Community-Student-Faculty Partnership: A Model for Learning via Deep Engagement with the Community*

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Students benefit from engaging with community partners as part of higher education experiential learning opportunities. As part of one project in the Master of Engineering Design Program's Design Thinking course at McMaster University, students were introduced to several volunteer hospital Patient and Family Advisors (PFAs) who spend several hours per week with the design teams sharing stories about their experiences as patients and/or family members of patients at the hospital. Over the five-week period their interviews with the PFAs help the students frame a specific design challenge, identify design opportunities, test, and get feedback on their ideas. The success of this learning experience within the Design Thinking course can be attributed to the collaborative partnership between hospital PFAs and McMaster students as facilitated by the course instructors. The community-student-faculty partnership model provides students an opportunity to learn about healthcare challenges from the patient - rather than professional - perspective, which also involves mentorship by the PFAs as they help students understand their experience as the primary participants within the healthcare system. Concomitantly, the depth of engagement provides PFAs the opportunity to see the richness of progression of dialogue between the students and "real patients" throughout the students' design process, resulting in inspirational proposals to address their health-related challenges and an appreciation of the students' human-centred design competencies. This collaborative teaching approach supports course learning objectives for students to adopt a human-centred mindset, iterate on prototypes, and learn through feedback. In addition to adding value to students' learning, the project promotes patient-centred healthcare through meaningful involvement of PFAs.

Keywords: Students as Partners; Patient and Family Advisors; Experiential learning; Partnership learning communities; Design Thinking; Collaborative Autoethnography

1. Introduction

In order to prepare students to address the complexity of societal challenges (and "wicked" problems), educators from a multitude of disciplines have adopted a variety of pedagogical approaches, such as experiential learning, community engagement, work-integrated learning, problem-based learning, and Design Thinking [1-8]. The benefits to students of engaging with members of the community as part of their learning experience are welldocumented and include higher academic performance and course satisfaction, the ability to apply theoretical learning to real-world contexts, and improved leadership, communication, and criticalthinking skills [5]. In many of these interactions with community members, however, benefits to the non-academic partner are simply assumed with expectations often not realized [5]. In Design

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Thinking this is addressed by gaining empathy for the beneficiary as a means of understanding their experience and identifying meaningful design opportunities through a more inclusive engagement process [1, 6].

The "Design Thinking" course at the beginning of McMaster University's one-year Master of Engineering Design program introduces students to methods, tools, and mindsets used in humancentred design. The course sets the stage for their major community-based design project. During the third of four design projects in the course, the students are introduced to several volunteer Patient and Family Advisors (PFAs) from hospital who spend several hours per week with the design teams sharing stories about their experiences as patients and/or family members of patients at the hospital. Over the five-week period their interviews with the PFAs help the students frame a specific design challenge, identify design opportunities, test, and get feedback on their ideas.

Learning objectives for the course were framed around three ways of thinking: starting and remaining within a human-centred mindset throughout the design process, developing a bias toward prototyping, and adopting a learning mindset. More specifically, with respect to human-centred mindsets, we wanted students to feel comfortable with ambiguity in the design process, discover and use human insights to reframe a design challenge, and develop a concept direction for a user experience.

The project with the PFAs was introduced into the Design Thinking course by faculty lead and course instructor, Robert, in the fall of 2019. Community engagement in engineering programs adds value to practice-based, experiential learning by connecting theoretical concepts to societal needs and context [2, 5, 7]. Qualitative methods such as interviewing are being increasingly used in higher education design programs to allow students to identify beneficiaries' needs, gain insights, and enhance the value of the design challenge [1, 6]. Like other educational patient partner programs, the intention behind involving PFAs in this project was for students to engage meaningfully with patients to understand their experience as primary participants within the healthcare system [9]. By empathizing with patients, students could focus their design projects on the patient perspective, rather than that of the designer or healthcare professional.

The project was generally deemed to be a success as defined primarily by the students' achievement of the learning objectives described above, and also based on student feedback on end of term course surveys. However, there were also challenges that emerged with respect to the interactions between students and PFAs.

The first was ensuring that the PFAs would be comfortable speaking openly with the students about not just the physical aspects of their healthcare, but their emotional journey. While students were coached on how to conduct empathetic interviews during projects assigned earlier in the course, it was assumed that the PFAs would have had no experience with Design Thinking methods. Therefore, PFAs were invited to participate in a brief Design Thinking workshop with the instructor(s) before the project began. The workshop outlined the Design Thinking process and mindsets that the instructors wanted students to learn and gave an example of how previous students engaged with a rheumatoid arthritis patient to design a device that would enhance her grocery shopping experience. The workshop gave the PFAs an idea of what they could expect during their interviews with the students and how their participation would be valuable to the design process and students' learning.

The other unexpected challenge that arose during the initial iterations of the project was that the design insights were provided by the PFAs, rather than being generated by the students on their own. In other words, the instructors wanted students to discover new ways of viewing the patients and their experiences that would allow them to re-examine existing conventions and accordingly, reframe the design challenge from a patient point of view. Instead of these discoveries being made by the students, however, it was sometimes the PFAs' own awareness and experience advocating for patients in their role as PFA that led them to relay these insights to the students. Nevertheless, while the engagement with the PFAs did not produce the expected learning related to human-centred insights, the partnership did seem to benefit both students and PFAs.

In this article the authors, who each represent different members of the community-studentfaculty partnership involved in this project within the Design Thinking course, describe their collaborative learning journey to illuminate the benefits of this partnership model and to better appreciate *why* this learning experience was so successful.

2. Methodology

In designing this case study, the instructors considered suitable methodologies that would facilitate the deeper meaning-making around successes and challenges in terms of both student learning and the overall value of this partnership model. Case and Light [10, 11] highlighted several research methodologies, and though they were described as "emerging" in engineering education at the time of publication, are not uncommon in qualitative inquiry [12, 13]. One such methodology is narrative analysis that "focuses on collecting and analyzing these stories in order to understand human experience. In the context of engineering education, narrative methodology can help us understand how students experience their education contexts" [10].

We wanted to go further, however, and acknowledge our unique collaboration through a methodology that would appropriately reflect the diverse perspectives of all participants in the project partnership. We appreciated the value of self-reflection [13, 14] above and beyond narrative analysis as an integral part of our own learning by "making space for, capturing, and clarifying experiences, understandings, and feelings" [15]. We also recognized the necessity of including in the reflective process representatives of all groups who had participated in the project partnership. The Students as Partners model is a more inclusive way of engaging students as co-inquirers in the scholarship of teaching and learning [16, 17] and "can initiate discussion about partnership and facilitate co-development of shared values" [18]. The concept of empowering students as change agents in their own learning mirrors efforts in the healthcare system to engage patients and family members to improve patient-centred healthcare [9]. Furthermore, just as students are typically the subject of pedagogic research, rather than the investigators, patients are almost exclusively the subject of health and medical research studies. We, therefore, expanded the Student as Partners model to include as researchers both a recent student of the course and MED program (Avani) and a PFA who had participated in several iterations of the course (Jan), in addition to the course instructors who initiated the research (Andrea and Robert).

Given our intentions around reflective practice and collaboration, we chose collaborative autoethnographic (CAE) – a methodology that encompasses personal reflection and storytelling – to enrich our collective understanding of our individual experiences of this project partnership and associated learning [19, 20]. Reflections on the course from our distinct positions as student, patient-family advisor, sessional instructor, and faculty lead/course developer were used to inform our collaborative discussions about our partnership within this project. We began by considering the following questions from our individual perspectives:

- What was my learning?
- What was the impact of that learning on my work?

For the purpose of this research, "work" was defined broadly as any purposeful activity in which we were each engaged.

We also wanted to consciously consider our personal and professional identities in the context of our reflections. We adapted Jacobson and Mustafa's Social Identity Map to consider how various facets of our identities might impact our individual and collective learning and participation in the partnership [21].

As a group, we responded to one another's reflections on our learning as part of this project, and then discussed benefits and challenges in the context of our student-community-faculty partnership. We learned from the work of Popovic et al. [22] when considering these mutual benefits and possible power dynamics that might be at play between students and PFAs, students and instructor(s), and between PFAs and instructors during

the design project. To guide this part of our collaborative discussion we considered how the interactions between any two partner groups (e.g., students and PFAs, students and instructors, and/ or instructors and PFAs) may have resulted in or demonstrated a power dynamic that was similar to or different from comparable relationships.

The final step of the research was to summarize the joint discussion and interpret its meaning and potential impact on the course project, our teaching, and the partnership model. The initial draft of this section was written by the course instructors; feedback provided by *Jan* and *Avani* was then incorporated in the final version.

3. Findings and Discussion

To gain a deeper understanding of the benefits of this pedagogical partnership model and its impact on learning, teaching, and the broader work that each of us undertakes, we have shared our individual perspectives on this experience through the following lenses: student (*Avani*), PFA (*Jan*), and course instructors (*Robert* and *Andrea*).

3.1 Student Point of View (Avani)

I was born in the western part of India, however my family moved to Dubai, United Arab Emirates (UAE) when I was nine. I completed my schooling, undergrad and got my first job in Dubai. Coming from an ethnic and a very protective family background and a conservative society, I have always been excited to work in relatively more "open" environments, and my master's education and this course gave that to me. The conversations and the design work with the PFAs and the professors helped me to open up, be more vocal about my ideas, and cultivate dynamic relationships. Being a female of colour in the engineering field, I am a big advocate for women's empowerment in tech and in general. I strongly believe that my aptitude for emotional intelligence and ability to empathize helped me to connect, build trust and understand some of the underlying factors as the PFAs described some of their personal experiences during our conversations.

The Design Thinking course offered at the W Booth School of Engineering Practice & Technology, McMaster University and the journey with the Patient and Family Advisors at the hospital has been a fundamental contributor to one of my biggest learnings in engineering practice. I have come to indomitably believe that collaboration is existential to Design Thinking and by adding concepts of user experience and co-creation, the words "technology" and "business" are being positively reshaped.

What have I learnt?

This project was the first time that the students as design thinkers were working with the end users (PFAs) directly. At the beginning, it was a slightly nerve-racking experience for me. I went prepared with a list of questions with an intent to initiate and perhaps "shape" the conversations. Though, eventually, I learnt the importance of asking the "right" questions and facilitating "organic" rather than "robotic" conversations with the end users. This allowed me to connect with the PFAs at an emotional level and eventually make them feel "heard" and "valued". By practicing empathetic listening and speaking. I developed design sensibilities and learnt to tap onto the intuitive qualities of what the PFAs were sharing with us and understand the personal meaning and cultural resonance to their experiences. This is when I truly understood what one of the PFAs meant when she spoke of "leaving a legacy behind" - which turned into a key motivation behind one of the design concepts in the journey.

After a number of conversations with the PFAs, I learnt something: deep silence in interviews holds the power to transport the speaker to profound territories of their experiences, thus providing substantial insights that later develop into great design spaces. It was not just about being aware and knowledgeable of the physical pain and the mental toll medical procedures took on the patients, it was also about identifying and uncovering the real needs of the patients and mirroring them into design spaces. An eventual outcome of this way of thinking were multiple aha moments later down the journey.

One of the experiences I recollect as I reflect was how one of the PFAs made it extremely easy by essentially "giving" the problem statement to work upon. The problem statement was how current walkers (mobility aids) topple easily especially when commuting in buses (when the buses apply hard brake and accelerate). The PFA spoke about her struggle with balancing herself as well as trying to prevent the toppling of the walker. Theoretically, producing a correct problem statement requires a good amount of design work to be completed prior. Even though this gave my team a head start on the design work, it added a bias to my thinking. Instead of exploring all the design spaces that played camouflage, I went straight into engineering what the solution could look like for *that* problem statement, only to eventually realize the problem that we had been working on was not really a problem. This was a big "Oh Crap!" moment in the journey.

When my team was discussing the design approach we took for this specific problem state-

ment, the professor asked us a very simple question: "What are you trying to solve?", and we very delinquently answered: "We are trying to design a walker that doesn't topple when the bus stops or accelerates." The professor then asked: "Can you show me how the PFA currently uses the walker especially when the bus hard brakes or accelerates?", and we didn't have an answer. We then went back to the PFA to show us how she would manage, and to our surprise, we learnt, the PFA would naturally move the walker closer to her body and adjust to the position of the folded walker to seamlessly prevent the toppling. We then asked ourselves: "If that is the case, what exactly were we trying to solve?" A simple question like that resulted in a big learning – humans try to offset the problems they face by making small involuntary changes in their habits and eventually getting adapted to it, hence the problem doesn't remain a problem anymore.

The learning environment that was created in the Design Studio helped students like me to develop a thinking that resulted in learning of such human patterns that were so pivotal in making design decisions. Not only this, the Design Studio was a place for all of us to explore creative learning and apply that to our respective projects with the PFAs. Now that the "Oh Crap!" moment was learnt of, we then went back to our initial insights to restart our design process – which our professor supported of off. We learnt that such scenarios are very common in any design process, and Design Thinking allows for one to restart when they hit a roadblock.

Working with ambiguity, especially at the beginning of a design journey can be very daunting and challenging. This project was no different. The insights gathered through various Design Thinking techniques of interviewing, empathy mapping, morph charting, developing Point of View statements (POVs), prototyping, designing with intent helped me sculpt the ambiguity and converge to a solution that wasn't what the patient advisors identified they wanted right at the beginning, but was something that they never dreamed of, never made a mention during the conversations, and when they saw the low-fidelity mock-ups of the concept, they realized that this solution could serve all their needs.

The course instructor, *Robert*, developed an environment of collaboration and co-creation in the class. This really helped me get creative, brainstorm new ideas as well as stay aligned to *userfocused thinking* rather than *engineering solutions*. Through the collaboration with the members of the community, I as a student got the opportunity to work with and design for individuals who were willing to share their real-life experiences and work beside my professor thus enriching a harmonious student-faculty-partner relationship.

How has this impacted my career post-graduation?

Through this journey I learnt to deploy various Design Thinking tools during *inspiration, ideation,* and *implementation,* as well as be comfortable working with ambiguity. I can now define ambiguity as an efficacious and a flexible *tool.* This is something that I carry forward beyond graduation and into my current workflow. Not to forget, community collaboration was, is and will be the key to learning the end-user and creating products that can create an *impact* and *change the world.*

One of the sentences that I picked up while grading one of the project presentations as a Design Thinking Fellow was: "Listen to the patient, they are telling the diagnosis!" – and it left an indelible impression on me about how the health-care system today is so "doctor-centric" as opposed to how the care is meant for the patients, and the system should rather be "patient-centric." Through various projects in the Design Thinking course, students like me get the opportunity to work with the end-users *directly* and *at par*, learn about their *real needs* and create products that advocate a much needed "patient-centric" healthcare system today.

In recapitulation, I strongly believe that Design Thinking is a way of thinking that creates value for the stakeholders/end-users as well as holds the power to solve the biggest challenges that humanity faces today – whether they are dealing with a neverending pandemic, climate change or complex issues of systemic discrimination and DEI (Diversity, Equity and Inclusion).

3.2 Patient-Family Advisor Point of View (Jan)

I have been described as a consummate healthcare professional whose advocacy for the most vulnerable amongst us, especially for children and youth, has been a driving force along a highly successful career pathway. I have held positions in multiple nursing sectors, as well as positions in research and administration in the hospital sector, including a Chief Executive Officer position with the Ontario College of Family Physicians and a founding professor, Northern School of Medicine from 1998-2013 and then, the Chief Executive Officer with the Ontario Psychological Association. Today, I am honoured to be a patient/family advisor with St. Joseph's Health System in Hamilton and a coach and mentor to high school and students at McMaster University - and the Founding President & Chief Executive Officer of Resilient Kids Canada. And a mother, grandmother and spouse who has experienced the healthcare system from the viewpoint of a patient, family member and widow.

What Did I Learn?

My assigned role was to interact with the students as a patient/family advisor. It was humbling to realize that my professional background collided negatively with my role as a patient/family advisor. My professional hat is values-driven and anchored in a covenant with patients, rather than a contract. A contract means that I will do this much and no more. A covenant means that I will do anything and everything for you, my patient. It means that I will use all the tools in my toolbox to help my patients get better and stay healthy. It also means that, like all of the various healthcare professionals, I have acquired those tools in my own professional silo. Working with the students and the other patient/family advisors, it became easy to imagine how difficult it is for patients with a new diagnosis to navigate a system in which various healthcare professionals pull out their own tools, find that they didn't work for this patient and transfer care to a different professional with a different set of tools. And, how confusing it is for the patient with multiple conditions to be surrounded by a team of healthcare professionals all trying different tools and totally confusing the patient. While one of the pillars of high-quality healthcare is a positive patient experience, our professional hats often lead us utilize the skills we learned in our professional siloes. Since we fail to ask the right questions, we miss discovering how to improve our patients' and their family members' experiences. The students saw things from a different perspective - and, provided opportunities to see patient and family experiences from a different perspective.

The following cases illustrate what I learned from interacting with the students and instructors:

Case One: A patient/family advisor informed the students that she had arthritis that left her fingers painful and compromised her small muscle capabilities. The grocery store near her supported housing apartment prevented the loss of shopping carts by having the user insert a quarter into the device that would release the cart. It also would return a quarter when the cart was returned. She was unable to push the quarter into the slot and her many efforts meant that she created a line-up of increasingly angry people behind her. Retrieving the quarter was equally as difficult - and she couldn't afford to lose a guarter every time she shopped. Rather than deal with the quarter issue, she removed a cart from the store and pushed the cart through all kinds of weather back and forth to the store – with increasing pain every step along the way. My toolkit would have concentrated on relieving her pain. The students, with their fresh eyes,

created a simple tool that allowed her to grip the quarter – and problem solved!

Case Two: At the hospital, the various wings have been added over time. The first outpatient visit is quite stressful for patients. Panic sets in as a patient has difficulties finding a parking spot, locating the right wing and finding the clinic. Patients worry that they are going to be late and start to imagine how distressed they will be if the much sought-after appointment is canceled. Healthcare professionals are constantly frustrated by having to wait for late patients. They often take care of a patient that was early and make the late patient wait and wait and wait. The students developed the prototype of a stand at the entrances to the hospital that would allow the patient to enter their name and the clinic they were seeking. An electronic wrist band would be issued to guide them to the clinic so that they arrived on time. A GPS for patients - Brilliant!!

Case Three: The number of Covid-19 cases admitted to hospital was decreasing and it was time to re-open the Ambulatory Clinics. Concern for transmission of the virus in the waiting rooms brought together a planning team, including patient/family advisors. We were at the stage of determining how much it would cost to place a plexiglass between each chair – and my professional hat reminded the management team of the costs associated with the number of environmental service personnel that would be needed to wipe down the dividers between patients. The other patient/ family member asked us where we would put patients in wheelchairs so that they were safe and not "on-display." My professional hat viewed wheelchairs as a great mobility device. She viewed it as a symbol of her disability and a source of embarrassment. The conversation immediately changed to a focus of creating a comfortable area within the waiting room for patients in wheelchairs or walkers or on crutches.

The power of the voice of patients and family members in the design and continuous improvement of our healthcare system was highlighted as a result of our experiences with the Design Thinking students. The inherit silos in our education system often prevents the members of a healthcare team from developing a common approach to the fourth pillar of a high-quality healthcare system – the patient experience. We learned the immense value of Design Thinking with, and not for, patients and family members from the students and how easy it is to allow our professional hats to blind us to the true needs of our patients. Simple solutions can make a tremendous difference in their lives . Moreover, the skill sets of young people educated in the Designing Thinking need to be added to our quality improvement teams!

3.3 Instructor Point of View (Andrea)

My introduction to this project was in the fall of 2020 as a co-instructor with *Robert* on the Design Thinking course. I had previously taught the Human-Centred Design course in the same master's program, an elective that was offered to students who had completed the introductory Design Thinking course. Since my initiation as an instructor in 2020 and at the time of writing, I have taught two additional cohorts of the Design Thinking class.

My background is in Biomedical Engineering and Global Health, disciplines in which the principles we teach in Design Thinking around empathy, collaboration, inclusivity, and participatory approaches all have great value. My experience as a well-educated Euro-Canadian, white woman of relative privilege working on health-related projects and research in diverse settings around the world had shown me many of the inequities in healthcare systems that are still predominantly biased towards the white, male, physician perspective - even in Canada with our universal healthcare system and promotion of "patient-centred care." For this reason, I appreciated the concept of Patient-Family Advisors who could advocate the needs of patients and family members to healthcare providers. The idea of inviting these volunteers to work with the students in the Design Thinking course also made perfect sense and I was excited to have the opportunity to help facilitate these design projects.

At the same time, I'd had many experiences throughout my career in which I felt I'd gained more from community-based projects - be it as an engineer on a development project or as a researcher in academic settings - than the intended beneficiaries of the work. I was also aware of how engineers with traditional, fixed mindsets in which they believed they had all the answers could cause tremendous harm to vulnerable populations, even with the best intentions. As such, I recognized the potential for our PFA volunteers to feel disillusioned with the students, instructors, or outcomes of the projects. I also had less teaching experience in higher education, and more specifically in design, than *Robert*, and therefore, valued the opportunity to learn from him how to guide technical students with no previous training in empathetic interviewing techniques.

What is my learning?

Through the third of four design projects assigned during the course, in which students designed for and with Patient-Family Advisors from the hospital, I gained a better understanding of the evolution of students' learning in Design Thinking. For some students this would have been their first experience empathizing with someone they didn't know as the "end-user" of their reimagined experience. In the first two projects, many students interviewed people that they or their team members knew, which may have made it easier to understand and identify with their perspectives on a certain design challenge (not always a good thing in design as it becomes too easy to design for yourself, rather than the beneficiary).

This may also have been students' first experience addressing a design challenge with a more complex dimension: health and well-being. Many students either had not had experience dealing with more complex health issues themselves or someone close to them and the majority of students being international were unfamiliar with the Canadian health system. This "distance" from both user and context necessitated that the students thoroughly conduct their design research and required them to learn about the end-user, rather than making assumptions based on prior knowledge and an anticipated solution. It became clear quite quickly if students were effectively engaging in the Design Thinking process: conducting interviews, asking open-ended questions, listening actively and with the objective to learn about the user (rather than to validate their design ideas).

For the PFAs I was curious about what they would personally gain from the experience (if anything) above and beyond the presumed fulfillment or satisfaction of "helping" to teach the course. Would this be an enjoyable experience for them, or would it be a "chore" to interact with the students? Would they be impressed or disappointed with the design outcomes? For those who'd worked with students previously in this course, what was their motivation for returning?

There were a couple of things that stood out to me about the student-PFA interaction during this project. The first was that the PFAs felt that their lived experiences as patients and family members of patients were truly valued by the students and instructors in the context of this course and the design work. Students were beginning to understand what we meant by "patient experience" in contrast to the "expert" (e.g., physician's) interpretation of the health challenge. Both students and PFAs gained an appreciation for the value of this *patient* perspective in creating innovative design that could lead to transformation of the system itself.

Secondly, PFAs adopted the role of "mentor and coach" in which they had something to offer the students. By contrast, patients in the healthcare system typically play the role of "receiver"... of

diagnoses, treatment, and/or care. Thus, their role was somewhat reversed, which seemed to make the experience working with the students, in particular, those who really appreciated the opportunity to work with the PFAs (and I think that was most students), especially fulfilling and meaningful – due to the relationship that was built alongside the learning.

What is the impact on my teaching?

Aside from the initial introduction of the PFAs to the students during class, I did not directly observe the interactions between them during the interviews. Rather, each week the students presented what they had learned from the PFAs: their frustrations and moments of joy that led to an understanding of their needs and related insights, their points of view, and the design opportunities that the students discovered through this process. In critiquing their design work, it became easier to recognize when students were not considering the "human" elements of the issues being presented or only at a superficial level. By guiding the students to focus on human values and motivations (rather than the technology or product features of their proposed solutions) the students learned to really delve into the PFAs' emotional experiences. And perhaps because their role at the hospital was to share their views with the hospital staff, it seemed that the PFAs were quite comfortable answering questions using specific examples that helped the students make sense of the experience and challenges that patients and family members face. I believe this deeper level of understanding not only helped the students interpret what "experience design" really meant and how to apply their learning to their final projects, it also supported my ability to recognize when students failed to truly empathize with the user.

As an educator, this experience helped me share my own personal and professional examples in health and global development with my students. I began reflecting on the experiences that led to my own insights, understanding the value of my own experiences in research and design in healthcare. In describing that learning in the context of different design projects on which the students were working, I have been able to make my implicit knowledge explicit. In short, I learned to be vulnerable with the students in sharing my own learning journey, thus helping them to better understand the Design Thinking process.

Having the PFAs participate with the students as equal contributors in the design process also highlighted the importance of acknowledging their current experience. Not only is this important for the students in their learning of the Design Thinking mindsets, but it is also important that this be reflected back to the community (i.e., the PFAs) in the design work. The students demonstrated the value of the PFAs' contributions during the learning journey by showing the PFAs that they both understood and found creative ways to address their challenges. In this way, the PFAs were also inspired by the students as potential changemakers.

3.4 Instructor and Faculty Program Lead Point of View (Robert)

My background is in Mechanical Engineering, Manufacturing Engineering, and Computer Science. I have long since abandoned these disciplines in favour of creative ways of thinking about design, engineering, technology, and education. I now teach Design Thinking. I am the child of European immigrants and white male of privilege working to explore more scholarly and designerly ways of teaching. I've been teaching Design Thinking for more than 10 years and was looking for a way to support students in engaging in meaningful conversations as part of their design research.

What is my learning?

The original reason I had for engaging the PFAs in the course on Design Thinking was to provide the students a source of rich user experience for the empathy and testing phases of design for a project on redesigning patient-centred experiences. The PFAs were intended to substitute for direct patient interviewing. I expected students would initially engage the PFAs to elicit stories about patient experiences. Then they would analyze that data, reimagine the patient experience, create a prototype, and engage the PFAs to test the prototype. Then repeat this process. That was the ideal in my mind. I wanted students to have a rich source of user experience data from ready and willing participants (i.e., the PFAs) on which the students could apply and thereby learn key Design Thinking skills, especially empathetic interviewing, and prototype testing skills.

I had approached the design and implementation of these engagements with the PFA's in an instrumental way. My thinking was if I gave the students and PFAs the right instructions, training, support, processes, etc. that I would get the learning I, as an instructor, wanted. The reality was something quite different. The interactions between the PFAs and students weren't what I expected and their interpretation of the value (at least initially) of the experience was not something I'd anticipated. My first surprise came when I realized that the initial conversations between the students and PFAs rarely followed the ideal pattern for empathetic interviews. This seemed to be happening for two reasons. Firstly, there was a large difference in age and experience. The students were new to empathetic listening and therefore tended to be more passive in the interviews than I expected them to be. So, in many of the conversations the PFAs led the conversations sharing stories, insights, and experiences from what they felt was important and relevant. Secondly, the PFAs were selected to serve on St. Joseph's Healthcare Hamilton's Patient Family Advisory Council because they wished to share their experiences, were articulate, insightful, and thoughtful with respect to patient and family perspective in the healthcare system. Whereas I expected my students to collect patient and family experiences from the interviews and analyze them, often students walked away from the interviews with rich insights the PFAs bestowed upon them. I had very much hoped it would be students that would be generating the insights on their own.

Surprisingly, I learned that the PFAs found great joy in speaking with the students. They seemed to feel that the students were listening intently and valuing their experience, opinions, and insights. In fact, speaking to the students seemed to bring joy. Looking back now, I think that this was a sign that some of the teaching in the course was having an impact. The students were not treating the PFAs as data sources to answer questions they had but were listening with curiosity to the PFAs even if they were not leading the conversations. Students were collecting stories rather than obtaining answers. Similarly, I learned that while students were passive in the early interviews with PFAs when they brought their prototypes for testing (i.e., "show, don't tell") the students took on the role of being active in leading the conversations with PFAs and analyzing the results of the prototype testing.

My approach and thinking about this learning experience was very much an engineer's way of looking at it. If I'd maintained my original perspective, I might have had to terminate this engagement with PFAs because it was not producing the learning I expected. I believe my original expectations were perhaps too high and too rigid. I really needed to "practice what I preach" in that I needed to see the design and implementation of the engagement with PFAs as a design using design thinker's mindsets. This kind of experiential learning needs to be approached with an expectation that things may fail. I certainly felt that the first time through. Observation as an instructor is a key skill. I needed to see and listen to what students and PFAs were learning to get a true sense of what was going on.

What is the impact on my teaching?

On "teaching" the Design Thinking learning objectives

I have had to rethink and rethink the objectives for the learning. While I do have an ideal goal for the learning, I find that I must recalibrate the smaller steps to that goal with every lesson, course, and experience I create and teach. It is, in fact, anything but a static process. I am always learning and reinventing my teaching as I go. Now that I feel more comfortable with the learning activity (with PFAs) I see learning problems and pedagogical challenges I did not see before. For example, one of the barriers I have run into is the problemsolution paradigm students bring to their design practice. In the problem-solution way of thinking one tries to have a clear idea of what the problem is before one starts looking for a solution and then, once the problem is defined, tries to paint a strong picture of what the solution is before filling in the details. Design thinkers will not aim to reduce ambiguity in this way. The goal for my students is to learn to stay in the ambiguity and "play" in that space. Thus, I talk to my students about thinking of designing as more like writing an essay or report. There needs to be clear concept or thesis behind the creation, but one doesn't usually fix that before trying to write out paragraphs or chapters. The thesis or concept evolves over time as one tries to write out the manuscript. So, it is with design. We talk about this analogy, and we talk about how it is uncomfortable to stew in this ambiguity. That helps normalize this new way of thinking despite the unnatural way it feels.

On what I had to offer as a Design Thinking educator

Engaging with leading community members has reminded me of key values of leadership that I lack but many of the PFAs have in abundance. I think this is also one of those surprises. Engaging with PFAs isn't just about achieving my short-term learning objectives, the PFAs are mentors, guides, coaches, and models for the students. From the PFAs I've learned to be more empathetic, more grateful, and more vulnerable. In each of these ways, the PFAs were better than myself. Also paying attention to my students, I was constantly reminded of how open-ended Design Thinking work is and how it creates feelings of uncertainty and how that can lead to feelings of inadequacy. Despite the lack of "hard math", this kind of learning is tough.

On community engagement

I increasingly see community engagement as an evolution of the notion of students-as-partners to

students, community, and faculty-as-partners. We are not equal partners but strive to treat both students and community as agents in education. We are, however, all learners.

3.5 Joint Reflection

About the Design Thinking process and mindsets

One common theme that emerged from these different perspectives was around the Design Thinking research process, specifically *how* students could engage the PFAs in meaningful conversation that would lead to deeper insights and design opportunities. Empathizing with someone they didn't know as the primary beneficiary of their reimagined experience required the students to ask the "right" questions to facilitate organic rather than "robotic" conversations. In addition to asking open-ended questions and active listening, students gained additional empathetic interviewing skills as demonstrated by the following excerpt from *Avani*'s perspective:

"Silence may be deemed as awkward, however, we learned to use it as a tool to consider the experience and how it really affected them [the PFAs]. We observed body language and how they came up with stories."

Another important learning that was mentioned by both the instructors (*Robert* and *Andrea*) and PFA (*Jan*) was that students were beginning to understand what we meant by "patient experience" in contrast to the "expert" (e.g., physician's) interpretation of the health challenge. As illustrated by *Jan*'s quote, students were shifting to humancentred mindsets, empathizing with the patient experience, and making her comfortable sharing her genuine sentiments about a particular situation.

"The next time the students came back it was pretty obvious that they had a taste of what it was like to be a real patient. It was about the third time that I felt comfortable sharing information about me and my family – releasing information about what didn't go 'right' for us. Oftentimes [during those experiences as a family caregiver] it was my professional hat that caused things to go wrong: I was too embarrassed to ask for information that I needed that I thought I should know as a healthcare professional."

About the community-student-faculty partnership

What became clear through our collaborative analyses of our individual reflections on our experiences during the project and, more specifically, the interactions we had with other members of the partnership, was that the relationships were more equitable than in other contexts. Thompson and Jesiek [7] described communal partnerships as providing an avenue for reciprocity that meet the needs for human connection. We each recognized that we all had something of value to offer and something to gain (i.e., the learning).

This was highlighted by *Robert*'s surprising observation about what happened at the end of the first project period. Students had organized themselves and brought a gift for the PFAs only to discover that the PFAs had brought a gift for them! The community partners thanked the students, "which showed there was something different going on. Everyone was bringing something different to the table and helping one another to learn."

From the PFA perspective, patients are typically treated as recipients of care, and are not meaningfully engaged in "patient-centred care" [9]. The trust that was built during the joint learning process with the students resulted in a problem-solving approach that was not the same as in the health system. PFAs articulated what it was really like to be a patient and family member, thereby allowing the students to break down both disciplinary barriers and power structures implicit within our health system to address patients' needs based on their everyday lived experience, not just at the hospital, but also at home and in their community. Whether patients are "too embarrassed to ask" as Jan described above or simply don't know what to ask for, the students learned that patients don't always receive the care needed from medical professionals. Furthermore, the students went beyond medical problems diagnosed by the healthcare "experts" to gain human-centred insights related to the overall patient experience, thereby demonstrating that they had achieved the intended learning objectives.

Avani described this as a "symbiotic relationship" with the PFAs. After overcoming an initial fear related to meeting expectations – about the requirements for marks and about being sensitive to patients when interviewing them – she and her peers soon recognized that patients were inspired to share when students were eager to learn from them. Moreover, when they listened to these personal stories, they were more motivated to find innovative solutions for the PFAs.

In addition to taking advantage of design tools, such as empathy maps, to organize her thinking during studio sessions, *Avani* also mentioned that the feedback from the instructor helped keep her design team on the right path. She described a meeting at St. Joseph's Healthcare Hamilton where they realized that the problem that they were trying to solve was not really a problem. The questions that *Robert* had posed at the time, such as, "Why is this important?" and "How do you think this is going to help the end-user?" kept them focussed on the patient experience. *Robert* also noted that having the students share low-fidelity prototypes, (e.g., storyboards) with the PFAs helped them drive their conversations as they explored more specific design directions.

Most notable was when *Jan* said that in "quality improvement" contexts outside of St. Joseph's Healthcare Hamilton and McMaster University when she shared her experiences as patient and family member, she shared them anonymously. "I had shared my stories as "patient" stories, but nobody knew they were my stories." She noted that patients are nervous about being ostracized if they do criticize the healthcare system. Patient fear is preventing care providers from identifying areas of improvement to work upon changes.

Meanwhile, the relationships with her partners at McMaster University (the students, instructors, and other PFAs participating in this project) and through the Patient-Family Advisory Council at St. Joseph's Healthcare Hamilton were built on an understanding that her *real* experiences were needed to help transform the system and the patient experience. It was only through this process that *Jan* realized she'd been "mistreated" by the system for which she had worked for so long. "My pride in the system was inhibiting my ability to admit that when you're on the other [patient] side it's not fun."

One aspect that the instructors endeavour to "bring to the table" is a safe space for learning where students feel comfortable taking risks, asking questions, getting feedback, and making mistakes. This was illustrated by Avani when she described the Design Studio as "a place for all of us to explore creative learning and apply that to our respective projects with the PFAs. Now that the "Oh Crap!" moment was learnt of, we then went back to our initial insights to restart our design process- which our professor supported of off." Related to the safe learning environment is the confidence to support students as designers, having the skills to lead the process with PFAs, by the time they reach the third project of the course. Rather than approaching the teaching instrumentally by requiring students to strictly follow a set of steps, the instructors focus on Design Thinking mindsets and an understanding of why certain design tools are used so that students can make their own decisions about the process. In this way, "we reframe the traditionally hierarchical structure of teacher-student relationships" to create a more equitable learning experience [15]. Indeed, extending that safe space to the on-going discussions between students and PFAs (which permitted Jan to be more vulnerable than during her interactions within the healthcare system), suggests a degree of co-design [23] in which the Community-Student-Faculty partnership model provided "team psychological safety: a shared belief held by members of a team that the team is safe for interpersonal risk taking" [24]. In the Students as Partners model, Bovill *et al.* [25] relate co-creation to "an enhanced meta-cognitive understanding of learning and teaching processes," which can also be applied to the Community-Student-Faculty Partnership model described in this work.

In revisiting the notion of our positionalities and related power dynamics between different partners, the instructors had anticipated a greater power differential between themselves and students as a result of having more experience not just in design but also in understanding the Canadian healthcare context, since – like Avani – there are typically many international students registered in the class. This, however, did not seem to be the case perhaps due to the unexpected, yet appreciated, contributions of the PFAs in mentoring the students (and thereby joining the team of educators) as student-designers learned about healthcare experiences from the patient and family caregiver perspectives. The awareness of the instructors that the open-ended nature of design is "tough" and their efforts to normalize the discomfort of ambiguity and the iterative design process likely also helped mitigate power disparities. Of course, it is not impossible that the absence of obvious power imbalances could be attributed to Avani who, like the PFAs whose role it was to advocate for patients, described herself as an advocate for those whose voices are not always heard, and therefore, may have had a greater sense of self-efficacy than other students.

The balanced partnership, similar to the Students as Partners model [18], created the safe space that was needed for open, authentic conversation. Almost from day one, the PFAs felt comfortable talking to students (and vice versa) and opened up more fulsomely than they normally would with healthcare professionals. With some instructor guidance, students uncovered the valuable information and insights that led to creative design opportunities. By the end, all three groups of participants in the partnership were satisfied with the results because the collaborative relationship was so intertwined.

4. Conclusion

The success of this learning experience within the Design Thinking course can be attributed to the

more equitable collaborative partnership between hospital PFAs and McMaster University students as facilitated by the course instructors. This multidirectional community-student-faculty partnership model grew from simple interviews to a more meaningful and collaborative joint learning journey between students and PFAs. The partnership not only provides students an opportunity to learn about healthcare challenges from the patient – rather than professional - perspective, but also involves mentorship by the PFAs as they help students understand the nuances of their experiences as the primary participants within the healthcare system. Concomitantly, the depth of engagement provides PFAs the opportunity to see the richness of progression of dialogue between the students and "real patients" throughout the students' design process, resulting in inspirational proposals to address their health-related challenges and an appreciation for the students' humancentred design competencies.

Sharing our individual perspectives as student, PFA, and instructor clarified *why* this partnership model was so successful. Despite finding ourselves at an unanticipated destination, we discovered benefits that surpassed our expectations when this design project was initially envisioned. The Design Thinking students, with their fresh perspectives, created innovative design solutions that contributed to PFAs feeling *heard*. Their lived experiences as both patients and family members of patients were *valued* by the students. Moreover, beyond merely acting as interviewees, PFAs adopted the role of "mentor and coach" in which they had something to offer the students.

This collaborative teaching approach supports course learning objectives for students to adopt a human-centred mindset, iterate on prototypes, and learn through feedback. In addition to adding value to students' learning, the project promotes patientcentred healthcare through meaningful involvement of PFAs. By reflecting back to PFAs the insights gained in the form of innovative design ideas, the students demonstrated not only the value of the PFAs' contributions to their learning journey, but also the potential for profound change to the healthcare experience.

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