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Shifting Charity Mindsets to Justice Mindsets: An Evaluation of One Reflective Pedagogical Technique

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Shifting Charity Mindsets to Justice Mindsets: An Evaluation of One Reflective Pedagogical Technique

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Abstract

The applied nature of engineering design projects allow generative discussions about social justice topics related to students' projects. Some design projects, such as service-learning or community-engaged projects, pair students directly with community partners who have a specific need or interest in a particular social justice topic. Though initiated with good intentions, some projects can leave students with a hierarchical helping or charity mindset, which results in students placing themselves above the people for whom they are designing. Rather, in projects which promote a justice mindset, students seek deeper causes of injustice and situate all stakeholders as equal participants in the design process, such as in co-design.

In an attempt to develop a pedagogical practice which promotes adopting a justice mindset, twenty students in their second- through fifth-year of a sustainable design engineering degree completed structured reflections upon returning from an international, short-term, community-engagement design project. They then participated in an in-person group reflective activity to identify the difference between charity and justice mindsets, and they were given the option to revise their responses to the initial reflection (to re-reflect). Using qualitative analysis techniques, this study sought to determine: 1) whether participants demonstrated a charity or justice mindset in the written responses and 2) whether the pedagogical technique is effective.

Results indicate that participants demonstrate both charity and justice mindsets, and 64% of participants (n=19) shift towards justice mindsets. Participants overwhelmingly affirm the usefulness of the activity (95%) and state that justice mindsets should be strived for (89%). They engaged in the activity and revised an average of 29% of the questions. After the one-hour discussion, 68% of participants have a good understanding of justice mindset and an additional 21% have an incomplete but passing understanding. The three-part activity is an effective way to shift mindsets towards justice, particularly in the re-reflection step. Justice conversations are relevant for all design classrooms and should not be relegated to community-engaged projects. Engineers are equipped, in ideal positions, to address systemic causes of inequity, and design projects provide opportunities for discussion. This paper documents a one-hour reflective pedagogical technique to help students shift towards justice mindsets.

Introduction

Within the broad field of design education research and assessment, this paper evaluates a pedagogical technique which enables students to recognize and grapple with systemic social justice issues encountered during a community-engaged design project. As one type of design

project, community-engaged engineering projects encourage students to recognize and address the needs of people in their community [1], ideally by working directly with community members. Additionally, these experiential projects help students to understand the role of engineers in society through conversations about broader social justice implications and often through direct exposure to social injustice.

However, community-engaged projects can inadvertently promote a hierarchal design model wherein students see themselves as performing "charity" by "helping out" an underserved community [2]. Though helping sounds like a positive ideal, (and certainly better than causing harm), this type of charity mindset could cause students to develop a savior complex and put themselves above community members. Essentially, students could perceive a greater importance to their role as helpers as opposed to their responsibility as one among equals. Reyante [3] describes this potentially problematic approach as possessing a "design-for charity mindset" as opposed to a "design-for-justice mindset" in which designers examine deeper, systemic causes for injustice. Additionally, adopting justice mindsets allows for co-design models to emerge, which recognize the necessary role of community partners and key stakeholders throughout the design process [4].

As instructors, we have responsibility to recognize whether the design project we assign allows students to develop a justice mindset or whether it restricts them to replicate outdated charity mindsets. The decisions we make to scope, scaffold, and support the design project can reinforce which mindset students develop. Although well-intentioned, we must examine if the decisions we make are actually causing greater harm to the community if students see themselves as offering charity without investigating deeper causes of injustice?

Attempting to answer that question, a team of four interdisciplinary research students and instructors developed an intervention for a group of twenty engineering students who took part in a short-term international design project. Upon returning from the experience, the pedagogical technique sought to introduce students to the two mindsets and to provide an opportunity to discuss the social justice implications of their project. In the 3-part reflective activity, students 1) performed individual written structured reflections, 2) participated in a group reflective activity, and 3) had the option to "re-reflect" and revise their initial written responses.

If the technique is found to be an effective way to shift mindsets, then it can be applied more broadly than community-engaged projects to design courses as a whole. The concept of social justice is not limited to community-engaged projects. Rather, it is the foundation of why engineers do anything or everything. At its most fundamental level, engineering is a profession that seeks to help people through solving problems. Design courses, then, are the mechanism which conveys the social responsibility of engineers and enables students to practice experiential problem solving. Adopting justice activities into design curricula is not only necessary, it is at the very heart of engineering. Thus, this study seeks to examine the effictiveness of a 3-part structured reflection process following a short-term, community-based, international design project for second- through fifth-year engineering students. The study objectives are to examine: 1) whether participants demonstrate a charity or justice mindset in the reflections and 2) whether the pedagogical technique is effective.

Background

Land Acknowledgement and Positionality Statement

This research was devised, deployed, and analyzed at the University of Prince Edward Island (UPEI), which is in Mi'kma'ki, the traditional, unceded, and unsurrendered lands of the Mi'kmaq people. We authors acknowledge our gratitude to live, work, and study on this land as a minor step towards addressing systemic social injustice, but we also recognize the smallness of this step and the need to do more.

Additionally for transparency, to document our privilege and biases, and to provide context for our decision making and rationale [5], positionality statements are as follows. Libby is an engineering design instructor of European descent who has facilitated numerous international humanitarian projects, and she deeply believes in the ability for engineering to address social injustice. Analiya is a sustainable design engineering student from India who has participated in service-oriented activities in her home country. Reilly is a biology student of European descent who founded an international service club at UPEI, and she participated in three global medical clinic experiences. Inge is an instructor in the Faculty of Arts who incorporates community-engaged projects into her leadership courses, attended one of the international medical clinic experiences as the club advisor, and is of European descent.

A potential bias could be that though we authors desire to adopt justice mindsets, we actually employ charity mindsets. For example, this research is student-centric, as most pedagogical research tends to be, a finding which is documented in [6]. This research does not include the perception of community partners; a more holistic study would include all stakeholders in the design process. This decision to focus on student learning demonstrates a charity mindset which employs "us" and "them" thinking as opposed to the "we" in justice mindsets. Additional biases are present, but this is the most notable.

Justice Mindset Framework

Adopting Reyante's framework, there are four principles to move from a design-for-charity mindset to a design-for-justice mindset: *reflexivity, community framing, community involvement* and *locus of change* [3]. First, *reflexivity* describes how well a student reflects on their own power, privilege, and biases, particularly in relation to the community [3]. Adopting a charity mindset suggests a lack of reflection whereas a justice mindset engages in an honest and critical reflection which results in a deeper awareness.

Second, *community framing* identifies how a student perceives the community's contribution. A charity mindset describes the deficits of a community [3] and focuses on what they are lacking. However, a justice mindset recognizes the assets of the community [3] and considers community members to be knowledge-holders and design partners. Demonstrating co-design, a justice mindset acknowledges that the community members hold key knowledge that can result in better design solution than if they were excluded. For this study, this second principle is described as *perception of community.*

This directly relates to the third principle, *community involvement*, which is the extent to which community partners are included in decision-making [3]. In charity mindsets, community members have a passive involvement, wherein they are excluded from decision-making and ideation. In justice mindsets, community members are included in a participatory way as key decision-makers, and they are involved in problem definition, ideation, development, and evaluation. The justice mindset demonstrates the importance of including community members throughout the design.

Fourth, the *locus of change* considers whether the student is interested in surface-level symptoms of inequity or more systemic causes [3]. This principle describes the most fundamental understandings of charity versus justice. Students with charity mindsets seek to help the person or problem in front of them. Students with justice mindsets seek to understand why that problem exists and how to address structural conditions in addition to solving the immediate concern. For this study, the fourth principle is renamed to *focus of project.*

The fourth principle also allows for the broadening from a human-centric design paradigm to a more holistic, non-anthropocentric paradigm which places human concerns within the greater environmental ecology. At their best, user-centered or human-centric models help designers to consider more than the device in front of them and includes all of the stakeholders involved in a design. Though better than many device-centric design models which tend to forget the human and see only the need, human-centered design still regards the human as the paramount and pinnacle within the design hierarchy. A true justice mindset allows for the human to be placed back within the global ecology, as one stakeholder among the trillions of Earth's inhabitants. Though this sustainability lens is not the focus of this paper, rather it is included to encourage potential next steps for a more inclusive, holistic justice framework.

Details of Design Project

The student-led, co-curricular design experience entailed a week-long surveying and design experience in Honduras in February 2023 and again in February 2024., travelling to a different community each year. Students joined an "Engineering Brigade" with Global Brigades, which is a non-profit, international organization that partners with communities to "build sustainable livelihoods and healthier futures" [7]. In the experience, students worked under the supervision of a Honduran engineer to assess the water needs for a rural community, design an appropriate system, and produce an official report for the community members and local water board to garner local governmental support. Global Brigades employs a holistic model and has required training modules for students to understand their role within the partnership, which could indicate a justice mindset. However, the language barrier and consulting-style design process inherent in the experience could result in a charity mindset. Thus, this experience primes students for a charity versus justice discussion. Though students participate in discussions and training before the experience, this pedagogical technique builds on their experiences to discuss charity and justice mindsets specifically.

Details of the 3-Part Pedagogical Reflective Technique

This reflective pedagogical technique could be applicable to any design project after much of the

design is completed. It involves an individual structured reflection, a one-hour in-person presentation and group reflection, and an optional individual "re-reflection" to revise the responses from the first reflection. For this implementation, the three elements occurred upon returning from the international experience.

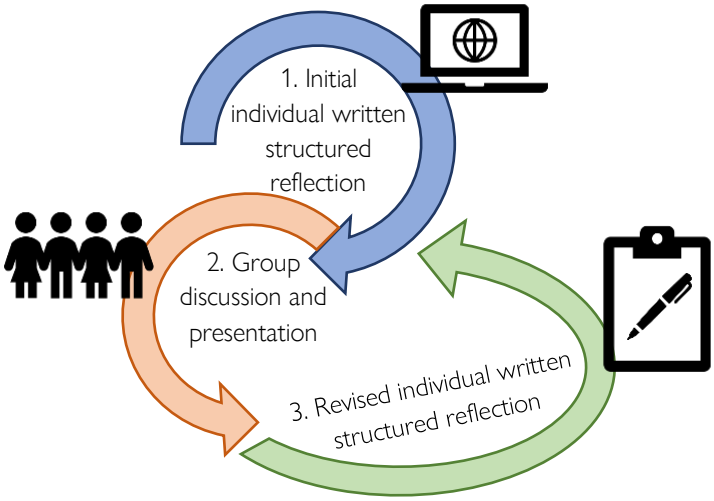

Figure 1: Pedagogical reflective technique

First, students complete an online structured written reflection which is shown in Appendix A. The topics they reflect upon include: their understanding of social justice, perceptions of the experience, community partner interactions and decision-making, challenges encountered, and how the experience relates to their profession and career.

A few days later, the students engage in a one-hour group reflective activity in which the research team alternates presenting elements and guiding the discussions. The three components of service-learning are presented using the Eyler and Giles definition: service and academic learning, reciprocal partnership and mutual learning, and critical reflection [8]. A condensed version of Perry's scheme of intellectual and ethical development [9] is included to describe effective critical reflection. Participants discuss in pairs whether their experience included these three components. Next, charity and justice mindsets are introduced as two approaches to service-learning. As a large group, participants discuss how a charity mindset (helping) might be problematic, with information from *When Helping Hurts* [10]. This occurs as a large group discussion to welcome the knowledge in the room and share ideas broadly for the new topic. To describe a justice mindset, Lucena and Leyden's six criteria for social justice are introduced: 1) listening contextually, 2) identifying structural conditions, 3) acknowledging political agency, 4) increasing opportunities and resources, 5) reducing risks and harms, and 6) enabling human capabilities [2]. After comparing the two mindsets, participants discuss in pairs whether a justice mindset should be something to strive for over a charity mindset. This is completed in pairs so students can be more honest and not feel pressure to respond in a certain way. Then, participants spend the last ten minutes of the group activity to apply the new concepts to their experience. They discuss which aspects of their design project are more justice-related and which are more charity-related. This is completed in pairs then as a large group to share findings.

Immediately following the group reflective activity, participants have fifteen minutes to "re-reflect." They are provided with hard copies of their initial individual reflection and given the opportunity to revise any responses. Additionally, three new questions are added, asking students whether a design for justice mindset should be something to strive for, if the reflective activity was useful, and to comment on their initial or revised responses (shown in Appendix A).

Method

Utilizing purposive sampling methods, students enrolled in the 2024 winter semester courses who participated in the 2023 and/or 2024 international design experiences were invited to participate in the study. Twenty students in second- through fifth-year of a sustainable design engineering program elected to allow their written reflection responses to be analyzed in the research-ethics-approved study. One participant did not complete the revised reflections.

Table 1 shows the gender identify of participants, their year of studies, and which years they participated in the international design experiences. Note that six participants (30%) attended the design experiences two years in a row.

Table 1: Demographic data showing number of participants

Gender identity	#	%
In my own words	0	0%
Woman	7	35%
Prefer not to answer	1	5%
Man	12	60%
	20	

Year of studies	#	%
2nd Year	2	10%
3rd Year	5	25%
4th Year	11	55%
5th Year	2	10%
	20	

Year(s) participating in design experiences	#	%
Only 2023	2	10%
Both years	6	30%
Only 2024	12	60%
	20	

None of the participants identify as a visible minority, and none of the participants have lived outside of North America. This is not representative of the degree, which has approximately 40% international students, but it is representative of the students who participated in the international design experiences. This is likely due to the additional funding opportunities for domestic students and increased barriers and visa requirements for international students, which were documented in a study on the 2023 international design experience [11].

The instrument items (listed in Appendix A) contain the 15 initial and 18 revised reflection questions, as well as 7 demographic items. Revised responses were digitized and differences between the inital and revised reflections were noted. To address the first study objective on whether participants demonstrated a charity or justice mindset, all reflection questions were reviewed for each of the four principles of Reyante's justice mindset framework [3]. Participants responses were coded with either "charity mindset" or "justice mindset." Using Braun and Clarke's qualitative thematic analysis, themes were identified for each principle [12].

To evaluate the effectivity of the pedagogical technique (the second objective), all reflection data were reviewed for shifts in mindsets. Quantitative metrics were computed for the number of initial and revised responses. Next, the participants' responses to the following items were categorized:

1. Why did you want to go on this trip? (4-point scale from charity to justice mindset)
3. Define social justice. (4-point scale from charity to justice mindset)
16. Should a justice mindset be something to strive for instead of a charity mindset? (3-point scale: yes, no, sometimes)
18. Was this a worthwhile activity? (2-point scale: yes, no)

Based on this data, a 3-point qualitative variable recorded whether the participants demonstrated an understanding of a justice mindset (yes, no, or unclear). Next, an overall assessment of the participants' responses were coded on a 4-point scale between demonstrating a charity and justice mindset. Last, any shifts between initial and revised reflections were noted for the motivation, definitions of social justice, and overall mindset on a 4-point scale (no revision, no shift, small shift, meaningful shift).

Results

Do Participants Demonstrate Charity or Justice Mindsets?

An application of Reyante's framework indicates that all 20 participants demonstrate a justice mindset in at least one of the four principles. They also all exhibit charity mindsets in multiple responses. Table 2 summarizes the themes and the number of participants corresponding to each theme within the principles.

Table 2: Themes related to charity and justice mindsets

	Charity Mindset	**n**	**Justice Mindset**	**n**
Reflection	*Uncritical*	*16*	*Critical*	*19*
	- Expectations - Personal impacts		- External factors - Participant's own power and privilege - Community's power and privilege	
Perceptions of community	*Deficit-based*	*9*	*Asset-based*	*10*
	- Practice of engineering - Stakeholders - Other elements		- Practice of engineering - Stakeholders - Other elements	
Community involvement	*Passive*	*7*	*Participatory*	*18*
	- Problem definition		- Community members as co-designers - Desiring better communication	
Focus of project	*Symptoms of inequity*	*8*	*Root causes of inequity*	*12*

It is apt that the first principle of a framework which relies on reflection is *reflexivity*. Of the 20 participants, 19 demonstrate a level of critical reflection that exhibits a justice mindset. Looking across the 434 responses, five themes were identified regarding reflexivity. Two themes demonstrate a charity mindset and include more shallow reflections on the participant's expectations (n=16) and how the experience impacted them personally (n=10). Three themes display a deeper level of critical reflection and can be considered a justice mindset: external

factors which affect success (n=14), participant's own power and privilege (n=9), and community's power and privilege (n=17).

Three themes are evident from *perceptions of community*. Participants describe how engineering is practiced, the stakeholders, and other elements either in terms of the deficits, corresponding to charity mindset (n=9) or assets, demonstrating a justice mindset (n=10). For example, one participant demonstrates a justice mindset through their description of the abilities of the stakeholders, "The main stakeholders were the water board members who were driving this project." Whereas an example of a deficits-based, charity mindset regarding perceptions of engineering is, "There were much less resources, meaning that all of the data and calculations were less precise."

For *community involvement*, three themes were identified. Demonstrating a charity mindset and passive understanding of community involvement, participants (n=7) exclude the role of the community in the problem definition phase of the design. For example, one participant saw only the students as designers which they handed off to the community, "We prepared a design for a water system in the community of La Brea and presented our design to the community." A justice mindset recognizes the community's role as more participatory, and this appears in two ways: through desiring better communication (n=16) and seeing community members as co-designers (n=13). One participant with a justice mindset describes their own language limitation and the community members' willingness to overcome the barrier, "my lack of Spanish caused a language barrier between myself and the community that I would have liked to resolve. Despite this, the community was extremely welcoming and understanding of my limitation and put in the effort to be understood and to understand me regardless." Describing the community members' role in the design process, a participant with a justice mindset explains, "Throughout the project we interacted with community leaders and members of the water council who helped with navigating the community, planning the layout of the design, and outreach within the community."

The *focus of the project* examines whether participants are focused on symptoms of inequity (n=8) as in a charity mindset or on determining root causes (n=12) in a justice mindset. For this project, participants who focus only on the lack of access to water demonstrate a charity mindset. As one participant describes, "The current water system is very old and only provides water to a third of the houses in the community." A justice mindset considers the reasons for the lack of water, such as, "lack of government support," "fighting against community members," and "many houses that were connected also did not have valves on their ends of the water system, so water seemed to flow out continuously and a lot of it went to waste." Though it may seem like a slight distinction, a justice mindset seeks to understand why the problem exists as opposed to merely acknowledging the problem.

Evaluation of the Pedagogical Reflective Technique

If the pedagogical reflective technique is effective, then the participants would: 1) demonstrate an understanding of a justice mindset, 2) engage with the re-reflection to revise some answers, 3) consider the activity worthwhile, 4) deem a justice mindset something to strive for, and 5) demonstrate a shift towards a justice mindset. Because this section concerns the revised

responses and one participant completed only the initial reflection, the number of participants will be consistently 19 throughout (n=19).

First, a review of revised responses indicate that most of the participants (68%) understand the concept of a justice mindset. Different from applying a justice mindset, this evaluation is only whether they demonstrate an understanding of the concept. This information is particularly evident in the revised survey question on whether a justice mindset is something to strive for. In their explanation, they convey their understanding of the concept.

Only 2 participants (11%) have a poor understanding, as one participant explains a justice mindset as a desire to "help" and the other states their confusion. For 4 participants (21%), it is unclear as to whether they fully understand the justice mindset, and more data is needed that is not available in the short responses. For example, one participant describes "if you give a man a fish (charity) he eats for a day. If [you] teach a man to fish (justice) he feeds himself." Though this demonstrates a desire to empower the community members, it is still hierarchical with the students as the ones to bestow the knowledge. This attitude does not treat community members as equal partners, which is necessary for a full understanding of justice mindset. It shows a developing understanding, but there is not enough data to confirm that they understand.

Second, once confirming the technique conveys an adequate understanding of the concept, 89% of participants have a "passing" partial or full understanding, the next measure is whether participants engaged in the re-reflection. Their participation shows that the activity is engaging and worthy of their effort. It further demonstrates their understanding of the concept, through critiquing their previous responses. They apply their new understanding by revising their own work. Figure 2 shows the number of questions completed initially by each participant (out of 15 possible questions) and the number of those questions which were later revised. Figure 2 excludes the three additional questions that were only available on the revised reflection as all 19 participants completed all three of these questions, and the intent of this figure is to show engagement through revision.

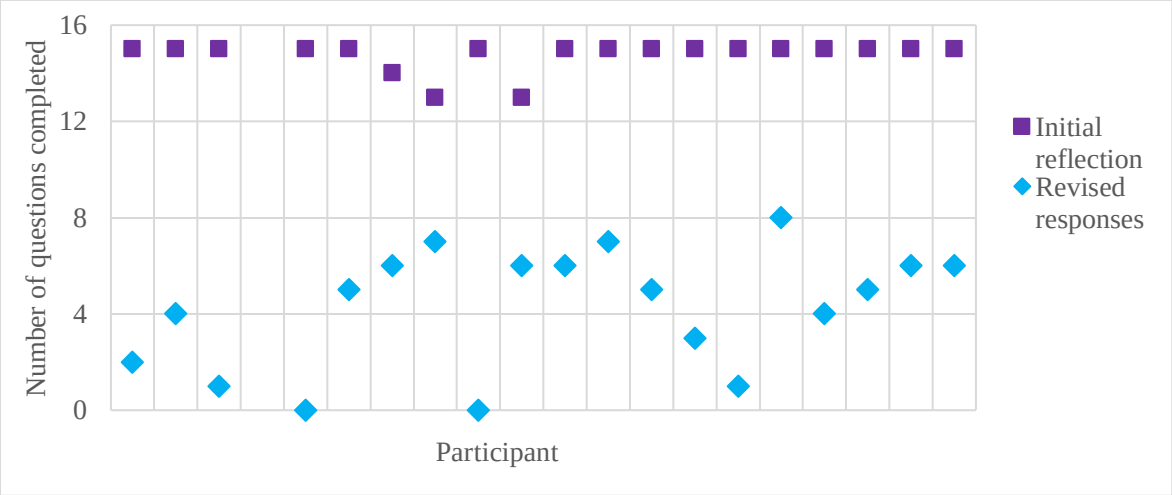

Figure 2: Number of initial and revised responses per participant

Participants revised an average of 4.3 questions each (29% out of 15 questions), in addition to all three questions that were only available on the revised reflection. One participant revised more than half of the questions, and only two participants (4 and 8) chose not to revise any responses. Of these two, participant 8 demonstrates a good understanding of justice mindset and interestingly explains, "I do not feel the need to amend my previous statements, but I do feel more confident in my assertions." Participant 4 did not demonstrate a clear understanding of justice mindset and expressed a desire for the activity to be more interactive.

Third, when asked whether the activity was worthwhile, 18 (95%) of participants affirmed the usefulness of the activity (including participant 4). Though admittedly, the survey was not anonymous so they could have felt pressure to respond positively. They highlight the methodology of the activity of group discussion and re-reflection as particularly helpful. Appreciating the ability for group reflection, one participant describes, "discussions in small groups made me think of more to say." Another participant explains they "Enjoyed reconsidering responses." Similarly, a participant writes, "This activity has made me realize some aspects of the trip that may not have been very justice forward. When originally doing this reflection, I had a very positive outlook on the trip and overlooked some aspects." Lastly, a participant affirms that the activity "Provided [a] better understanding of justice." The one participant who did not see the activity as worthwhile demonstrated an incomplete understanding but did feel that social justice is something to strive for.

Fourth, all but two participants (89%) state that a justice mindset is something to strive for. This question (number 16) is asked directly to see whether the pedagogical technique is persuasive enough. It inquires whether participants even desire to understand. Of the two participants who did not feel the activity was worthwhile, one did not have enough information to "adequately answer this" and the other defends when a charity mindset is needed, explaining, "if you had to give immediate aid a charity mindset is best because they urgently need your help but that was not the case here." For both of the participants, the activity did not convey the information clearly enough.

Fifth, to determine whether there is a shift to a justice mindset, there are three items to examine: participants' motivation, their definition of social justice, and their responses as a whole. Table 3 summarizes the shifts in mindsets.

The majority of initial *motivations* to participate (95%) could be considered of a charity mindset. Fifteen participants (79%) describe (in question 1) their desire to help and to make a difference. Eleven participants (58%) desire to experience a new culture and travel. Four participants (21%) want an experiential application of engineering, and two participants (11%) express a desire to create opportunities for other students to participate. These motivations are mostly altruistic and admirable reasons to participate, but cannot be described as rooted in justice.

Seven participants (37%) revised their responses to the motivation question, and four of the revisions (21%) demonstrate a mindset shift. For example, one participant revised their initial response, "To travel and apply what I learned about in school to the places that needed it the most" to demonstrate a desire to understand and empathize, "To learn about new cultures and

understand their challenges to see how I may be able to work with them to improve those situations." This is a direct application of the discussion and confirmation of a mindset shift.

Table 3: Shifts in participant mindsets

	Initial responses				**Shift**			
	Charity mindset	-	-	Justice mindset	No revision	No shift	Small shift	Meaningful shift
Motivation								
Initial	18		1		12	3	3	1
Revised	14	3	2		63%	16%	16%	5%
Definition of social justice								
Initial	2	11	6		13	2	2	2
Revised	2	9	6	2	68%	11%	11%	11%
Collective responses								
Initial	15	3	1			7	10	2
Revised	5	11	1	2		37%	53%	11%

Next, the initial *definitions of social justice* (in question 3) indicate participants' developing (58%) and good (32%) understandings of social justice. Only two participants began with a poor definition. After the group activity, 6 participants (32%) revised their responses and four (23%) improved their responses. One participant added action to their initial response, from, "Social justice can be thought of as searching for equality and fairness for human beings," with the addition of "It includes increasing use of community assets and addressing root causes of problems." Four participants directly applied what they learned in their response.

Looking across the *collective* responses, the vast majority of participants (79%) initially demonstrate a charity mindset. All 19 participants responded to one of the 18 questions in the revised reflection. For 37% of participants, there is no discernable improvement in their collective responses. However, 10 participants (53%) showed a small shift in mindset and 2 participants (11%) demonstrated a meaningful shift towards a justice mindset. They did this through identifying more stakeholders, desiring to include the community in the decision-making process, and recognizing that in their experience, the community members were not treated like partners. They became less student-centric and began to empathize with the community members, seeing the complex relationships. One participant identifies these relationships, "How it could be better: Global Brigades to community (Preparation/awareness), Us to community (Preparation/awareness), Global Brigades to us (Get everyone on the same page when it came to surveying)."

Another participant acknowledges the shallowness of their previous answer about what they could have done differently. Their initial response is, "I am not sure if there is anything more within the project that could have been done here." Their revised response is, "This [previous answer] sucks, lazy answer. We could have worked harder to communicate about their needs and capacities early on and the outcomes of our individual project. We could have consulted with the community members more regularly in the face of uncertainties." Through group discussion and

review of their previous responses, the activity allowed them to reconsider what could have been better.

The participants were not in control of many aspects of the project, just as in most design courses. Schedule, scope, and deliverables often dictate how decisions are made. However, during the activity, participants realize what should have been improved, were it in their control. For example, describing how decisions were made, initially the participant explains, "Decisions were discussed among the Brigaders and brought to the lead engineer from the Global Brigades." After the activity, they write, "Maybe the communities should have been consulted more on decisions and design." Acknowledging what should have been done allows them to employ a more justice-oriented design process in the future.

Overall, the pedagogical technique shifted mindsets towards justice. Table 4 summarizes the measures to evaluate the efficacy for each participant that have been presented in this section, including participants' preference, and demonstrated mindset shifts. Twelve of the participants (63%) have at least five of the seven measures, and only 1 participant (5%) has less than two.

Table 4: Summary of reflective pedagogical technique

	Participant																		
Does the participant:	a	b	c	d	e	f	g	h	i	j	k	1	m	n	o	p	q	r	s
1. Demonstrate understanding of justice mindset	■	■	■	■	■	■	■	■	■	■	■	■						■	
2. Revise any responses	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
3. Feel the activity is worthwhile	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		■	■	■
4. Feel a design mindset is something to strive for	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		■	
5. Demonstrate a justice mindset or shift in their: a. Motivation	■	■	■	■							■								
b. Definition of social justice	■	■	■		■	■	■					■				■			
c. Overall responses	■	■	■	■	■	■	■	■	■	■			■				■		

Legend: ■ Applies to the participant

Discussion

First, the data indicate that the pedagogical activity is worthwhile, engaging, and effective to discuss justice and charity mindsets. It could be expanded to be more interactive with a hands-on

element to emphasize the four principles of Reyante's framework: critically reflective, assets-based, participatory, and root causes of inequity [3]. Additionally, the presentation slides currently discuss "service-learning" without acknowledging how that is framed in a charity mindset. "Community-engaged" projects evoke more justice-oriented language, but this was not discussed for brevity. Upon reflection, this distinction is important. Additionally, it would be interesting to compare using inferential statistics whether gender, the number of community-engaged experiences, and other demographics influence having a justice or charity mindset.

Next, the true gift of this evaluation was stumbling upon the power of re-reflection. Initially, the activity was only considered the in-class group discussion and lesson, and the post-activity reflection was the assessment tool. Then during data analysis, it became clear that giving students an opportunity to read their initial reflection at a later date and revise their responses was an integral part of the pedagogical technique. Six of the participants critiqued their initial responses in some way, commenting on the naïveté of their initial response, the shallowness, or the state of exhaustion they were in when completing them. This additional insight is helpful for instructors and students. Future studies could explore and isolate the pedagogical value of re-reflection.

Finally, Reyante's four-point framework is helpful for distinguishing specific text as an indicator of a charity mindset or a justice mindset. However, what is considered a justice mindset in one principle could be considered a charity mindset in another. For example, "Some of the challenges faced by the community is lack of opportunities, and lack of resources such as money, water, and other basic necessities." This demonstrates deficit-based perception of community which is a charity mindset but also focuses on the root causes of problems, which is a justice mindset.

If the framework is employed as an evaluation guide, it would be more useful to analyze a large amount of text rather than the short, disparate responses to structured questions. In Reyante's study, the framework was used to code interview data and field notes, and then themes were developed based on those codes [3]. The framework is an effective evaluation tool in a qualitative capacity, but more development is needed to use in a mixed-methods or quantitative study. Because responses fluctuate between justice and charity mindsets, perhaps the different instances or each principle could be counted or summed into a quantitative scale. For this study, the framework was helpful to fine-tune the researchers' understandings of charity and justice mindsets, but it was not able to be incorporated in the evaluation of the pedagogical technique. Hopefully, a quantitative approach can be developed for future studies to be able to fully utilize the framework.

Conclusion

Though community engaged projects are only one type of design project, the broader discussion of charity and justice mindsets should be addressed throughout design courses. If engineering as a whole can be described as "solving problems to help people," then design courses are optimal locations to discuss the differences between justice and charity. This study sought to show that a single discussion, when paired with reflection, can help students to develop a more justice-oriented mindset. It was documented that participants demonstrated both charity and justice mindsets, and the pedagogical technique was effective in shifting mindsets towards justice.

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Appendix A: Instrument

Initial and Revised Structured Reflection Questions

1. Why did you want to go on this trip?
2. Were your expectations met? Was it like you expected? What was different? What was the same?
3. Define social justice.
4. Describe what you did during this trip.
5. Who were the stakeholders or partners? Who did you interact with? How were they involved?
6. How did decisions get made, if any?
7. What did you learn?
8. What were the outcomes of this trip? Do you think the trip was successful?
9. How could it have gone better?
10. What were some of the challenges faced by the community?
11. What were some of the challenges you encountered?
12. Is there anything your team could have done differently to make this experience more justice oriented?
13. Does this experience impact your future profession? If so, how?
14. What is the role of social justice in your future profession?
15. Was there a difference in how engineering/medicine is practiced in Honduras/Guatemala/Ghana as opposed to in Canada?

Additional Revised Structured Reflection Questions for Part 3

16. Should a justice mindset be something to strive for instead of a charity mindset? Yes? No? Why?
17. In light of today's discussion, comment on your initial responses or any edits you made.
18. Was this a worthwhile activity?

Demographic Information Collected in Initial Reflection

A. When was your most recent brigade?
B. Have you been on a brigade multiple times?
C. What is the degree you are pursuing?
D. What year are you in university? 1st, 2nd, 3rd, 4th, 5th+, grad
E. Do you identify as a racialized person or visible minority?
F. What is your gender identity?
G. Have you lived outside of North America?