Let's Reuse-it!:
Institutional Sustainability and Faculty and Staff Reuse at UBC

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Prepared for: Campus and Community Planning

GEOG 371
The University of British Columbia
May 29, 2024

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Executive Summary

Reuse-it! is an online marketplace open to UBC faculty and staff designed to complement sustainable reuse of materials as part of UBC's broader circular economy efforts by diverting waste from landfill. In collaboration with UBC SEEDS (Social Ecological Economic Development Studies), this research project investigates the barriers and incentives to UBC faculty and staff use of Reuse-it! in order to provide recommendations for how to increase usage of the platform. Additionally, we explored sustainability values and cultures at play within UBC's decentralized organizational framework, drawing on Actor-Network Theory (ANT) to understand how institutional organization and individual behaviour contribute to the success of sustainability initiatives. We designed a survey which received 125 complete responses from Reuse-it! users to establish a quantitative basis from which to evaluate users' understanding and experiences of the platform and sustainability initiatives at UBC. We also conducted 20 semi-structured interviews to gain a more in-depth, community-based understanding of experiences with Reuse-it! and engaging in sustainability initiatives at UBC. Our study reveals several barriers to faculty and staff engagement with Reuse-it!, including confusion over the platform's identity and name, timeliness, and restrictiveness. We also identify specific incentives in the form of ease of use, cost effectiveness, and alignment with user's sustainability values. Through ANT, we visualize these barriers and potential incentives in actor-network diagrams. We extend our findings to discuss broader concepts of role confusion and organizational fragmentation as informing the ways in which UBC faculty and staff do and do not participate in sustainability initiatives at a large institution like UBC. Finally, we offer the following suggestions for improving user engagement with Reuse-it!, including formalizing Reuse-it! into campus-wide standard operations, clearly integrating the platform with other zero-waste initiatives, and expanding the role of Reuse-it! on campus. Through our recommendations, we suggest ways to generate a more cohesive cross-campus

and inter-departmental institutionalization of and operationalization of sustainability that builds upon the current configuration of UBC's organizational structure.

Keywords: Reuse, sustainability, circular economy, organizational behaviour, actor-network theory

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Introduction

UBC's Declaration on the Climate Emergency in 2019 prompted the university to "update plans to address the climate crisis with the urgency it requires" (University of British Columbia Planning, 2021). These new structures of sustainability were presented in UBC's Climate Action Plan 2030. A key component of the plan is UBC's target for a 50% reduction in waste by 2030 (University of British Columbia Planning, 2021). The Zero Waste Action plan includes "priority actions" that "facilitate development of [a] circular economy on campus by developing and integrating Circular Economy elements into other campus plans, policies, guidelines, and strategies" (University of British Columbia Sustainability, 2023). One of those actions is the explicit "revamping [of the] Reuse-it! online exchange platform," which is accessible to all UBC faculty and staff (University of British Columbia Sustainability, 2023).

Reuse-it! is described on its eponymous website as "a virtual online warehouse that allows current UBC Vancouver employees to find and exchange low-value items ($1,000 or less) between departments." Reuse-it! is virtually hosted on Rheaply AxM, an asset management system designed to facilitate exchange. Users can post any reusable items (i.e. furniture, office supply, and lab equipment) on the platform and arrange their own terms of exchange, including price and delivery, allowing for materials to be reused and diverted from landfills.

Our research examines Reuse-it! as it currently exists within the larger context of university organization. UBC's organizational structure was described in personal communications and interviews as one of relative decentralization in which faculty budgets are not centrally managed nor equally distributed. The implementation of any inter-faculty and inter-departmental initiative will be, to a degree, subjected to the structure of the organization and organizational processes defined by the institution, and UBC is no exception.

Problem Statement

From the platform's launch date in October 2021 to data collected in February 2024, Reuse-it! has seen an average of 30.8 active daily users, generating an average of 28.5 postings per month. These statistics present an initial barrier to the functionality of the marketplace platform, as without users and postings Reuse-it!'s scale will remain limited. Platform scale will correlate with the amount of waste diverted, meaning growing the platform is essential in accomplishing increased sustainability amongst UBC faculty and staff.

As outlined in our project's SEEDS research charter, our goals were to determine the barriers and incentives to user engagement with the Reuse-it! platform, and to identify opportunities to promote increased use. The impact of our research is intended to further circular economy initiatives and reuse practices at UBC.

Our research extends the existing understanding of barriers and incentives to engagement with Reuse-it!, applying our findings to broader concepts related to the development of an institutional sustainability culture. Through the examination of Reuse-it!, our project explores the platform's role in fostering and operationalizing sustainability values at UBC, evaluates the influence of organizational behaviour and structure in promoting sustainable initiatives, and how notions of sustainability influence individual participation in zero-waste initiatives.

While Reuse-it!'s functionality and individual's sustainability values are incentives to use, we observe that the platform's communication strategy and UBC's organizational structure are detrimental to both platform usage and community- or culture-driven sustainability at UBC. Our list of recommendations attempts to address these challenges by focusing on the Reuse-it! platform's potential to encourage and strengthen effective cross-campus sustainability.

Literature Review

To investigate the factors that impact UBC faculty and staff use of Reuse-it! and its role in the Zero Waste Action Plan, our research focuses on what sustainability values are present among UBC staff and faculty and how effectively they are operationalized.

Sustainability as a Conceptual Background

The United Nations has defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). This is evident in the "three pillars" framework of sustainability, which aims to balance social, economic, and ecological goals (Purvis et al., 2019, p. 688). Hotly debated are the implications this produces for the role of economic activity in environmental management. For example, "doughnut economy" and "regenerative sustainability" are two different conceptualizations of the relation between these sustainability pillars. In the former, the capitalist economy is essential to support social standards while remaining within the ecological limits of the natural world, while the latter prioritizes ecological integrity and social equity, viewing capitalistic activities as counter to these goals (Raworth, 2017; Hes & Du Plessis, 2014). This divergence in thought and subsequent implementation results in antithetical notions of the causes of and solutions to climate crises.

Our work investigates sustainability discourses operative amongst UBC faculty and staff which aim to promote social and ecological wellbeing. We de-emphasise debates concerning economic growth while promoting a "net-positive" approach that supports environmental integrity with the fulfillment of human needs following the waste-reduction principles of the circular economy (following Balke et al., 2017). With acknowledgement of the flaws of our approach, in this study, we focus on the roles of individuals as decision-makers for and representatives of the broader institution of UBC. Rather than blaming individuals for

environmental effects, we echo Hobson's (2016) calls to pay particular attention to the institutional drivers of environmental degradation.

For this reason, using the ImPACT model of drivers of environmental degradation (Waggoner & Ausubel, 2002; DeFries & Nagendra, 2017), we identify consumption as an actionable issue to address. In industrialized nations, a "consumer society" dominates, where social acceptance is driven by continuously outdoing previous baselines of consumption (Durning, 1992). In this way, consumption is "communicable" as it spreads, whereby each purchase fuels more purchases in so-called "consumption constellations" (Twitchell, 2001). Jaeger-Erben (2020) identifies premature obsolescence, or the idea that products cannot be used after a certain period despite continued functionality, as a culturally embedded trait. This is potentially furthered as online platforms offer new spaces for consumption (Parker & Weber, 2013). For example, Hinojo et al. (2022) have highlighted "peer to peer" (P2P) marketplaces such as e-Bay and Facebook Marketplace as spaces of "collaborative consumption." On the other hand, online spaces for the reuse and recycling of products, such as Freecycle, offer a unique opportunity for the reduction of waste via diversion instead of disposal.

Our research understands Reuse-it! as the latter, functioning principally as a method for waste diversion. Our research will identify the relationships between individual faculty members and departmental procedures that generate such consumption patterns as they intersect in Reuse-it!. Critically, we will evaluate the efficacy of both Reuse-it! and current sustainable behaviours at developing a sustainable material culture.

Circular Economy

One approach to operationalizing that sustainable material culture is through the concept of the circular economy. UBC defines circular economy through the "reuse and recycling of products to keep them in use for as long as possible" (UBC Planning, 2021).

Extra-institutionally, when defining the circular economy scholars often differ in focus. In a conceptual systematic analysis of the term, Kirchherr et al. (2017) found that quantitatively, definitions vary widely. Highlighted in their research are problematic utilizations of circular economy that include privileging economic prosperity instead of emphasising ways to prevent systemic intra-organizational change and weak links to sustainable development. The authors conclude by noting that "conceptual muddle" and subverted definitions must be overcome if the circular economy is to move beyond a trending topic and buzzword, and towards "its promise of fundamental change" (Kirchherr et al., 2017).

Reuse-it! attempts to create this change by increasing the ease at which material goods may be exchanged and reused at UBC. Consequently, our analysis of Reuse-it! will study how effective the platform functions at preventing materials from leaving UBC as waste and, more importantly, how individuals engage with that mission. It should be noted that Reuse-it!'s digitally mediated, platform-based approach privileges the connecting of individual actors within an emerging on-campus circular economy; therefore, our research interfaces with novel work on the role digital platforms play in organisational behavior.

Digital Platforms, Organizational Behavior, and CBSM

Relevant to Reuse-it!, the successful implementation of circular economy principles depends on actor "brokerage" and the closing of various "holes" in supply chains (Ciulli et al., 2020). A "circular hole" is defined as occurring when the value of perceived waste is not recognized or understood by the owner and/or the possible recipient (Ciulli et al., 2020). Ciulli et al. (2020) propose digital platforms as poised to fill these holes. According to Blackburn et al.'s (2023) taxonomy of implementation requirements for digital platforms in organizations, a split is created between enabling and realizing mechanisms for effective circular business and value creation. The enabling mechanisms include creating a meta-organizational core (technology, marketplace, and scope of marketplace), governing a meta-organizational

identity (creating a user base, platform identity, and platform rules), and expanding the meta-organization (communicating the necessity of the platform usership; lowering entry barriers) (Blackburn et al., 2023). For our research, we are concerned with the meta-organization surrounding Reuse-it!. We focus on the accumulating effects of broader organizational structures and values that actualize and inhibit the circular model in which market gaps are bridged and resource value is retained.

We also draw from McKenzie-Mohr's (2000) work on community-based social marketing (CBSM), which accounts for the role intra-organizational and individual messaging has toward enacting sustainable principles. Pinkse et al. (2023) propose a business model framework involving levers of change viz. value, resources, transactions, and pathways towards an outcome of legitimization and implementation. In converting these pillars of change into the desired outcomes, Pinkse et al. (2023) emphasizes two pathways of CBSM communication: discursive and cognitive. These pathways target intra-organizational socio-material cultures and emphasize individual's pro-sustainability values as vectors for collective behavioural change. In other words, discursive and cognitive pathways seek to change the ways in which people speak about and think about sustainability in order to change the ways people engage with pro-sustainability initiatives. Through their individual or combined application at the community level, these communicative pathways can create the organizational change necessary for the legitimization and success of a sustainability-oriented practice.

Actor-Network Theory

Because our research focuses on individuals as the primary agents in maintaining meta-organizations, we employ Actor-Network Theory (ANT) in order to interrogate the socio-material dimensions of sustainability policies in inducing desired circular economy outcome (Walker et al., 2023). ANT is widely recognized for its theoretical and analytical

power to account for and make interpretive connection between not only the socio-material agents (human and nonhuman such as technology and object), but also the socio-material contexts (broader policy, institutional norms) of the phenomenon of interest (Cresswell et al., 2010; Walker et al., 2023). Theoretically, ANT contrasts with other existing social science theories, such as Marxist approaches, by de-emphasizing a priori frameworks about formulated social structures and social relations, and by reframing agency as expressed in multifarious, polyvalent ways as opposed to being dictated by material-economic concerns (Holifield, 2009).

For our project, we focus on the Reuse-it! platform as an eco-innovation to advance UBC's campus-wide sustainability transition through the working vehicle of circular economy.

Our operationalization of ANT will follow closely to how ANT is theoretically endorsed and conceptually demonstrated by Holifield (2009). Latourian actor-network analysis is posited as both a theory and a method that can trace controversies and uncertainties that give "shape to 'society' and [...the assemblage of the social]: about the identity of groups; about the number of agents involved in courses of action; about the kind of agency that these agents exercise" (Holifield, 2009, p. 644). ANT pays attention not only to the socio-material aspect that is uniquely human but also to that which is nonhuman.

In doing so, ANT "register[s] the range of competing accounts of agency in the production of [social relations and social reality]", such as the relation of unequal access and uneven power hierarchy (p. 646). Furthermore, Holifield (2009) recognizes the analytical power of ANT in highlighting the stabilizing mechanisms of these uncertainties which operate through the existing circulating forms and standards, such as institutional norms and policy. These mechanisms are important in studying Reuse-it! because they "connect local sites and interactions to [local] centers of power, thereby doing the work of *structuring*" (p. 648, emphasis in original). By understanding the structuring of the sustainability initiative, we bring

attention to what is "defining and producing the 'social context', stabilizing 'social relations', and consolidating subjectivities" of the initiative in-practice that contributes productively to its socio-material configuration (p. 648).

In this light, we seek to employ ANT analysis to examine how local actors in UBC (i.e. Reuse-it! platform, UBC staff and faculty, and existing institutional practices) "contextualize each other" (Holifield, 2009, p. 648). Ultimately, we seek to explore the uncertainties arising from the social contexts and the stabilizing mechanisms governing Reuse-it! to understand the current barriers and incentives to UBC staff and faculty use of Reuse-it!. We use these findings to suggest methods to strengthen technology-driven, pro-sustainability waste reduction at UBC.

Methodology

Our research mandate and the existing literature demonstrate the need to investigate sustainable decision-making behaviours and values at the scale of individual actors. Consequently, we employed a mixture of quantitative and qualitative methods to analyze and interpret the experiences of UBC faculty and staff, specifically employing surveys and individual, semi-structured interviews. We conducted our surveys and interviews with UBC faculty and staff who had registered accounts on Reuse-it! in order to understand the reasons which individuals chose to use or eschew the platform as rooted in their direct experiences.

Survey

Drawing from McKenzie-Mohr's (2000) suggested methods for investigating sustainable behaviour, we distributed 5- to 10-minute-long surveys using Qualtrics. We selected point-based ratings to form fundamental quantitative data for analysis, helping to avoid data clustering and reduce participants' cognitive load, with the intended effect of increasing honesty in responses (McKenzie-Mohr, 2000, p. 33). Therefore, our survey contained 30 total questions divided across 8 sections and incorporated several question

types, viz. 5-point Likert scales, select-all multiple choice, single-response multiple choice, and long answer text boxes.

Our survey measured participants' understandings of UBC's sustainability objectives in addition to assessing participants' sustainability values and perceptions of efficacy in current reuse initiatives at UBC. We then asked about participants' knowledge of Reuse-it!, the frequency of participants' engagement with the platform, and the frequency in which participants seek to procure or dispose of materials. Given the highly decentralized nature of UBC procurement across the university's departments, and in order to potentially overcome a datum deficit from previous studies, we also requested participants identify their faculty or department association (cf. Kirk, 2019; Wong et al., 2021). Refer to Appendix A for specific details regarding the language of our questions.

Our survey was distributed by our community partner who had access to a list of registered user accounts on Reuse-it!. While not random, this sample allowed us to address our principal research objectives: examining incentives to using Reuse-it! on the part of already-active users and barriers to engagement from those who have attempted to use Reuse-it!. By leveraging our community partner's database, we were able to receive more responses from individuals with direct experience using Reuse-it! than if we had used a random sample of UBC faculty and staff.

We accepted responses for 14 days, receiving a total of 144 valid responses (i.e. responses in which at least one question after the consent form was answered), of which 125 were complete responses. For our analysis of quantitative figures and correlations between sustainable values and Reuse-it! experiences, we based statistical analyses on the 125 complete responses. See Appendix E for more information regarding our participants.

Interviews

We conducted individual, semi-structured interviews as a complement to our survey data, asking for open-form feedback on participants' experiences with Reuse-it!, organizational procedures within departments pertaining to reuse, and social factors affecting the development of sustainability cultures. Similar to what Baba-Nalikant et al. (2023) demonstrate in their analysis of environmental actions in a community context, these interviews provided in-depth experiential data, allowing for a more comprehensive understanding of the procedural and cultural barriers to participation in Reuse-it! as a campus-wide sustainability initiative.

Our selected semi-structured interviews drew from a list of 11 standardized questions, with each interviewer operating with considerable latitude as to the selection of questions to ask and questions to add on an ad hoc basis. Our questions broadly asked and allowed for participants to consider their experiences with Reuse-it!, their sustainability values, and their self-perceived role within UBC's community and the university's sustainability goals in general. By using semi-structured interviews, we were able to gather extensive qualitative data regarding explicit suggestions toward making Reuse-it! more accessible, participants' feelings of self-efficacy in sustainable action, and the institutional or procedural barriers to engaging with Reuse-it! and sustainable action at large. By adding a more candid and qualitative dimension to our data in addition to our survey, these interviews, as Luker (2008) suggests, provide a set of cases that is "representative of the larger *phenomenon* that we are investigating" (p. 103, emphasis in original). Refer to Appendix B for a list of interview questions.

In total, we completed 20 interviews, of which 17 were conducted online over Zoom and 3 were conducted in-person. 19 of those interviewed were selected from our survey while 1 interview participant was contacted directly by our community partner. Our interview

participants were based in a variety of different departments and campus units across campus (see Appendix C and Appendix D). While all our interview participants had used Reuse-it!, each interview participant held unique spatial and organizational positions within the broader UBC campus community, allowing us insight into UBC's organizational structure.

Our analysis of interview data draws upon discourse analysis as suggested by van Dijk (1996), which interprets participants' language to indicate how their sustainability values impact their cognitive and social framing of their material engagement with Reuse-it!. We looked for patterns in comments made by participants to conclude commonly held suggestions and implications for Reuse-it! within UBC's larger sustainability goals.

Our application of Actor-Network Theory is similar to Buijtendijk et al. (2018) in their study of eco-innovation as a technology-driven method toward operationalising sustainability values. ANT's interpretative power points to the controversies and uncertainties within user experiences of Reuse-it! as an eco-innovation of interest. For our study, the incorporation of ANT analysis means that we interpret Reuse-it! as beyond the subject-object analysis to focusing on the formation and interaction of the human-technology (nonhuman) interaction through Reuse-it!.

Limitations

Our study was limited by several factors related to both our chosen methods and our positionalities as researchers. Critically, our study drew from a non-random sample as all survey and interview participants had a registered Reuse-it! account; therefore, we were unable to gather data regarding non-user desires or expectations of Reuse-it! and how these non-user barriers or incentives might increase engagement with the platform. The non-random sample also contributes to limitations in generalizability. Indeed, our data does not include UBC faculty and staff who have not used Reuse-it!, and many of our survey and interview participants were department or lab administrators as opposed to professors,

graduate students, and other faculty. A final limitation in our methods involves framing effects within our survey. By soliciting Likert scale responses for questions related to participants' sustainability values, participants may have felt inclined to answer more positively or optimistically about their values.

Another significant limitation derives from our positionality as undergraduate student researchers. We were unable to access Reuse-it! directly because we were not faculty; consequently, we were unable to perform content analyses on postings or verify certain details about the website (i.e. keywords and categories). As non-faculty researchers, we were also unfamiliar with official processes and policies for each department's procurement and disposal protocols in-practice and how they may align with general UBC policies. Nor were we able to investigate each department's sustainability culture from an ethnographic perspective. Finally, our status as undergraduate students may have impacted the ways in which participants addressed us more didactically as outsiders. We were also unable to organize other methods like interdepartmental focus groups because of our positionality and timeline constraints.

Analysis

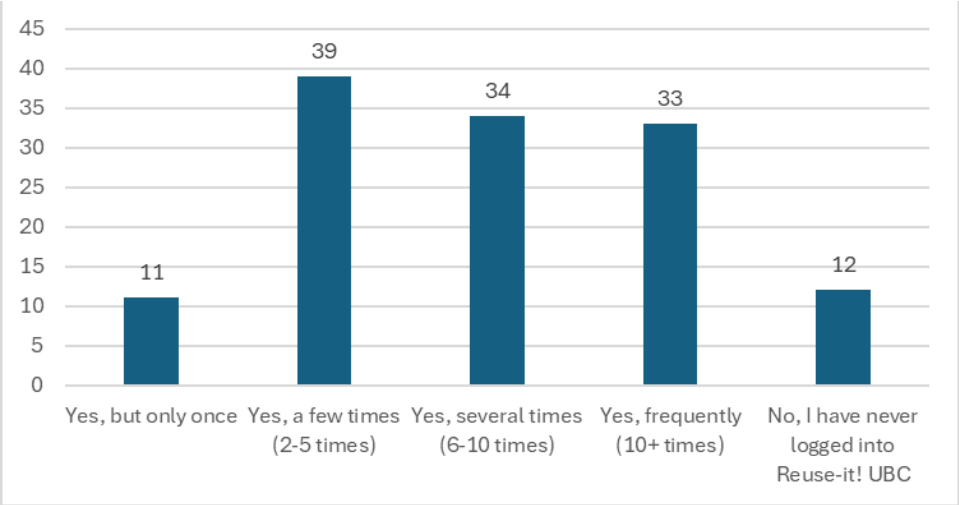
Our analysis incorporates qualitative data from our interviews with supporting quantitative survey data. We begin by outlining barriers to the usage of Reuse-it! platform, followed by incentives to use, and finally we discuss how our findings correlate with inefficient sustainability initiatives within large institutions.

Barriers

The identification of barriers represents the bulk of this paper's use of quantitative data. Our survey results were able to discern several key confusions related to platform name and function contributing to an extrapolated organizational muddle. Initial findings as

Figure 1

Have you ever logged in to Reuse-it! UBC?



Note: Survey data.

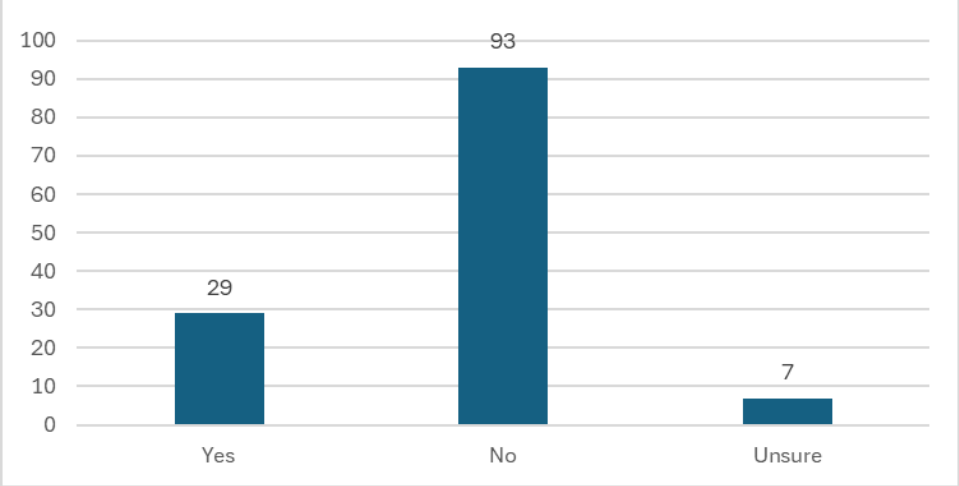
displayed in Figure 1 outlines the impact of barriers impacting repeated use, as 48% of survey participants reported having never logged in or having used Reuse-it! less than 5 times. Additionally, our data revealed confusion over Reuse-it!'s identity in relation to other sustainability initiatives at UBC, particularly in the 100 respondents who could not differentiate between the Furniture Reuse Program and Reuse-it! (see Figure 2). Further barriers identified include difficulties with Building Operations and the restrictions imposed by limiting platform use to only UBC faculty and staff.

Platform Identity

Confusion as related to platform name represented the most significant quantitative finding. 72% of survey respondents noted a confusion between the UBC Furniture Reuse Program and Reuse-it!. The Furniture Reuse Program, while often posting items on the Reuse-it! platform, is a separate initiative. This quantitative confusion was paralleled and expanded upon in qualitative interview data. Participant #5 mentioned, in explicit discussion of

Figure 2

Are you aware that the UBC Furniture Reuse Program and Reuse-it! UBC are separate initiatives?



Note: Survey data.

the Reuse-it! platform that, "[T]hey had a whole bunch of furniture there. And they did say on their website that they had a room there. You can just go in and check their furniture." The "room" noted by Participant #5 is a component of the Furniture Reuse Program. Multiple interview participants suggested either increasing differentiation between the Furniture Reuse Program and Reuse-it!, or a clear merging of the platforms.

A similar confusion was noted in discussion of the Reuse-it! platform and its virtual host, Rheaply AxM. Participant #7 noted, "[W]hen I indicated, actually, in the survey if I heard about Reuse-it!, I said 'No,' because what was introduced to me was Rheaply." Although not necessarily a problematic conflation in that users can effectively use Reuse-it! while referring to Rheaply AxM, this further dilution of the Reuse-it! brand can lead to a further dilution of the brand's beliefs (Loken & John, 1993). The Reuse-it! brand's beliefs represent a cornerstone of

its existence and mission, as evidenced by a large font heading on the platform welcome page reading “Support on-campus sustainability with reuse-it!” (University of British Columbia, n.d.)

Building Operations

Building Operations (Building Ops.) was a barrier identified indirectly in survey data, and directly in interview data. Survey respondents indicated time and efficiency as barriers to use, and as discovered in interviews, Building Ops. represented an organizational lapse in time and efficiency. “I think the limiting factor is … how to transport [items], at least with UBC movers, because they're very understaffed. It's like a three month wait to get things done", noted Participant #12. With Reuse-it! often positioned as a low-cost to no cost alternative to the procurement of new items, the cost of using Building Ops. was also of note. Participant #15 said, “We had to pay 300 dollars. Now which is fine like I'd rather pay for secondhand furniture than pay for new furniture. But the bookcases were free, so it was like, come on, man, you know, to pay $300.00, but also like that's how UBC works.”

Restrictiveness

While recognizing that Reuse-it! is limited to staff and faculty inherently and by design, interview respondents still dictated not explicitly prompted sentiments that the platform's userbase could be increased though wider availability. Participant #2 stated, “[I] wish it was available to groups like student clubs that work on campus,” an idea echoed by Participant #17 who said, “I think some of those students probably need it more than the departments because they don't actually have access to funding.”

Incentives

One section of our survey asked participants to check off incentives that motivated them to use Reuse-it!. 72 of a total of 125 respondents reported they enjoyed using Reuse-it! because it is a sustainable option. This was the most popular option chosen by our participants. 62 respondents said the platform was a cost-effective option for their workplace

to acquire items. See Figure 3 for an overview of what factors contributed to positive experiences with Reuse-it!.

Ease of Use

51 respondents noted that the platform was easy to navigate, which was a sentiment that was continuously confirmed during our interviews:

> "It was really easy to use, pretty intuitive. I thought I quite liked the platform." (Participant #6)

Several of our interview participants compared the navigational logic of Reuse-it! with the familiar format of Facebook Marketplace. We perceive this correlation as a strength of the Reuse-it! platform. Some of our interviewees mentioned that they developed a habit of browsing Reuse-it! for fun and used it as a stand in for online shopping:

> "I feel like it's Facebook Marketplace but not commercial, just very intimate, like, it's just UBC, right? So just [UBC Staff]. Some people sell stuff, some people put it up for free. And so I've made it a habit. I do tend to just go there whenever I want to, just to see if I need something." (Participant #11)

Several participants in our interviews also reported that Building Ops slow pickup/delivery scheduling was a barrier to their use of the Reuse-it! platform. However, 34 out of 125 of our survey participants said that it was easy to coordinate pickup and delivery times on Reuse-it!, presumably on the basis of user-to-user arrangements.

Value Alignment

We were interested in exploring the value alignment between UBC's public commitments to sustainability and the perceived individual responsibility of UBC staff to participate in these commitments. We asked our interviewees, "How significantly does the climate crisis and/or UBC's sustainability goals impact the decisions your department/unit and

Figure 3

If applicable, which of the following statements indicate positive reasons for why you log into or try to use Reuse-it! UBC? Please select all that apply.

Positive Reasons for Using Reuse-it!	Number of Respondents	Percent of Respondents
I can find the items I want available on Reuse-it!.	39	31.2
It is easy to navigate the Reuse-it! website.	51	40.8
It is easy to coordinate pickup and delivery of items.	34	27.2
It takes less time to exchange items on Reuse-it!.	15	12.0
It is cost effective use Reuse-it! to get rid of surplus items from my workplace.	48	38.4
It is cost effective to use Reuse-it to acquire items for my workplace.	62	49.6
Reuse-it! is a sustainable option.	72	57.6

Note: Survey data.

colleagues make when it comes to buying or getting rid of office, lab, or workspace materials?" Many participants mentioned that they felt individually responsible for sustainable efforts within their departments. Common examples of pro-sustainability actions included the introduction of office recycling/organic waste bins, or by recycling lab/research equipment (such as computers) when possible, instead of sending those items to a landfill. These actions were often small-scale office behaviours and were not reflected in the official purchasing habits of the department. We were able to identify a hierarchy of values during our interview process. Many staff members wanted their departments to be more pro-sustainability, but reported their department's purchasing habits were more concerned with budget constraints and equipment performance than low-carbon emission options:

> "I think it's 100% personal. We never consider UBC's goals. [laughs] I'm so sorry." (Participant #11)

> "It is not a big impact…We are not really thinking about, 'Is the supplier of this equipment the most environmentally responsible supplier out there?' We still work in terms of budget. What is more affordable? So, it's not as impactful, and to a lot of these things, to be honest, it's just cost, like 'Well the cheapest thing seems to be good enough' and we go in that direction. In terms of specialized lab equipment, I can tell you that it is probably even less impactful…They're thinking more on capabilities, more on service contracts." (Participant #1)

Beyond Reuse-it!

Going beyond Reuse-it! as an individual sustainability initiative in our analysis, we uncovered participants' relationship and engagement with sustainability initiatives more broadly. This allowed us to investigate what it means for our participants to be "environmental citizens" and to participate in the Circular Economy and sustainability initiatives within a large institution (Hobson, 2016). We have identified individuals' engagement with sustainability initiatives at UBC as defined by role confusion, fragmentation, and leadership.

Role Confusion

Borrowing a term from the field of psychological development, role confusion refers to confusion that occurs during identity development when an individual is developing a sense of self based on their role in society (Block, 2011). This term can be applied to participation in sustainability initiatives as individuals are uncertain of their roles within a larger institution. This was expressed by our participants in our research as while they held individual values of sustainability and took action to support these, it did not translate to organized sustainable action within their department (e.g., a common use of Reuse-it!). For example, participant #15 recycles office soft plastics and #16 composts for their team. However, despite feeling as if these were important actions to take, and going out of their way to do so, there is still a sentiment that they cannot influence UBC's overall ecological footprint. As participant #15

expressed, "[e]specially at work, and especially at UBC, it's so big it almost feels like it doesn't really matter because you're one person in like a really big establishment." This provides evidence of the discrepancy between participants' conceptualizations of their personal ecological footprint versus that of the cumulative footprint of the organization. This contributed to our participants feeling a sense of personal responsibility for their day-to-day actions but not their operational impact. In this sense, we can conclude that faculty and staff have not "bought in" to an institutional identity and therefore do not feel responsible for the collective impact UBC operations have on sustainability.

Inter-Departmental Fragmentation at UBC

Role confusion can be tied to a disconnect in individual versus collective responsibility, or fragmentation. This trend refers to how the decentralized structure at UBC resulted in lack of collective participation in sustainability initiatives. Participant #15 for example expressed that "UBC is so difficult…to make connections," resulting in a restricted scale of sustainability initiatives as they remain within individual departments or teams, or even within their individual responsibility, rather than spanning across the institution. Expressing similar sentiments, participant #16 declared that their team is in their "own little silo kind of thing" which separates them from being involved in other department, faculty, or UBC-level initiatives. This can be seen as an institutional barrier to staff and faculty adoption of and engagement with sustainability at UBC as they feel unsupported in their ability to utilize the social marketplace platform Reuse-it!.

Leadership in Sustainability Practices at UBC

Another key finding is that individual adoption of sustainability practices is often observed to be leadership-based. Due to the role confusion and fragmentation faced by staff and faculty at UBC, communication and responsibility of circular economy initiatives becomes hyper-fractured and dependent on adoption and dissemination by team and department

leaders. Participant #14 expressed that knowledge of Reuse-it! is dependent on "microcultures" where "each office really just depends on the leadership. And if leadership doesn't know about [Reuse-it!], then the rest of the community is likely to not know about it." In the case of Participant #14 they heard about Reuse-it! and attempted to use it because their boss is a proponent of it and in fact took it upon themselves to rehouse furniture. This appears to have had a positive impact on participant #14's conceptualization and use of sustainability initiatives as they see their impact as meaningful due to the experience of having supportive leadership. Therefore, through our research we have identified role confusion, fragmentation, and leadership to be defining components of engagement with sustainability initiatives at UBC.

Toward Institutional Sustainability: Applying Actor-Network Theory

Using ANT analysis, a particular picture of the current Reuse-it! configuration at UBC emerges (see Figure 4 and Figure 5). Through ANT mapping of socio-material dimensions of Reuse-it!, we reveal the relations and activities of association and assembling that produce and stabilize the socio-material networks of this sustainability initiative in their current compositions and courses of action at UBC. The ANT visualization of these agents and their agencies, through nodes and arrows, respectively, helps articulate the range of competing accounts that give shape to the current practices, current barriers, and potential incentives to UBC staff and faculty usage of Reuse-it!.

Current barriers for Reuse-it! users are manifested as controversies and uncertainties in our actor-network account. They are frustrations, identified by our participants, with the current structuring of Reuse-it! at UBC. We use red arrow labeling to visualize them. Overall, it seems clear to us that the platform itself poses the least frustration to most users. Rather, it is the associated socio-material agents and contexts surrounding the platform that pose the

Figure 4

Current Structural Assemblage of Relations between UBC Staff and Faculty and Reuse-it!

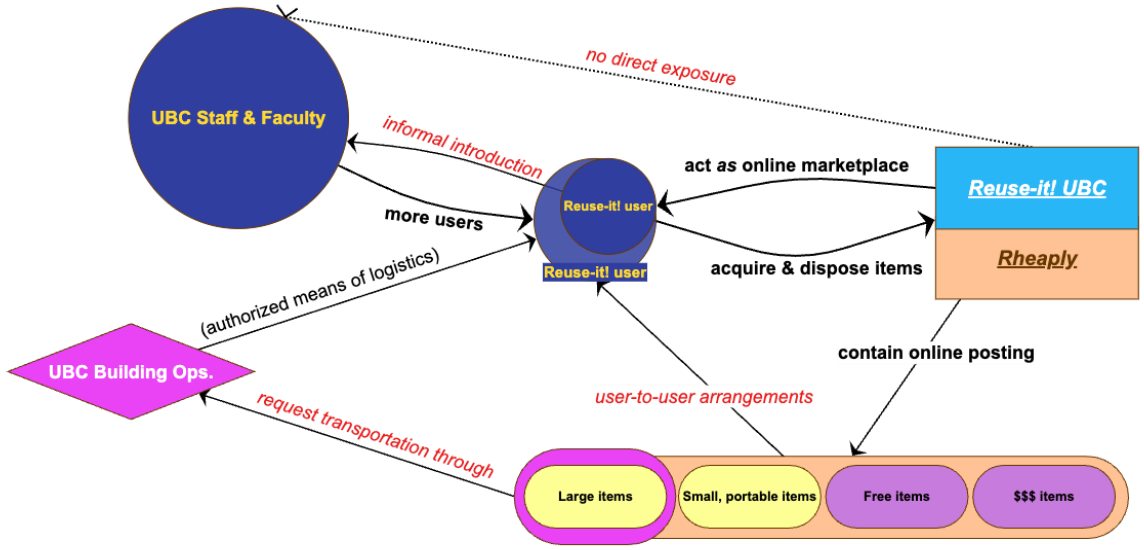
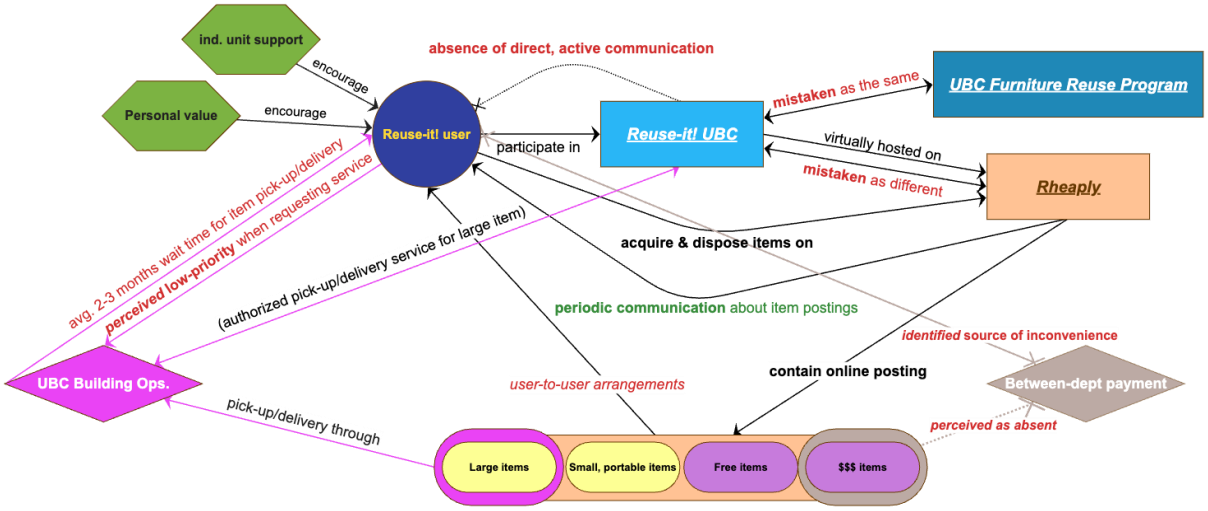


Figure 5

Current Structural Assemblage from Reuse-it! User's Perspective

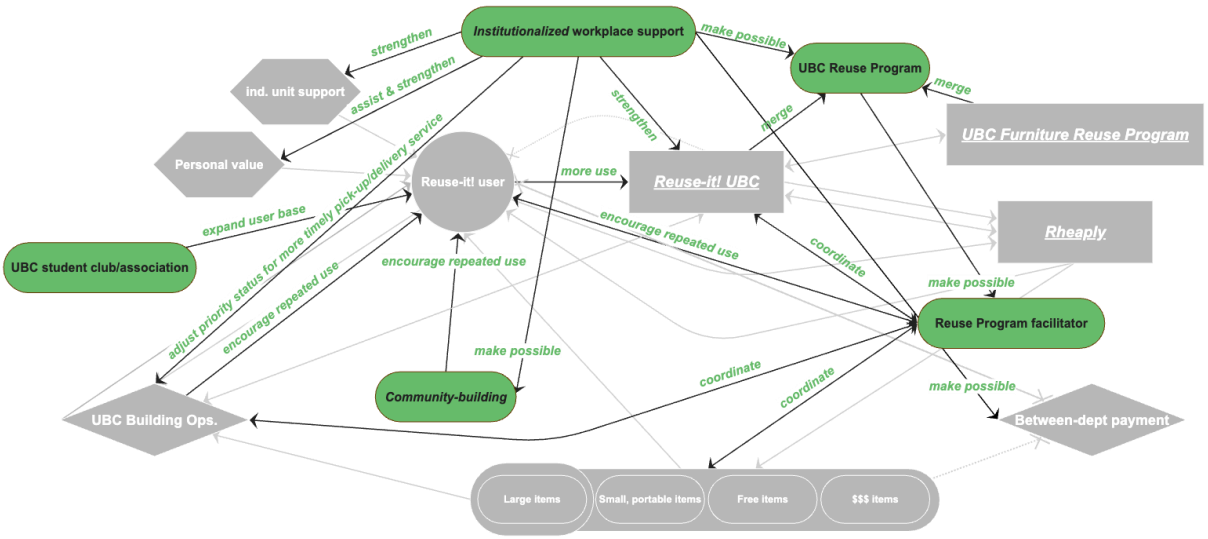


most vocal identification of barriers: lack of communication, existing sites of misunderstanding, and the current mandate practices of Reuse-it! (see Figure 5).

Potential incentives (see Figure 6 and Appendix F) are expressed as additional stabilizing mechanisms to the current configuration of Reuse-it! at UBC (Figure 4). They are visualized in green nodes and arrow labels, indicating potential additions in both the network composition and their socio-material connection. The difference between what is and what could be is made evident, visible, and identifiable. According to most of our participants, more visible structural practices and more prevalent structural support to participate in campus-wide sustainability initiatives like Reuse-it! should have a sweeping benefit to both the user's experience and desired sustainability outcomes at UBC (i.e. increased waste diversion from landfills). An institutionalization of support and structure emerges as one comprehensive recommendation to normalize and facilitate the use of Reuse-it!.

Figure 6

Simplified Actor-Network Diagram of User Recommendations



Note. See Appendix F for a 1-to-1 overlay version of Figure 6.

It is important to note, however, that our ANT diagrams do not visualize the essence of Reuse-it! at UBC. These diagrams are the products of the current conditions and practices of Reuse-it! at UBC. They make claims about the configuration of and potential recommendations about Reuse-it!; they make no claim beyond that (Dankert, 2011). In short, the agents and agencies, expressed in our data collection, that are productive of Reuse-it! at UBC also produce the configuration of our ANT diagrams. Working with a different mix of data (e.g., collected 2 years ago, or collected 5 years from now), a different set of actor-network accounts would instead emerge.

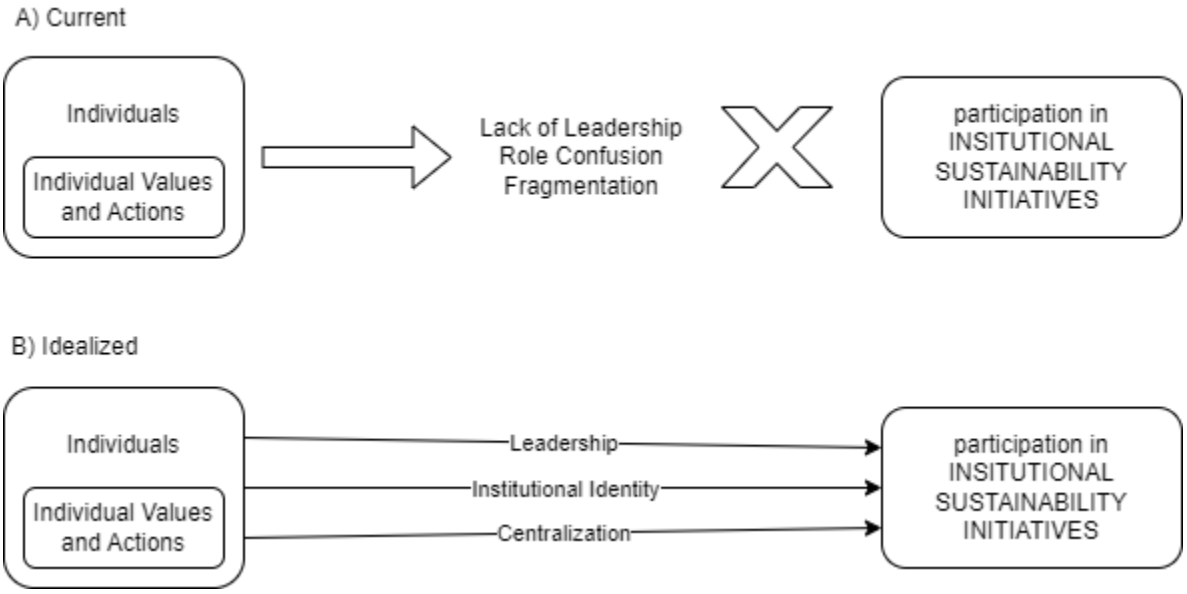
Strengthening Meta-Organizational Relationships

Figure 7 depicts the current interaction of poor leadership, role confusion, and fragmentation in UBC's institutional sustainability network. To promote individual participation in sustainability initiatives, issues in these key areas need to be addressed: fostering supportive leadership, institutional identity, and centralization and formalization of sustainability practices in a large institution like UBC (see Figure 7). These are key insights in expanding and translating individual sustainability values and actions to collective institutional engagement with circular economy principles. This was indicated by many of our participants as many expressed their shared values of sustainability and waste reduction, but often perceived lack of communication and formalization of sustainability initiatives as key barriers. As such, our participants suggested finding ways to integrate sustainability across campus such as having sustainability facilitators to explain available resources and their "impact to the entire campus…so people might be more inclined to use [them]" (Participant #15).

Additionally, participants suggested formalizing the practice and making sustainability initiatives such as Reuse-it! an "important step in the process of moving furniture around and

Figure 7

Diagram of Institutional Sustainability



furnishing [and] closing down offices" (Participant #14). In this way, the participants themselves have identified key issues with the sustainability practice at UBC and have suggested how to improve them. This observation seems to be supported by scholarship on the creation of meta-organizational identity to promote the use of digital platforms (Blackburn et al., 2023) and CBSM approaches regarding facilitating and nurturing sustainability initiatives across scales from individual-level values to institutional-level applications (McKenzie-Mohr, 2010).

Recommendations

In response to our findings, we have developed three recommendations to increase Reuse-it! usership:

1. Formalize the role of Reuse-it! in UBC day-to-day operations, potentially by creating a training module given to all UBC staff and faculty. This campus-wide communication strategy may be an effective means to grow the Reuse-it! userbase.

2. Clearly integrate Reuse-it! with other low carbon/circular economy UBC initiatives (e.g. Furniture Reuse Program, Zero Waste Market, etc.) to eliminate user confusion.
3. Expand the scope of Reuse-it! in terms of the userbase and the items and services offered, potentially allowing the platform to perform several functions such as a relationship-building network or a departmental organization tool in addition to waste reduction.

Our first recommendation is intended to increase awareness of Reuse-it! in UBC, thereby increasing its presence and impact. A formal introduction of Reuse-it! to UBC staff and faculty across every campus/department administrator may help raise the amount of user engagement with the platform. Overwhelmingly, many of our interviewees and survey participants reported that their first introductions to Reuse-it! were informal. Introducing Reuse-it! to UBC's campus-wide staff community as an official part of the university's formal on-boarding procedures would be useful to many staff members who have never even heard of the program. A concerted effort to increase the userbase will hopefully increase the number of listings and potential exchanges on the platform, which would help UBC divert more materials from the landfill, thereby further fulfilling its commitments to the Zero Waste Action Plan. We have also identified the potentially invaluable impact formalizing the program within UBC may have on the program's success. That is if Reuse-it! is presented as an official method of item procurement and disposal, it is highly likely that the platform usership will increase. Formalization of Reuse-it! may also include priority pick-up/delivery with the Building Ops., which we observe as one suggestion to resolve current tensions and hesitations to the completion of transaction as well as the repeated use of the platform.

The second recommendation is to address the confusion between Reuse-it! and the Furniture Reuse Program, as well as other low carbon emission initiatives like the Zero Waste Market. 93 out of 125 of our survey participants (72%) reported that they did not know that the

Furniture Reuse Program and Reuse-it! were separate initiatives. The Furniture Reuse Program currently dominates much of the Reuse-it! platform. Theoretically, this issue will be minimized with more accounts posting on the platform, hence our primary suggestion to advertise Reuse-it! through campus-wide communication strategies. However, due to the shared vision and objectives of the Furniture Reuse Program and Reuse-it!, we believe that the two programs should merge, to eliminate the confusion noted by many in the UBC community. Merging these zero-waste programs should also help address the effects of institutional fragmentation we have observed in our research. Practically, the merging should also help integrate UBC sustainability initiatives into a more streamlined and inclusive experience for UBC staff and faculty with potential overall effect of repeated use and engagement with sustainability initiatives at UBC.

Our third recommendation involves finding creative ways to build upon Reuse-it! to expand its use to encompass additional categories of items and to engage more populations of users. Qualitative data from interviews suggests sentiments among existing users as related to the detrimental nature of platform user restrictions on increased use. Offering Reuse-it! not to all students, but perhaps selecting students often in need of items with constrained budgets (i.e., student clubs and student associations) could help divert further waste from landfill, strengthening sustainability efforts on campus. Expanding the population of users could take the form of allowing select students to access the platform, which would help develop a larger sustainability network on campus connected through shared pro-sustainability values. Another possible expansion could also be the creation of a function or feature on Reuse-it! platform specifically for cross-department equipment sharing. This would help reduce the presence of dormant technology on campus, which would also serve as a supporting resource to departments on campus who do not have funding for advanced equipment. Exploring the vast array of opportunities made available due to the platform's

digital nature, Reuse-it! has the potential to serve as a social network for sustainability-minded community members and/or as a useful online inventory among departments to track and share their items and equipment.

We believe Reuse-it! has the potential to expand and diversify its services to host a resource-sharing space for departments to interact with one another. Not only would the diversification support departments with tight budgets to acquire necessary items, it would also encourage cross-departmental relationships, which would further reduce the effects of institutional fragmentation while investing in community-building capacity for repeated participation in sustainability initiatives at UBC.

Conclusion

We hope that the content and conclusion of our research can be incorporated and utilized in efforts to strengthen the awareness and use of Reuse-it! at UBC. The identification of barriers and incentives offers opportunities to address them explicitly. In providing recommendations based on these identifications, like addressing platform identity confusion, and the formal integration of Reuse-it! into UBC day-to-day operation, this research has the potential to increase waste diversion from landfills, positively impact department and faculty budgets, and contribute to ongoing institutional goals and efforts to address the climate crisis.

Future studies may take advantage of our findings to investigate barriers and incentives to the use of intra-organizational tools beyond internal marketplaces. Sustainable initiatives in large institutions, in the education sector, in business, and in government may benefit from the extrapolation of our research methodology and its findings. For one, utilizing a larger, increasingly varied sample pool may be useful in a future study to conclude beyond the limitations present in this research. Additionally, future studies may expand on our work by investigating barriers to adoption of sustainability initiatives focused specifically on those who are aware but “non adopters” of the initiative.

Based on our findings, we have identified key barriers and incentives to the adoption of sustainability initiatives within large institutions. The identification of structural issues within institutions that may inhibit implementation of initiatives has the potential for application in a variety of contexts. Beyond UBC, the analysis employed in this research has applications for promoting reuse principles and internal marketplaces in any organization comprised of distinct parts. Universities, government bodies, and corporations can all benefit from the cost-savings and positive environmental impact that come from the implementation of pro-sustainability circular economy initiatives like reuse marketplaces.

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Appendices

Appendix A

Schedule of Questions for Surveys

Section 1 – Consent Form

Q1. Binary Choice: Have you read the above and consent to participate?

Section 2 – Demographics

Q2. Short Answer: Which UBC faculty, unit, and/or department are you affiliated with?
Q3. Short Answer: What is your position or role within your department?
Q4. Short Answer: Please list a brief description of your job title.

Section 3 – Sustainability and Circular Economy

Q5. 5-point Likert: Please read the following statements and answer by selecting the option that best applies to you.
   a. I am familiar with the concept of the circular economy.
   b. I am familiar with UBC's Circular Economy initiatives.
   c. I believe my actions are an important part in realizing a more sustainable future at UBC.
   d. My colleagues value sustainability and encourage me to take sustainable action.
   e. I consider sustainability an important factor when I procure or dispose of items for my workspace.
   f. I know how to sustainably procure furniture, office equipment, and/or lab supplies for my workspace.

Section 4 – Procurement

Q6. Multiple Choice: On average, how often do you need to procure new furniture, office supplies, and/or lab equipment for your workspace?
Q7. Multiple Choice: Think back to your most recent furniture, office supply, or lab equipment acquisition. How did you procure this item?
Q8. 5-point Likert: Please indicate how significant the following factors were when it came to procuring that item.
   a. Cost
   b. Convenience
   c. Familiarity with service
   d. Quality of product
   e. Customer service
   f. Time
   g. Source is a Workday preferred vendor
   h. Familiarity with the brand or name of an item
   i. Sustainability
   j. Other, please specify:

Section 5 – Disposal

Q9. Multiple Choice: On average, how often do you need to dispose of surplus furniture, office supplies, and/or lab equipment for your workspace?
Q10. Multiple Choice: Think back to your most recent furniture, office supply, or lab equipment disposal. How did you dispose of this item?

Q11. 5-point Likert: Please indicate how significant the following factors were when it came to disposing that item.
   a. Cost
   b. Convenience
   c. Familiarity with service
   d. Quality of product
   e. Customer service
   f. Time
   g. Sustainability
   h. Other, please specify:

Section 6 - Reuse-it! UBC: Background

Q12. Multiple Choice: Have you heard of Reuse-it! UBC and/or Rheaply AxM?
Q13. Select All: How did you hear about Reuse-it! UBC and/or Rheaply AxM?
Q14. Multiple Choice: Reuse-it! UBC and Rheaply AxM refer to the same internal marketplace platform/service exclusively for UBC employees to find and exchange items between individuals and/or departments within UBC. This marketplace is accessible to all departments and campus units with a specific focus on promoting sustainability, waste reduction, and zero emission. Which name do you usually associate with the platform or feel more familiar with?
Q15. Select All: From what you currently know, which of the following do you think best describes Reuse-it! UBC?
Q16. Multiple Choice: Are you aware that the UBC Furniture Reuse Program and Reuse-it! UBC are separate initiatives?

Section 7 - Reuse-it! UBC: Experiences

Q17. Multiple Choice: Have you ever logged into Reuse-it! UBC?
Q18. Select All: If applicable, which of the following statements indicate positive reasons for why you log into or try to use Reuse-it! UBC?
Q19. Select All: If applicable, which of the following statements indicate reasons why you do not usually log into or try to use Reuse-it! UBC?
Q20. Multiple Choice: Have you successfully completed an exchange on Reuse-it! UBC?
Q21. Select All: If applicable, how would you describe your experience exchanging items on Reuse-it! UBC? What items did you procure or reuse?
Q22. Multiple Choice: Have you or your faculty or department tried to use Reuse-it! UBC to help divert some or all of your surplus items from disposal?
Q23. Long Answer: How did you find the experience of trying to get your items reused on Reuse-it! UBC?
Q24. Multiple Choice: What were your reasons for not using Reuse-it! UBC?
Q25. 5-point Likert: Please read the following statements and select the option that best applies to you.
   a. Informal reuse within my own department is a good way to get items reused.
   b. Donating to the Zero Waste Market or Furniture Reuse Program is a good way to get rid of my surplus items.
   c. Reuse-it! UBC is a good way to get rid of surplus items from my workspace.
   d. Reuse-it! UBC is a good way to procure items for my workspace.
   e. Reuse-it! UBC is a good way to transfer surplus items between departments.
   f. Reuse-it! UBC is a valuable resource to help UBC achieve its sustainability goals.

Q26. 5-point Likert: Please read the following statements and select the option that best applies to you.
   a. I am satisfied with my experiences using Reuse-it! UBC.
   b. Based on my experiences, I would use Reuse-it! UBC again.
   c. Based on my experiences, I would recommend Reuse-it! UBC to my colleagues.

Q27. Long Answer: Do you have any further comments on your experience using Reuse-it! UBC or any improvements you would like to see from the platform?

Q28. Select All: Which factors have contributed to you not logging into Reuse-it! UBC?

Section 8 - Interview Request

Q29. Binary Choice: Thank you for taking part in our survey. Would you be interested in taking part in a 15-20 minute interview regarding your thoughts on Reuse-it! UBC? Interviews will be held online over Zoom or in-person, as you prefer.

Q30. Short Answer: Thank you for your interest! Please provide your email below so that we can contact you. Be aware that by giving us your email, we will be able to connect your email with your responses so we can follow up on your answers. However, your identity will remain confidential and will not be shared.

Appendix B

Schedule of Questions for Semi-Structured Interviews

"Reuse-it! UBC"

1. How did you initially learn about "Reuse-it! UBC"?
2. To the best of your knowledge, how would describe "Reuse-it! UBC"? What is "Reuse-it! UBC," what does it do, and how does it work?
3. Have you heard anything (good or bad) about "Reuse-it! UBC" from your colleagues or other faculty/staff? Could you let us know what some of those comments were?
    a. Could you tell me about any positive experiences you have had with "Reuse-it! UBC"?
    b. Could you tell me about any negative experiences you have had with "Reuse-it! UBC"?
    c. How easy or difficult do you think "Reuse-it! UBC" is to access and use?
4. What items are you most often looking to procure or dispose of?
5. What would make "Reuse-it! UBC" more effective for you?

Material Culture/Sustainability

6. If you want to buy something new for your office, lab, or workspace, what steps do you take? For example, do you shop for yourself at a store, do you go online, do you send a request to your department administrator, etc.?
7. How difficult is it to get rid of or replace something for your office, lab, or workspace? Why do you think that may be?
8. How significantly does the climate crisis and/or UBC's sustainability goals impact the decisions your department/unit and colleagues make when it comes to buying or getting rid of office, lab, or workspace materials?
9. How often do your colleagues talk about sustainability? Do you feel like your conversations are generative?
10. What concerns, if any, would you have about your office, lab, or workspace being furnished with second-hand materials because of UBC sustainability initiatives/protocols?

Miscellaneous

11. Is there anything else you would like to tell us?

Appendix C

Schedule of Interview Participants

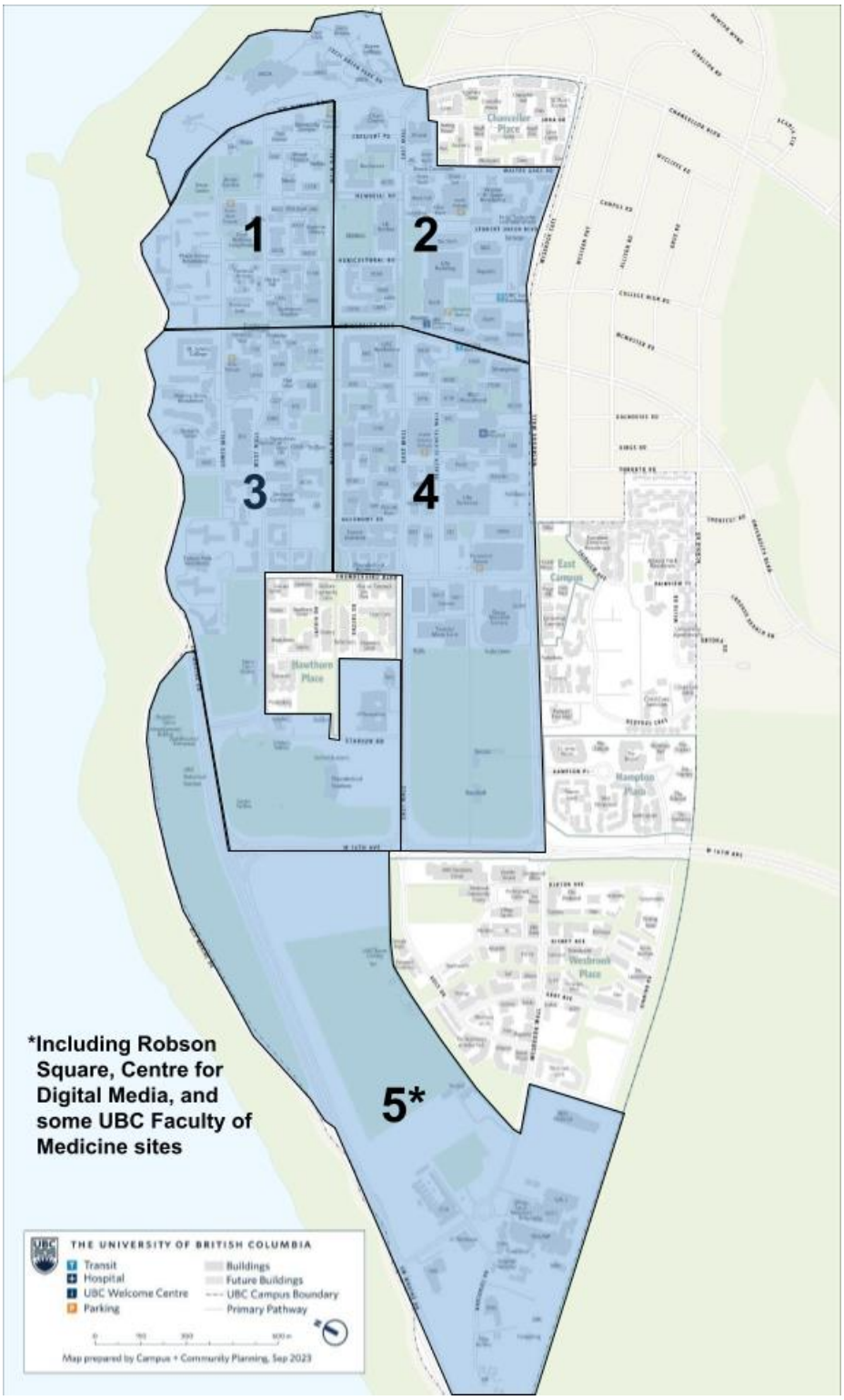
Of the 20 interview participants for this project, 17 were based on UBC's Point Grey Campus, 2 were based in satellite campuses in the metro-Vancouver area (i.e. Robson Square and the Centre for Digital Media), and 1 was based at UBC Okanagan. The list below states each interview participant's faculty affiliation and location on UBC's Point Grey campus (if applicable) based on the campus zones identified in Appendix D.

Participant 1. Faculty of Science, Zone 3.
Participant 2. Development and Alumni Engagement, UBCO.
Participant 3. Faculty of Applied Science, Zone 4.
Participant 4. Faculty of Arts, Zone 2.
Participant 5. Faculty of Arts, Zone 2.
Participant 6. Faculty of Medicine, Zone 4.
Participant 7. Sauder School of Business, Zone 1.
Participant 8. Vantage College, Zone 3.
Participant 9. Faculty of Medicine, Zone 4.
Participant 10. Faculty of Medicine, Zone 4.
Participant 11. Faculty of Applied Science, Zone 4.
Participant 12. Faculty of Applied Science, Zone 5.
Participant 13. Faculty of Education, Zone 2
Participant 14. Faculty of Education, Zone 2.
Participant 15. Faculty of Education, Zone 1.
Participant 16. Faculty of Medicine, Zone 4.
Participant 17. Faculty of Arts, Zone 1.
Participant 18. VP Finance and Operations, Zone 1.
Participant 19. Faculty of Applied Science, Zone 3.
Participant 20. Faculty of Arts, Zone 5.

Appendix D

UBC Campus Divided by Zones

Division of UBC Point Grey campus Based on maps provided by UBC Campus and Community Planning (https://planning.ubc.ca/about-us/campus-maps).



Appendix E

Whole-Study Participants by Zones

	Number of Survey Respondents	Percent of Survey Respondents	Number of Interview Respondents	Percent of Interview Respondents
Zone 1	28	19.3	4	20.0
Zone 2	38	26.2	4	20.0
Zone 3	34	23.4	3	15.0
Zone 4	35	24.1	6	30.0
Zone 5	10	6.9	3	15.0
Total	145	100.0	20	100.0

Appendix F

1-to-1 overlayed version of Figure 6.

User-voiced recommendations as applied to current users' perspective of the structural assemblage of Reuse-it!.