

Identifying needs and opportunities for IT reuse on campus

Melissa Cusack Striepe

Supervisor: Kate Whalen

Identifying needs and opportunities for IT reuse on campus

McMaster Universities' new 'Trash to Treasure' program seeks to reduce the amount of recycled IT at McMaster through promoting reuse on campus. This inquiry project assessed this new program. It was found that the major concerns students have regarding reused IT are whether the IT meets a threshold for use, how individuals have different preferences, and that the program must be accessible. These themes indicate important steps that the program should take to ensure its effectiveness. The steps include partnering with pre-existing community groups to help with the distribution of IT, as well as ensuring that students are part of the planning and continued running of the program. This method will keep the program tailored to student needs and ensure it is accessible to a diverse student community.

Introduction	5
Motivation	5
Question	5
Scope	5
Anticipated Findings	5
Structure of Report	6
Literature Review	6
Food Banks	7
The Need	7
How They Identify Need	7
How They Address the Need	8
Barriers	8
Opportunities for Application	9
Bike Repair Centres	9
The Need	9
How They Identify Need	9
How They Address the Need	10
Barriers	10
Opportunities for Application	10
Makerspaces	11
The Need	11
How They Identify Need	11
How They Address the Need	11
Barriers	12
Opportunities for Application	12

<i>Study Context</i>	12
<i>Methods</i>	14
<i>Results</i>	16
Threshold for Use	18
Individual Preferences	19
Accessibility	20
Financial Concern	21
Creative Outlet	21
Social and Community Aspect	22
<i>Discussion</i>	22
<i>Reflection on My Inquiry</i>	24
<i>Conclusions</i>	25
<i>Bibliography</i>	27
<i>Appendix A</i>	29

Introduction

Motivation

The motivation for pursuing this inquiry is to gain an understanding of processes for identifying needs that community members have, as well as methods that can be applied to address these needs. To explore this, a case study of IT reuse at McMaster was studied.

Question

What IT needs exist within the McMaster student community, what barriers exist in providing for those needs, and what opportunities exist to fill these needs?

Scope

This inquiry will cover the IT related needs of McMaster University students, with a particular focus on undergraduate engineering students. The research will seek to identify the needs that students face regarding IT and connect these to barriers and opportunities that exist on campus and within campus processes for fulfilling the identified needs.

IT is laptops, computers, connectivity devices, and all related components, including mice, cords, keyboards, hard drives, and more.

Anticipated Findings

At the beginning of this study, it was anticipated that a significant financial need would exist on campus and would impact IT needs. Specifically, it was expected that the primary need associated with IT would be regarding the fact that students are

already financially strained. Students face high tuition and low income, causing a large proportion of students to struggle to afford IT that they may want.

It was also anticipated that students would feel these needs to varying degrees, depending on their programs. Different programs require students to use specific technological equipment. For example, some students may need processors in laptops that can handle running complicated software programs. In contrast, others will only need a processor that can handle taking notes and general word processing.

Moreover, it was expected that there would be a stigma around IT reuse. Stigma, defined as shame associated with a situation or process, is highly prevalent in reuse and gifting situations such as the use of food banks and donation centres. This same stigma was anticipated to exist within the reuse of IT equipment at McMaster, as students would not want to be seen with old equipment, or would feel strange taking older IT.

Structure of Report

This report is structured to tell the full story of the findings and connect the McMaster case study to the overall motivation of learning about identifying and addressing needs. The report first covers background research on how various organizations identify and address needs. These needs include less commonly noted needs, such as education, social activity, and self-reliance. Next, the context for the information gathered in this study is provided by explaining the case study at McMaster. Then the report covers study methods and results. The report concludes with a discussion of the findings that connects the study to the context and background.

Literature Review

One of the most apparent and discussed needs that individuals face is financial

need, where they are unable to afford the necessities for their life. However, there are many less noted needs that people may have, including needs related to food security, education, creativity, self-reliance, and social connectedness. Table 1 notes the organizations covered in this literature review and the types of needs each of these organizations fill. These social organizations seek to fulfil needs in different ways but are all community-oriented spaces and non-commercial.

Table 1. Organizations and the needs they address

Organization	Needs Addressed
Food Banks	Food Security, Financial
Bike Repair Centres	Educational, Mobility, Self-Reliance, Social, Financial
Makerspaces	Creative, Educational, Financial

Food Banks

The Need

Food banks look to address food insecurity, which often stems from financial need through providing food to low income and at-risk members of the community (Tarasuk & Eakin, 2003) (The Good Shepherd , 2014).

How They Identify Need

Food banks either require individuals to self-identify as in need, in which case users apply at the food bank for aid. The application is evaluated based on an individual’s socioeconomic status to determine whether they qualify for food bank assistance (The Good Shepherd , 2014). The other method that food banks use is supplying front line agencies with food and depending on those front-line agencies to

identify who is in need (Tarasuk & Eakin, 2003) (Feeding America, 2020). The front-line agencies use their existing social connection to communities to be able to find who is in need. An example of this is Food4Kids Hamilton. Food4Kids collects specific categories of donated food and sorts it into lunches for children who come from families that cannot afford to give them lunches for school (Food4Kids Hamilton, 2018). Then, Food4Kids uses the school as a front-line agency and the teachers in the school as those who can identify which children come to school without lunches. This allows food to reach those who need it, in the form and at the time that it is needed.

How They Address the Need

As noted above, food from food banks reaches individuals in two ways. One way is that they hand food out directly to those in need, acting as a form of free grocery store (Tarasuk & Eakin, 2003) (Feeding America, 2020). The second way is through partnerships with front-line agencies. Overall, food security needs are addressed by providing access to food, either to stock cupboards and supplement other purchased food or as cooked food to be eaten immediately. Financial needs are addressed by reducing the need to spend money on food, freeing some up for other activities, or helping families not take on more debt.

Barriers

Unfortunately, food banks tend to see only approximately 22% of individuals who qualify for using the food bank accessing the services (Loopstra & Tarasuk, 2012). Non-users cite reasons being non-usable food, stigma, and lack of accessibility as the top reasons for not using food bank services (Loopstra & Tarasuk, 2012). For example, the type of food available at a food bank may not be the food most needed by a family or may not match the food that they would usually cook with. However, the

implementation of the front-line agency approach is known to reduce stigma and accessibility barriers. It can also ensure that the food reaches those in need in the form and of the type that they can use.

Opportunities for Application

The food bank method of partnering with front-line agencies that are already integrated in the community displays an excellent opportunity for McMaster's IT reuse program. Finding organizations that already know who is in need could reduce the resource strain of the program, while simultaneously making it more effective.

Bike Repair Centres

The Need

Bike repair centres serve the community need for low cost and relatively accessible transportation. They achieve this by touching on education around bikes, building self-reliance around bike repairs, creating a social space to work on bikes and promote community mobility (Arnold, 2013) (bikeSauce, n.d.) (Tolley, 1996). Moreover, these centres keep the cost low as a method of allowing everyone to access bike use.

How They Identify Need

Bike repair centres do not focus on identifying need. Potential users need to self-identify as having the need and choose to engage with the bike repair centres themselves (Arnold, 2013).

How They Address the Need

Bike repair centres address need through providing free, or low cost, access to tools for performing bike repairs, alongside educated volunteers who are willing to teach others how to repair their bikes (Arnold, 2013) (bikeSauce, n.d.) (Tolley, 1996). These resources allow community members to access tools they would otherwise not have and gain the knowledge of how to do bike repairs, which ultimately increases their mobility.

Barriers

Unlike food banks, bike repair centres do not face stigma around using them. The biggest challenges bike repair centres face is with regards to accessibility. The physical location of shops, the ability of users to bring their broken bikes in, and the accessibility of the learning environment are all factors (MACycle, 2020). Moreover, bike repair shops that do not carefully consider their method of instruction face many issues. One example from San Francisco shows that if the language used in instructing repairs does not place both the learner and teacher on the same level, those who are supposed to learn are less likely to understand the concepts fully (Arnold, 2013). These shops end up with less diverse users and frustrated users who do not learn from the process (Arnold, 2013).

Opportunities for Application

The IT reuse system at McMaster can be made more effective through applying the knowledge of how the environment and language used within a space can affect the types of users and experiences users have. A major lesson from the bike centres is how important it is to ensure that the language used at all events and in all spaces is

inclusive. Moreover, it is crucial that the space is created in collaboration with users so that their concerns and desires are built into the space and program.

Makerspaces

The Need

Makerspaces seek to create an opportunity for people to learn, and pursue creative pursuits, affordably (Burke, 2014) (Sheridan, et al., 2014).

How They Identify Need

Just like Bike Repair Centres, makerspaces do not attempt to seek people out who have need but require individuals to self-identify as having need for the resources. One difference, however, is that makerspaces often associate with other community resources to make their presence more known. For example, makerspaces often exist within, or beside, libraries or co-working spaces, as a way to share resources and become known to the community (Burke, 2014) (Sheridan, et al., 2014).

How They Address the Need

Makerspaces address the creative needs of individuals through providing the tools, space, and community for individuals to design, build, and create (Burke, 2014) (Sheridan, et al., 2014). Through sharing the tools, rather than expecting individuals to buy them, the affordability of using them reduces. For example, 3D printers are a standard tool in makerspaces, and good quality 3D printers are unaffordable for most people to buy for personal use.

Barriers

One of the most pronounced barriers that makerspaces face is the fact that many people feel they do not have enough knowledge to use the provided tools. Even with available education on each aspect, people can feel like the process of building, and exploring, is above them, making them never even consider trying to use a makerspace. Makerspaces work to counteract this by creating an environment where the exchange of knowledge is paramount, or by running workshops that introduce potential users to the basics of designing and building.

Opportunities for Application

The lesson that is learned from makerspaces is that providing resources is not always enough for helping people overcome mental barriers of engagement. A potential way to ensure the needs of many people are met, even with varying skill levels, is to couple education with resources. By providing workshops, the mental barrier may be reduced, as seen in the Makerspaces, encouraging more people to use the services. Therefore, workshops for IT repair could be implemented alongside providing older IT, although testing would be required to confirm their impact.

Study Context

This inquiry uses the case study of an IT reuse program being piloted at McMaster University. The program, dubbed ‘Trash to Treasure’, is being spearheaded by the McMaster Academic Sustainability Programs (ASP) office through a student-led course project. Two groups of three students enrolled in *SUSTAIN 3S03 – Implementing Sustainable Change*, a course within the ASP department, selected this topic for their class project. The groups were tasked with collaboratively creating a pilot program for

the collection, refurbishment, and donation of unwanted university IT.

After creating a process for effective IT collection, the students decided that the items would be sorted into three categories based on quality and potential for long-term use. The first use category is lightly used electronics that can be refurbished and then donated within the community. This part of the process was supported by the not-for-profit organization, greenBYTE. GreenBYTE repairs laptops and then distributes them to Hamilton elementary school students who could otherwise not afford a laptop. The second category IT that may have some usable life, or can be repaired, or used for parts. This category is for students in the McMaster community who can use it. The third category is IT which is absolutely waste. This is IT that is broken, dangerous to have circulating in the community, or otherwise unusable. This category will be sent to a proper recycling facility.

To implement the pilot, the 3S03 groups collaborated with McMaster Facility Services and University Technology Services (UTS), who the key stakeholders in the process and each responsible for primary parts of the process – IT collection, hard drive sanitization, and deposition. The motivation for this project is to reduce the amount of IT McMaster sends to recycling, through a focus on reuse. There are also data security aspects, and a risk associated with student's dumpster diving, that could be reduced in creating a more dignified and accessible reuse program.

The reuse pilot included multiple stages of preparation and communication, collection, and then redistribution. To encourage proper sorting and protect items from being damaged, current collection bins were closed, and a free collection service was started. The collection service was for use by any staff members on campus. To use the service, staff members would contact Facility Services through a collection form, and Facility Services would come and pick up the IT waste. On top of this service, an IT

collection event helped create momentum, and social pressure, on bringing IT waste out.

Once collected, IT was cleaned, hard drives were wiped, and the items were sorted into the three categories. GreenBYTE received their laptops and repaired them, before collaborating with teachers at local schools. These teachers identified children who most critically needed laptops, allowing these laptops to reach those most in need. The IT for potential reuse by McMaster students was distributed through an IT reuse event that allowed students to take full pieces or parts of pieces that they found valuable.

This case study provides a space to identify the needs McMaster students have, with regards to IT. Moreover, this pilot allows for identification of challenges faced in the process, and opportunities that exist to do more for the community, with resources that already exist.

Methods

The methods used to research are the use of student focus groups and observations from meetings and events within the pilot ‘Trash to Treasure’ process. Focus groups allow for a more dynamic conversation than surveys (University of Mississippi, 2005). In-person meetings with stakeholders are essential for understanding the procedures, policies, and other challenges involved in building a reuse program.

Five focus groups were run throughout the fall term of school (September 2019 – November 2019). Questions were prepared in advance and used the same base set of questions for each interview. The list of questions used for the focus groups is in Appendix A. Focus groups were advertised through ASP social media outlets, as well as through the McMaster Engineering Society’s social media outlets. These were the

available outlets, but they create some inherent biases. The students who were reached in the focus groups may not be representative of the whole undergraduate population and may be predisposed to having an interest in a variety of technology. They may also be inclined to seek more sustainable options for their tech and the university system as a whole.

Focus groups happened on a variety of dates and times to allow students with varying schedules to attend. Focus group participants were thanked and compensated with a pizza lunch. Focus group information was collected through notetaking throughout the focus groups. Any written work from the focus groups was documented. Thematic analysis was then used, following the theory of Braun and Clarke, with the help of the software NVIVO, to determine the major themes that arose from students' thoughts and ideas (Braun & Clarke, 2006). Thematic analysis is a method of qualitative analysis that uses thematic coding of research materials to find what concepts are most common and relevant, and connecting diverse mentions of a similar theme to their main meaning. Braun and Clarke's method provides clear guidelines to follow, in order to provide structured analysis. Themes are identified through repetition and patterns found within the analysed texts, theme key-ness is determined based on its relevance to the original research question, the level of the theme is determined, and the set of themes is reviewed and re-organized until it accurately captures the information from the research texts (Braun & Clarke, 2006).

The identified themes from the thematic analysis were then oriented into categories of needs, barriers, and opportunities. By splitting them into these categories the original central question was explored and answered.

Moreover, observations from events and meetings with university personnel, the SUSTAIN 3S03 students running the pilot process, as well as student groups and teams,

were used to gain an understanding of the barriers and opportunities involved in the pilot. Collaborators included representatives from UTS and Facility Services, who are significant stakeholders when it comes to realizing this system on McMaster's campus. These observations were noted and then used to inform the statements made within this inquiry report.

Results

The major themes based on the number of references during the focus groups are in Table 2. Some of the listed topics are not covered in this thematic analysis as they were identified as themes that were not key to answering the inquiry question. Figure 1 shows a visual of the three main themes and examples of some of the sub-groups that fall into them.

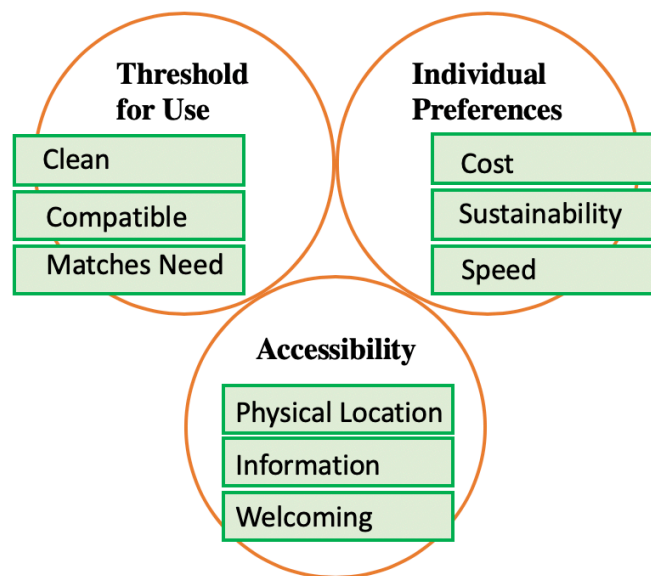


Figure 1. Major Themes from Student Focus Groups

Table 2. Themes from Trash to Treasure Focus Groups

Theme	Number of References
Threshold for Use	41
Accessibility	39
Individual Preferences	34
Financial Concern	15
Laptops as Needed Equipment	14
No Association to Stigma of Reuse	14
Social and Community Aspect	13
Sustainability of Choices	10
Opportunity to Learn to Fix Things	8
Communication of Program	7
Possible Stigma	7
Creative Outlet	6
Concern of too Much Work Needed to Run Program	5
Space Constraint	5
Required for Education	5
Mice as Needed Equipment	3

The most referenced and most key themes were a certain required threshold for use, individual preferences, and the requirement of accessibility. Each of these themes was talked about directly, or indirectly, and provide valuable information for answering the inquiry question. The minor themes of creative outlet, social and community aspect, and financial concerns are also analysed below as they provide insights into this project that are valuable for creating an effective IT reuse program.

Threshold for Use

The theme of needing a threshold for use encompasses a need for IT equipment to meet the requirements to do the jobs that students need them to do. For some students, this means that IT needs to be fully functioning and ready to go, while others need IT that only requires light repairs. Other commonly mentioned contributors to this threshold include needing IT to be clean from debris, for it to be compatible with other equipment, and fast enough for their specific computing needs. For different students, especially depending on the stream of education, the threshold for use varies. For students in engineering, the threshold for use is higher for laptops, since laptops with higher-end processing capabilities are required. In contrast, students in other programs were less concerned with this. Moreover, there were aspects of the reliability and durability of equipment that played into whether or not students felt comfortable using older IT.

As well, students expressed different use thresholds for different items. For one, cords had a lower threshold for use in students' minds than laptops and monitors. Cables are simple, as they are either clean, functional and the right type, or unusable. On the other hand, laptops and monitors have many more components to consider. Laptops and monitors have varying specifications, including resolution and speed. Each of these more complex pieces also contributes to the use threshold, since a certain level of speed and resolution was considered necessary for usability.

Some items also have virtually no threshold for use, these being items that students might stumble across and then realize there is a use for them. Examples of this type of item would be wiring found within components, radar sensors, and motherboards. Depending on the item, students desire them to play around with them, open them up to learn from them, or attempt to build them into projects.

The phrases used by students to describe this theme were '*it needs to be able to do the job*', '*must be reliable*', '*has to be worth it*', '*I need it to last*', and '*I want something that is durable*'.

Individual Preferences

The second major theme is that students have individual preferences that impact their IT reuse. In every focus group, students either stated their preferences or noted other people's preferences, without even thinking about it. Major preference types that students discussed were preferences around cost, age, speed, and sustainability. For many, there was a trade-off between whether something was affordable or new, but the balance of the trade-off was most often dependent on the individual and what they wanted. Similar trade-offs were in age and how the equipment was perceived socially, and how sustainable the reuse of a piece of equipment is against how it might be socially perceived. Another example would be that certain students preferred having higher storage capabilities since they personally felt that they desired more.

Preference also often was noted as a factor depending on the individuals' desire end-use of the IT item. For example, if a student desired to be able to play games using their laptop, their preference would be for a higher processing speed. Moreover, if a student was going to be using their IT on campus, they seemed to feel it needed to be more up to date, whereas equipment they would take home could be less sleek. Similarly, if a student desired to have more mobile access to IT they may prefer a lighter laptop that they can carry more easily.

Students described preferences through phrases such as '*other people might not like older phones*', '*I prefer having IT that is more sustainable*' and '*It is important to me that I can be connected everywhere I go, I need to bring my laptop back and forth*

from school'. Students also were aware that some people would prefer not to have reused IT, but in general this was not concerning to them, highlighting again the impact of personal preferences on reuse: *'some people want something new and you can't do anything about that'*.

Accessibility

The next major theme expressed by students was around the accessibility of the IT reuse program. This included the need for physical accessibility of the IT equipment and reuse location, accessibility to the information about the products, and a welcoming and positive environment around the IT reuse program. Many students were interested in having information about items they could pick up and reuse posted online for them to browse or posted in event groups in advance to ensure they could prepare and decide whether they should attend and pick items up. Others also expressed concerns about not being able to access the IT throughout the year making it so the students who have the most need in a given moment will be unable to get IT then and will likely go buy something new. Students seemed hopeful about the potential to have a well-known space that was visually easily spotted where they could drop by to get IT if they wanted to. Phrases used by students included *'would be great to have a little storefront and have everything ready to go there'* and *'being able to check a list beforehand lets me prepare and see if there is anything useful'*.

Another aspect of accessibility was surrounding the information on how to reuse certain items. For some they had learned how to do repairs on YouTube, but others expressed they could not do that, making slightly damaged tech inaccessible to them. Providing a space where the knowledge is however taught, could open up this avenue.

Financial Concern

Students mentioned financial concerns, but this theme was considered less prevalent, due to the lower number of times students focused on the talking about finances. Moreover, the way that students expressed financial concerns were most often with regards to it being a preference, rather than a need. This overlaps with the Individual Preferences theme but needs to be distinctly noted due to this being an anticipated finding. When students talked about financial concerns they would use language such as *'I chose a refurbished phone because it was cheaper, and that was worth it to me,'* showing that they found cost of IT to be more around personal preference, rather than a dire need in not being able to afford individual items.

However, about 1/3 of the references to financial need were with regards to students believing an IT reuse program would be beneficial to those who have financial need. For example, one student noted, *'It would be really valuable for students who are on campus and have a hard time paying for things to have access to free equipment.'* This could indicate that although the theme was not that prevalent in the focus groups, it could still be an area of major impact for the reuse program. In this area it will likely only help a few students but could make a large impact for them.

Creative Outlet

One minor theme that is interesting to bring up is creative outlet. This theme is interesting because it is an unexpected theme, which represents an opportunity that the reuse program could fill, and an aspect that could easily be forgotten and left out. Specifically, students expressed excitement at the idea of being able to take apart older IT and build new pieces. They also saw value in being able to use IT waste to create art. Each of these practices allowed IT reuse and IT to fill a creativity need. Phrases that

students used to describe this theme were *'a giant desktop computer, I could turn that into an art project'*, and *'I've taken apart old lab equipment to see what's inside, it's fun.'*

Without recognizing creativity as a potential use pathway for IT waste, items that certain students may see as valuable could be deemed as waste and thrown out, missing a niche opportunity for reuse.

Social and Community Aspect

Another minor theme was around the social value of going to visit the IT collection bins. Essentially, certain students used their previous rounds to the IT collection bins as an opportunity to hang out with friends and get in a good break from their work. Similar expressions of social value were placed on attending the IT collection and distribution event, as well as working to fix IT together. One student noted that *'going out to the bins is good for me. I'll go with friends and it gives me time to socialize.'* Another noted that, *'if we had a place where we could learn how to fix things together that would be great, that way we could learn from each other and collaborate'*. This community aspect, similar to the creative outlet, is a factor that could be easily overlooked in creating a reuse program, but one that creates added value. This minor theme shows that there is an opportunity to create a reuse program that fosters collaboration and community.

Discussion

From the focus group discussions and the themes that arose, there are two major recommendations for the Trash to Treasure process. These recommendations arise directly from the three main themes.

The first recommendation is that the program seeks to have a continuous dialogue with the students whose needs it serves. For one, this will allow the program to adapt and be accessible to a changing student population. Moreover, this will allow the types of IT that students want to be made available. The current desires for IT are a diverse set of types since different students have different requirements for their IT. However, if the wishes were to change, a continuing and robust dialogue would ensure the program stays relevant and provides what students actually need.

The second recommendation is around the accessibility of the equipment and how making the equipment easily reach the hands of students can be integrated into the system. Similar to the food bank's front-line agencies, this project could partner with front-line student groups that already interact with students on a day to day and would be able to deliver IT right to where they are and adapt their offerings to their needs. Groups that came up throughout the research process included the McMaster Engineering Society (MES), the Graduate Student Association (GSA), and the IEEE McMaster Branch. Each of these student groups seeks to improve the experiences of students on campus and has an interest in supporting IT reuse initiatives. The MES for one has a deep connection to undergraduate engineering students, and can smoothly run events that pull a big turnout from a large variety of Departments. This is a huge asset, as they already have the connections with the major target audience, which do not need to be built. The GSA has deep relationships with graduate students at McMaster and already runs financial need related help services. They would be able to include providing older, but free, IT to those who have financial need, as part of their existing network. IEEE is again different, being a student group with an office that is already used by students to get parts and equipment to build their electrical projects. Distributing old IT to them would allow them to use their office location, and

knowledge of the students who need the IT for school projects, to be utilized further. By working alongside these students groups the identification of need can be outsourced to those with the best knowledge and connection to those with the needs.

Moreover, despite anticipating the findings of financial need and major stigma around the use of IT, this inquiry shows that although these can be considerations for the program, they do not need to be the major focus. For one, although students mentioned financial need and were concerned other students who had financial need may see IT reuse as valuable, few seemed to look at financial need as the core of needing to reuse the IT. This may be due to inherent issues with the focus groups since students were around peers and would potentially never want to admit that to those around them. However, students that did mention financial concerns around IT usually saw this as a preference, noting that different students had different willingness to spend money on IT. Either way, providing affordable IT for students can reduce financial stressors, even if for IT, specifically financial need, was not the primary concern.

As well, students seemed to feel little to no stigma around the reuse of IT. Although some students preferred to have the newest and up to date equipment, this was seen as a preference, and the reuse of IT was seen as creative, and thrifty. IT reuse had an overall positive connotation. In truth, students were interested in reusing IT for a variety of reasons and saw it as a natural and exciting opportunity. One student even expressed the feeling of a certain ownership of the IT waste on campus, since the equipment would have originally been paid for out of student's tuition.

Reflection on My Inquiry

This inquiry sought to gain an understanding of methods that can be used for identifying need, and the processes that are available for addressing these needs. The

use of focus groups and thematic analysis provided an opportunity for me to learn about connecting with community members and systematically taking note of their concerns. It allowed me to understand how to distil conversations and vocal concerns into data and ideas.

One of the most impactful findings, in my opinion, was that almost every program that was effective at addressing need relied on community members or organizations with strong ties to the community. In retrospect it seems so simple. In order to identify and address need in communities you need to find out who already knows the people of that community well, and give them the resources to help, rather than trying to build a framework from scratch.

What I really learned though is that there are many methods to address needs, but that the most important part is choosing to listen to those whose needs you are trying to fill and ensuring that programs are catered to them. Moreover, the needs may be interconnected to many facets of people lives, which an outsider may not fully understand. This again indicates that listening, and creating programs built for those in need, rather than for those who wish to help, is crucial for truly addressing community needs.

Conclusions

The McMaster University 'Trash to Treasure' program is an exciting opportunity to reduce waste, while providing community support in Hamilton and on campus. To be effective, the program should continue to seek out partnerships with community groups that are well connected to those in need. This can come in the form of partnerships with organizations such as greenBYTE, who refurbish laptops and give them to students at schools in Hamilton, or through partnerships with student's groups who can help bring reused IT to students on campus. Moreover, the program should

seek continued collaboration with the students who use it, to ensure that the program provides the type of IT that students need. These suggestions will also help the program overcome barriers with regards to accessibility and circumvent the need for the University to identify those in need, allowing the existing structures to handle this step.

Bibliography

- Arnold, L. (2013, April 10). Reproducing Actions, Reproducing Power: Local Ideologies and Everyday Practices of Participation at a California Community Bike Shop. *Journal of Linguistic Anthropology*, 22(3), 137-158.
- bikeSauce. (n.d.). Retrieved February 1, 2020, from <https://bikesauce.org/#workshops>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.
- Burke, J. J. (2014). *Makerspaces: A Practical Guide for Librarians*. Lanham, Maryland, USA: Rowman & Littlefield.
- Feeding America. (2020). Retrieved January 16, 2020, from <https://www.feedingamerica.org/our-work/food-bank-network>
- Food4Kids Hamilton. (2018). Retrieved March 6, 2020, from <https://www.food4kidshamilton.ca>
- Loopstra, R., & Tarasuk, V. (2012). The Relationship Between Food Banks and Household Food Insecurity among Low-Income Toronto Families. *Canadian Public Policy*, 38(4), 497-514.
- MACycle. (2020). Retrieved February 1, 2020, from <https://www.msumcmaster.ca/services-directory/12-macycle>
- Sheridan, K. M., Halverson, E. R., Litts, B. K., Brahms, L., Jacobs-Priebe, L., & Owens, T. (2014, December 1). Learning in the Making: A Comparative Case Study of Three Makerspaces. *Harvard Educational Review*, 84(4).
- Tarasuk, V., & Eakin, J. M. (2003). Charitable food assistance as symbolic gesture: an ethnographic study of food banks in Ontario. *Social Science & Medicine* (56), 1505-1515.

- The Good Shepherd . (2014). *Good Shepherd*. Retrieved January 15, 2020, from
<https://www.goodshepherdcentres.ca>
- Tolley, R. (1996). Green campuses: cutting the environmental cost of commuting .
Journal of Transport Geography , 4(3), 213-217.
- University of Mississippi. (2005). *Guidelines for Conducting a Focus Group*. (Eliot &
Associates) Retrieved January 10, 2020, from The University of Mississippi:
[https://irep.olemiss.edu/wp-](https://irep.olemiss.edu/wp-content/uploads/sites/98/2016/05/Trinity_Duke_How_to_Conduct_a_Focus_Group.pdf)
[content/uploads/sites/98/2016/05/Trinity_Duke_How_to_Conduct_a_Focus_Group.pdf](https://irep.olemiss.edu/wp-content/uploads/sites/98/2016/05/Trinity_Duke_How_to_Conduct_a_Focus_Group.pdf)

Appendix A

- 1) What is your year and program at McMaster?
- 2) The main topic for this discussion is around IT reuse. Have you ever personally used reused or refurbished IT equipment (laptops, mice, keyboards, motherboards)? If so, what was the motivational factor? If not, what stopped you from doing so?
- 3) McMaster gets rid of large amount of IT waste on a continuous basis, from computers and mice to AV and lab equipment. While these items are no longer useful for university operations, they might be useful to students. Do you see an opportunity for re-use personally or within your student community? Please describe.
- 4) If you see an opportunity for reuse, what types of equipment do you feel would be most useful for students?
- 5) Currently, people deposit unwanted/outdated IT equipment into cages located in building loading dock areas, and students sometimes access equipment from these cages. However, the process for IT collection will be changing to a call/pick-up service provided by Facility Services. Since the cages will no longer be available, how can the university best make equipment available to students?
- 6) Are there any important questions I forgot to ask?