What has the world come to?" Those few words he spoke meant so much more to me than what anyone else had said. He was horrified at the sight of two homeless kids. He couldn't even comprehend how two kids could be left to rot like this. He wanted to help, but he didn't know how. He just wanted to know why two bright children like us could have gotten themselves into this situation. This response was my favorite. It showed that he did care. He cared about the homeless, and he didn't see himself above us. He saw us as people just like him who just had a little bit of bad luck down the road. He didn't see us as outcasts. He just wanted to know how this could have happened. We need more people like him in this world. If people actually wondered why people are homeless and how they could help them, then maybe we would have a lot less homeless people on our hands.

From the foregoing, it is reasonable to suppose that student's empathetic feelings were aroused by the panhandling experiences. In the social work conceptualization of empathy, Gerdes et al. (2011) argue that the full extent of empathy is not simply a feeling; "empathy culminates with a decision about what to do with one's aroused empathetic feelings and thoughts". Throughout the seminar, students are mentored to structure their writing or tell their story following the beginning-middle-end format, with the end capturing the take-home message. The question was

whether the take-home messages contained direct statements "about what to do with students' aroused empathetic feelings". Out of the thirty five take-home messages, twenty included suggestions on what to do about their aroused empathetic feelings. Four representative exerts are provided below.

I have no desire to be in their [panhandlers'] shoes again; however, I do have the desire to put them in mine. After this assignment, my drive to aid them has increased greatly.

I will make a point to make eye contact and smile with people who are homeless from now on. When I am back in D.C. and when it gets colder in Athens, I am going to go to thrift stores and get warm coats to give out to homeless people for the wintertime.

One day I plan on starting a movement that will help out a large population of foreign people who are struggling with poverty? I don't exactly know how because I don't know what I will be doing for a living yet but I surely want to make a global difference.

The way people react to homeless people is appalling. To make someone feel as if they are nothing is a crime that is unforgivable. Some people ignore the homeless and act as if we don't exist. Others act as if we don't belong in their world. This is not the way to react to homeless people. We need to help them. We need to realize that they are people too, and that they belong in society. Our society needs to realize that the only way to help these people is to recognize that they are in trouble, and that we are their only way out. Homeless people think that they are the problem in our world because of us. That doesn't make them the problem, it makes us the problem.

The last exert was particularly revealing through use of "we", suggesting the student felt one with the poor well after the simulation – reflections are typically written in the following two weeks following the simulation.

Five Dollars Per Day and Soup Kitchen Projects

Eight themes were found in reflections on these two projects. Due to the difference in the nature of the two projects, only one theme of gratefulness for the "privileged life" was found common to both projects. The distribution of the six of themes for the 5$ per day project are shown in Figure 2. In addition to gratefulness, two other themes of "surprised" and "guilty/embarrassed" adequately characterized feelings in soup kitchen reflections.
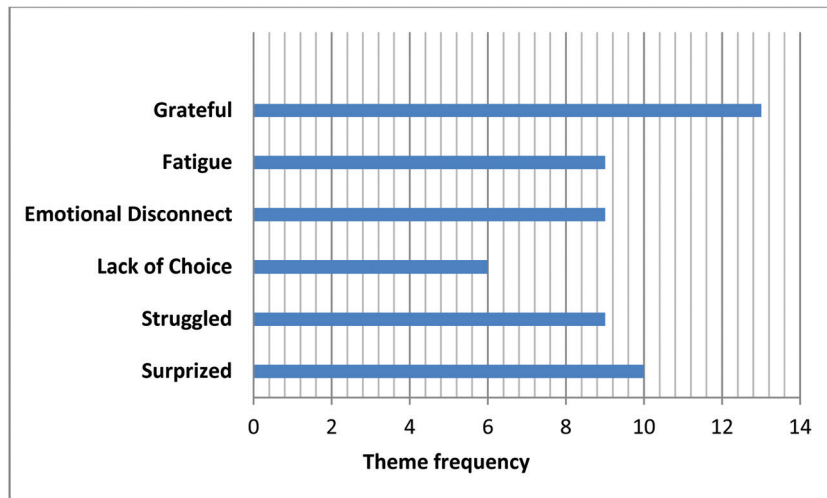
Figure 2. Relative distribution of themes from freshmen reflective essays written after completing living on "$5 per day" and "eating in a soup kitchen" projects. "Surprised" includes the realization that this is not as easy as originally thought. "Struggled" naturally followed the surprise; figuring out how to survive under budget and making the experience as realistic as possible, given the indirect expenses that are built into living in college dorms. "Lack of Choice" includes the realization that there is not much choice of foods that meet quality and quantity at the expenditure limit, and the frustration that comes from eating the something for a number of days. Emotional Disconnect" includes the isolation that comes with not eating or going out with friends, limited use of the phone and computer, and being easily angered or impatient with friends and peers. "Fatigue" includes feeling tired, slow, etc. as a result of consuming lower quantity and poorer quality food. "Grateful" includes feeling of thankfulness, appreciativeness, etc. for the privileged life the students have.

A number of students admitted that they found the 5$ per day project appealing for two main reasons. First, the project did not involve "falsifying" who they were and taking a plate of food from someone who might really need it (soup kitchen) or money that would otherwise go to a real panhandler. It should be pointed out that all the money received through panhandling was matched by the author one-to-one, and the total donated to a local domestically abused women shelter (Project Safe). Also, the author regularly volunteers at the soup kitchen, which to some extent mitigates the guilt of taking a plate that would otherwise be available to a homeless person. Second, they thought that it was going to be the easiest of the three; it did not involve interacting with anybody unfamiliar like the other two projects, and it did not involve working in a team. Ten out of the 20 were "Surprised";

accomplishing the project was far from easy. One of the elements that increased the complexity of the project was making it as realistic as possible. In development literature, a daily income of less than $2 per person has become a widely recognized benchmark for defining the world's poor (Collins et al., 2009). The $2 mentioned above is Purchasing Power Parity (PPP) $. The approximate equivalent is five US dollars. This is because a US dollar buys fewer goods and services in the United States than a dollar worthy of shillings in Uganda, for example. This was the basis for the $5 maximum. Most students recognized and struggled with making the expenditure realistic. For example, it was difficult to account for the services like warm water provided automatically in the dorm. Most students made an effort to reduce the "luxuries". These struggles were captured in the "Struggle" theme.

The "Lack of Choice" theme captured a couple of feelings/thoughts, including limited type of foods that can be satisfying and within budget, and frustrations expressed by eating the same thing for a number of days. The "Emotional" theme was the most surprising and it was expressed in multiple forms. In some instances, the reflections mentioned feeling isolated; eating with friends in the cafeteria maintains the connectivity with friends. Switching off phones and not keeping abreast of the latest gossip among friends was very unsettling to many students. Being hungry lowered the irritability threshold among three students. As with panhandling, the most common theme was being "Thankful", valuing the life they have and feeling privileged.

Similar to the $5 per day project, 14 students out of 18, students involved in the soup kitchen project were also "surprised", but in this case about two different things: the type of people that came for a free meal and the quality of the food. The people they shared a meal with did not fit the media stereo type of people in a soup kitchen in tattered clothes, unshaven. There were well dressed people and even college graduated who had temporarily fallen on bad times. Second, the people seemed "happy" chatting with friends. Five students out of 18 felt guilty and embarrassed for being there.

As with panhandling/independent projects, take-home messages from reflections were closely examined to find instances where arousal of the students' empathetic feelings and thoughts culminated into decisions about what to do with these feelings and thoughts. Out of a total of 38 take-home messages, 14 and 15 from $5 per day and soup kitchen projects, respectively, contained specific statements consistent with what to do.

The "doing it for the grade" sentiment was very common among those that chose "$5 per day". This was surprising; students were supposed to choose this seminar because they were passionate about the topic. The quick transition from "doing it for the grade" to total immersion into the experience speaks to the power of stepping into someone else's shoes. The author has experienced this before with upperclassmen in capstone design projects involving overseas travel; statements like, "*the moment I tried what these people have to do, it did not matter what grade I got, I focusses on*

improving their lives" capture the same transition. An argument can be made for empathy being the "glue" that holds together efforts to find solutions to small or grand problems, especially in low-resource settings. Interestingly, Bernstein and Linsky (2016) have recently come-up with "Adaptive Design", which *provides a set of principles and tools to help practitioners achieve the promise of innovation while also navigating the cultural and political variations of change*. Empathetic feelings and thoughts are the "wind" in Adaptive Design "sail".

CONLUDING REMARKS

Grouping the projects into two for analysis purposes made sense due to the popularity and character. From the get go, the panhandling and soup kitchen projects were viewed as the dominant projects with character (interactions with the poor) that were more likely to yield the hypothesized impact. It turned out that $5 per day was more dominant than the soup kitchens as revealed by its contribution to most of the themes in Figure 2. The Gratefulness theme was common to both analyses groups, taking the place above all other themes. But on close examination, it is reasonable that other themes probably contribute to this feeling. If one is offended by how they are treated, ashamed to be in a particular state, emotionally disconnected from others, it is reasonable to suppose these feelings contribute to being grateful that this is not one's day to day life. The motivation to write this paper was to see if this type of seminar delivered with real-life simulation projects at the freshman level can yield the type of outcomes (empathy in this case) that the author has observed with seniors engaged in real-life inquiry-/design-based projects in low-resource settings. Taken together, the results from this study support the view that stepping into the panhandler's shoes successfully aroused students' empathetic feeling. The majority of these students made decisions about what to do with their aroused empathetic feelings and thoughts. Whether some of them will implement these decisions in the future or not, is a question for a longitudinal follow-up study. The larger meaning of these finding in the context of freshman STEM education, is that it is one "high impact" way for students to see or to be turned on the humanitarian dimension of the major/profession they are pursuing. Those who can see or be turned on are more likely to be retained.

ACKNOWLEDGEMENTS

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