Backgrounder: Furniture and Equipment Reuse Initiatives

Overview

Number of reports[1] on reuse initiatives since the 2014 ZWAP, as of August 20th, 2024: **29**.

The topic of reuse includes sub-topics related to food materials, lab equipment, furniture and formal wear.

Furniture and Equipment Reuse

Number of reports on furniture and equipment reuse as of August 20th, 2024: 7.

Key findings

> **Summary**
>
> - **Most lab managers/administrators partake in lab equipment reuse through their own initiative** (Sundaram et al., 2021). There is **interest in a formal lab reuse program**, but people want it to include advertising, a venue to connect buyers and sellers, a web-based payment platform, and storage spaces (Sundaram et al., 2021)
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> - The **"Reuse-it!" program[2] is underutilized** in both furniture and lab equipment reuse (Kirk, 2020; Sundaram et al., 2021; Wong et al., 2022)
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> - As of 2020, **furniture reuse at UBC was an inconsistent process** with many opportunities for items to be missed and end up in the landfill. The **Facilities Planning Unofficial Pilot offered a standard system** for furniture reuse but was not widespread due to limited staff and lack of information and awareness (Kirk, 2020)
>
> - A number of **barriers make furniture reuse on campus difficult**—these include logistical difficulties, limited resources, lack of information (Wong et al., 2022; Kirk, 2020)
>
> - In 2022, participants suggested the following improvements for furniture reuse on campus: a **central warehouse**, a **website**, **delivery and pick-up services**, **marketing campaigns**, **support for people to consult with expert, and rules and standards governing quality** (Wong et al., 2022)
>
> - A **formal wear reuse program would meet student demand and have positive environmental impacts**, and is economically feasible (Fan et al., 2014)

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[1] Method: filtering in "list of reports" excel spreadsheet. 29 reports classified as relating to "reuse".

[2] "Reuse-it!" is an online platform initiated at UBC in 2010. This online platform allows UBC Staff and Faculty to register with their UBC email, post items and facilitate exchanges.

Laboratory equipment reuse

Engagement with lab equipment reuse and the "Reuse-it!" program

Sundaram et al. (2021) surveyed lab managers and administrators (n=20) and found **that the majority (80%) of participants had, at some point, donated equipment to another UBC group.** 20% had sold to another UBC group before, 10% had exchanged equipment with another UBC group, 25% had donated equipment to a non-UBC research group, and 10% sold equipment to a non-UBC research group. On the other hand, 55% of respondents had placed unused equipment in storage or left it unused in the lab, and 40% of respondents had either recycled or disposed of equipment (Sundaram et al., 2021). **It's unclear how consistently equipment donations occur since these categories were not exclusive and many indicated having done multiple of these options before**.

For both buyers and sellers of lab equipment, UBC's "Reuse-it!" program was used in a minority of transfers (24% for buyers and 20% for sellers) (Sundaram et al., 2021). Most buyers of reused equipment heard about the equipment through word of mouth (71%), or emails sent to them regarding the sale of equipment (65%). Most sellers of reused equipment identified buyers through word of mouth (50%), or through an email sent to potential recipients (30%). Further, only 21% of participants (n=20) reported using the "Reuse-it!" program and thinking it worked well (Sundaram et al., 2021). Some thought the "Reuse-it!" program interface was difficult to use (5%), and most had never heard of the "Reuse-it!" program (42%) (Sundaram et al., 2021).

Lab equipment reuse: interests and preferences

There seems to be a strong interest (95% of respondents, n=20) and a potential market for a laboratory equipment reuse program like "Reuse-it!" (Sundaram et a., 2021), given that 65% of respondents' labs at UBC had unused lab equipment in their storage (Sundaram, et al., 2021). Such a program would ideally **include the following aspects identified by participants:** an **advertising** platform operating internally within UBC (100% support), a **venue to connect buyers and sellers** in and around UBC (84% support), a **payment platform** through web service (63% support), **advertising for external buyers** (58% support), and **storage spaces** (warehouses, etc.) (Sundaram et al., 2021). Further, most respondents (63%) were willing to pay a transaction fee for using an online payment service. 11% would not pay this amount, and 21% would prefer coordinating independently, meaning a transaction fee for online payment could lead to a ~30% reduction in users (Sundaram et al., 2021).

Participants (n=20) also outlined their preferences for transportation methods. Most preferred self-pickup in and around UBC (33%) or stated that it depended on the type of equipment (33%). Some felt the recipient should coordinate the pickup (21%) (Sundaram et al., 2021).

The "Reuse-it!" program for lab equipment: barriers

A number of barriers have been identified that potentially lower the impact of "Reuse-it!". Based on survey results, the main barriers for sellers of lab equipment **include uncertainty regarding payment transactions (45%), the possibility of not having relevant details about the equipment (35%), and difficulty in coordinating an exchange of equipment (30%)**. For buyers, **main barriers included uncertain quality (75%), items not meeting exact needs (70%), unknown history of usage (50%), uncertainty regarding payment transactions (25%), and difficulties in coordinating an exchange of equipment (25%)** (n=20) (Sundaram et al., 2021).

Furniture reuse

A number of reports (Gondaliya et al., 2024; Kirk, 2020; Wong et al., 2022; Wysocki, 2016; Chang et al., 2017) have examined furniture reuse on campus.

Environmental impacts of furniture

A 2024 report (Gondaliya et al., 2024) assessed the environmental benefits of reusing furniture and ranked a specific subset of items/brands with respect to their environmental impact. In broad terms, **furniture reuse reduces emissions**, and **"life cycle analyses" can help identify items with the largest emissions reduction potential**. The items assessed were the "commercial grade", "low-grade" and "reused" tables by Wayfair and IKEA. The lowest to highest emitting tables over a 10-year span were the **IKEA reused (provided by the UBC Furniture Reuse Program[3]), Wayfair reused (provided by UBC Furniture Reuse Program)**, the IKEA "commercial-grade", the IKEA "low-grade", the Wayfair "commercial-grade", and the Wayfair "low-grade". For Wayfair tables, acquiring a reused version avoids 85-97% of emissions associated with a brand-new "low-grade" version. For IKEA tables, the reused version avoids 60-95% of emissions associated with a brand-new "low-grade" version. Notably, the report found that **IKEA is a better brand choice than Wayfair for environmentally conscious consumers** (i.e., IKEA low-grade tables had 62% lower emissions than Wayfair low-grade tables, and IKEA commercial-grade tables had 15% lower emissions than Wayfair commercial-grade tables over their lifecycle). **Ultimately, reused tables acquired from the UBC Furniture Reuse Program have the best monetary value**—for example, the reused IKEA commercial-grade table is priced 99 CAD less than its closest equivalent IKEA commercial-grade table.

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[3] The UBC Furniture Reuse Program is an initiative started by UBC Facilities that accepts donations of surplus furniture from UBC departments/faculties and resells furniture to the UBC community and general public.

Key contributors to emissions throughout the lifecycle include paper production and steel casting (for the IKEA "low-grade" tables), and fiberboard production and packaging (for the Wayfair "low-grade" tables) (Gondaliya et al., 2024).

Furniture reuse at UBC in practice

UBC's Policy UP3 (previously known as Policy 108) outlines an official process for furniture reuse (see appendix B). However, the policy is outdated (e.g., makes reference to SERF[4] which is closed) and many people are unaware of it (Wysocki, 2016; Kirk, 2020). In practice (as of 2020), furniture reuse on campus is accomplished in 3 ways (Kirk, 2020): 1) the "Reuse-it!" program, 2) the initiative of individuals, and 3) the Facilities Planning[5] Unofficial Reuse Pilot.

Some data exists on the success of "Reuse-it!" and the Facilities Planning Pilot. Between March and September of 2011, the "Reuse-it!" program led to the reuse of 1100 items, equivalent to savings of approximately $24,700 (the cost of purchasing these items brand new) (Wysocki, 2016). Since then, the "Reuse-it!" program has seen limited use due to lack of promotion (Wysocki, 2016; Kirk, 2020; Wong et al., 2022; Sundaram et al., 2021). The Facilities Planning Pilot involves one planner, and the work required amounts to 15-20 hours a week (Kirk, 2020). Between 2018 and 2020, the pilot program led to the reuse of roughly 600 items (an estimated 10% of reusable furniture at UBC), equivalent to savings of $300,000 (the cost of purchasing these items brand new) (Kirk, 2020).

A 2020 report (Kirk, 2020) investigated how furniture reuse actually occurs at UBC and **outlined 2 different processes: large projects** (including demolitions, renovations or moves) and **small-scale surpluses** (Kirk, 2020).

Large projects are the most common process. In large projects, Facilities Planning may or may not be made aware of "surplus" items to be dealt with. Unidentified items are left and eventually disposed of by contractors. Surplus items are either passed on to the Facilities Planning Pilot to be inventoried and stored for reuse, or left up to the department, at which point a number of outcomes are possible: the item may end up in storage somewhere if item is valuable enough and space allows, posted on "Reuse-it!", offered within the department via email, offered to other departments via email, taken by individuals within the department, sold externally, or disposed of through building ops services (most common outcome). The result is an **inconsistent process with many opportunities for items to be missed and end up in the landfill** (Kirk, 2020).

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[4] The Surplus Equipment Recycling Facility (SERF) allowed for storage and reallocation of surplus furniture through sales or rentals. Priority was given to UBC departments, faculties and programs. Sales to other educational institutions or private citizens were also considered. SERF was closed down in 2006 and has not reopened since.
[5] The Facilities Planning Unofficial Reuse Pilot was a project initiated in 2018 to find new homes for second-hand UBC furniture. It has since been expanded (see: https://facilities.ubc.ca/projects/ubc-furniture-reuse-program/).

Small scale surpluses involve the removal of one item from a space. This is carried out in three main ways: 1) an individual contacts department administrators, who decide if an item must stay or coordinate removal (resulting in storage, relocation to another office, posting on "Reuse-it!" or Craigslist, or landfill), 2) an individual simply moves the item to a loading bay or the hallway, and 3) an individual rehomes the item themselves through email, "Reuse-it!" or another office space. Again, the **process is varied and inconsistent** (Kirk, 2020).

When the Facilities Planning Pilot is involved in item removal, the process is standardized and efficient. Unwanted items are assessed by the Facilities Planning Coordinator, and either not inventoried (left to the responsibility of the department) or inventoried and subsequently stored or directly transferred to a department that made a specific request for items. However, **the use of Facilities Planning Unofficial Pilot is not currently widespread** due to limited staff and lack of information and awareness (Kirk, 2020; Wong et al., 2022).

Furniture reuse: ideas from past UBC initiatives and case studies

A 2016 report (Wysocki, 2016) discussed successful initiatives that have occurred at UBC in the past. These include the GSAB garage sale, and the SERF (Wysocki, 2016). The GSAB garage sale took place in a building slated for demolition in 2014, the General Services and Administrative Building. Furniture was given away for free or max $50, which saved UBC $173,100 in new purchases (Wysocki, 2016). This example demonstrates the demand that exists for second-hand furniture. However, the time and organization required presents a significant challenge on top of UBC employee duties; a **structured, standardized process for reuse is likely to be more efficient** (Wysocki, 2016). The SERF was a facility that provided storage space and managed rehoming of furniture. Priority was given to internal sales or rental of equipment, otherwise sales were made to other educational institutions or the general public (Wysocki, 2016). The SERF was closed down in 2006 although it is still mentioned in Policy UP3. No replacement exists other than the "Reuse-it!" program.

More examples can be taken from other educational institutions. The University of Victoria implemented a "Program of Warehousing and Re-allocation of Reusable Furniture", which generates approximately $40,000 a year. More details can be found in the 2016 report (Wysocki, 2016). Briefly, the process involves the following steps: 1) UVic Faculty & Staff identify surplus items, 2) UVic Faculty & Staff fill out a Surplus Disposal Request Form, 3) the "Manager for Interior Modification Services" receives the form and decides whether items are re-usable on campus—if yes, the item is stored in the on-campus warehouse and sold on-campus for 20% of the new value, if no, the "Surplus Asset Coordinator" can take the items for separate storage to resell or donate them off-campus (Wysocki, 2016). This **UVic program constitutes a best practice example** with key features UBC should incorporate into its own initiatives, mainly: **storage space on campus for surplus furniture**, **general**

surplus assets including IT and scientific equipment, and multiple people on the team, including one person in charge of furniture and another in charge of general surplus items (Wysocki, 2016).

The University of Washington created a Surplus Store, which is open to the public and sells furniture and other items. Store hours for university departments, non-profits and government agencies differ from store hours for the general public. The store resembles the former UBC SERF space (Wysocky, 2016).

The "Reuse-it!" program for furniture: engagement and awareness

The "Reuse-it!" program appears to be underutilized for rehoming furniture relative to the demand for furniture (Wysocki, 2016; Kirk, 2020; Wong et al., 2022). A 2020 report found that "Reuse-it!" is not reliably utilized for disposing of furniture (Kirk, 2020). First, throughout 2018, an average of only 27 items per month were posted on the website (only a fraction of which were furniture) while an average of 400 tonnes of furniture are disposed of from UBC every year (Kirk, 2020). Second, it appears many registered "Reuse-it!" users are inactive (Kirk, 2020). In 2022, 25% of UBC faculty and staff (n=20) were not aware of the UBC "Reuse-it!" program (Wong et al., 2022). The remaining 75% of respondents either knew of the program or had participated in the program. Additionally, among those who sought furniture for their offices or labs, "Reuse-it!" was used in 25% of cases (Wong et al., 2022). Other options included IKEA (20% of cases), other suppliers such as Brooks Corning (16%), Staples, and suppliers of reused furniture such as Buy Nothing project, Facebook Marketplace and thrift stores. Among those who acquired furniture, 26% reported acquiring new, instead of used, furniture (Wong et al., 2022). A 2016 report (Wysocki, 2016) suggested usership of the "Reuse-it!" platform dropped after launch in 2011 due to a lack of promotion.

Barriers to furniture reuse

Many barriers to furniture reuse on campus have been identified. A key barrier noted across multiple reports is **lack of storage for unwanted items** (Wong et al., 2022; Kirk, 2020). For recipients of used furniture (based on a survey of n=20, and in-depth interviews of n=3), other challenges revolved around the following themes:

- **Limited resources** (e.g., limited resources to facilitate furniture transfers, in terms of planning, consultation, pick-up and delivery; this contributes to a **lack of convenience**) (Wong et al., 2022)
- **Logistical difficulties** (e.g., difficulties working with the UBC labour crew to move furniture around campus) (Wong et al., 2022)
- **Lack of information** (e.g., lack of clarity on how to pay UBC labour crews, limited information on what kind of furniture is available for transfers across campus and how to access those furniture pieces, and lack of awareness of reuse programs) (Wong et al., 2022)

- **Lack of suitability and customizability of used furniture** (Wong et al., 2022)

A 2020 report (Kirk, 2020) identified an extensive list of barriers that make furniture reuse difficult (see appendix A). These barriers include **lack of paid work to facilitate furniture reuse, cultural norms (e.g., that new spaces and staff require brand-new furniture), and year-end spending to secure equivalent future funding** (Kirk, 2020).

Furniture reuse: interest and preferences

There **seems to be support for furniture reuse on campus**, with most participants in a 2022 survey (n=20) identifying reuse (46%) and recycling (44%) as preferred methods for dealing with surplus furniture. Only 10% preferred landfill disposal (Wong et al., 2022). Further, all participants (n=20) stated that they would donate or sell surplus furniture to a reuse program, but only 70% would buy their furniture from a reuse program. Participants who wouldn't purchase reused furniture stated reused furniture should be free (Wong et al., 2022).

Respondents also made **suggestions to improve furniture reuse on campus**. Suggestions included 1) a **central warehouse** to allow departments and students to donate used furniture, shop and browse for furniture, 2) a **website** to promote the reuse program and well as providing details on available furniture (e.g., dimensions, colour and design), 3) **delivery and pick-up services**, 4) **marketing campaigns** to raise awareness (e.g., UBC could host a social event promoting furniture to be rehomed, reminders in news items such as the UBC today newsletter, sending out regular/monthly updates of what is available for people), 5) **support for people to consult with experts** and ensure good fit, and 6) **rules and standards governing quality** and similarity of furniture for ease of transfer (Wong et al., 2022).

The same report (n=20) also assessed furniture preferences and identified the following key factors in purchasing decisions: **affordability** (68%) and **comfort** (63%) (Wong et al., 2022). Other factors including recyclability (20% were likely to consider recyclability when purchasing), design (%20 were likely to consider design/aesthetics when purchasing), durability (45% were likely to consider durability when purchasing), and transportation or delivery concerns, stock availability, company reputation, and functionality (Wong et al., 2022).

Motivators or facilitators for furniture reuse identified from interviews (n=3) included 1) **rules and regulations** to guide the purchasing of furniture and ensure high quality, ergonomics, versatility, and durability, 2) **centralized systems** to provide easy access and support for obtaining reused furniture, and 3) **human resources** to support monitoring of sales, moving, and consultation (Wong et al., 2022).

Formal wear reuse

A 2014 report (Fan et al., 2014) investigated the benefits of implementing a **formal wear rental program in the UBC bookstore**. The authors **noted social and environmental benefits**, and suggested a rental program would be **economically viable in the medium- to long-term**. Social benefits include employment opportunities (e.g., program staff to manage the storefront/inventory and oversee rental transactions; IT professionals to create a tracking database; cleaning/maintenance staff), increased business/foot traffic in the bookstore, free advertising and increased business for suppliers of formal wear, and increased business for local dry cleaners. **Environmental benefits include decreases in production-related emissions and pollution**, and far outweigh the costs arising from increases in energy and water use due to laundry between rentals. The program could achieve economic viability with an effective pricing regime, which the report lays out in detail (Fan et al., 2014). The program should start by providing 6 categories of items: suits for men and for women, dress shirts, tuxedo, tuxedo shirts, and formal dresses. With prices of $46.28 per day (tuxedos and dresses) and $27 per day (other items), the initial investment required to purchase 15 sets of formal wear could be returned within a month.

Additionally, a survey (n = 54) (Fan et al., 2014) indicated **a potentially large demand for a formal wear rental service on campus**. Students reported using formal wear at least once a month (41%) or once a year (35%). Most students reported not owning formal wear (52%), and most (71%) stated they would be interested in looking into a rental service if it were provided on campus (Fan et al., 2014). Somewhat paradoxically, 56% of respondents would prefer to buy their own formal wear. However, a plurality of students (37%) reported having spent more than $170 when purchasing or renting formal wear in the past, and only 12% consider this an acceptable price. On the other hand, 18% of students reported spending under $75 when purchasing or renting formal wear in the past, and most (52%) considered this an acceptable price. This **shows students are likely to choose renting formal wear over buying** (despite a stated preference for buying and owning) due to high prices.

Finally, **students highlighted price as the biggest priority (49% ranked price as highest importance)** when making a decision on formal wear, followed by **cleanliness (cleaning between rentals), look/design and size**. Brand was ranked as low priority by most respondents (63%; n=54) (Fan et al., 2014).

Recommendations

🔴 Recommendation not met   🟠 Partially met   🟢 Well met

Specific improvements to the UBC "Reuse-it!" program

- **Improve accessibility and awareness of the UBC "Reuse-it!" program** (Sundaram et al., 2021; 🟠
  Wysocki, 2016). Ideas include **expanding eligibility to non-faculty members**, such as laboratory
  workers or graduate students, other educational institutions or the general public; **increasing
  visibility of the "Reuse it" program on the UBC Finance website** by making "Reuse-it!" a stand-
  alone option under the "Procure to Pay", creating a banner for the website displayed on the UBC
  finance website to catch the attention of visitors, creating a banner for the "Reuse-it!" program
  under the "Dispose" option under "Procure to Pay" or creating an option for the "Reuse-it!"
  program presented under the "Buy" tab under "Procure to Pay"; **increasing visibility of the
  "Reuse it" program on the UBC Sustainability website** by editing the existing banner's text to
  more clearly explain that laboratory equipment, office supplies, and furniture, are bought and
  sold through the "Reuse-it!" program; **allowing log-in with a CWL** as opposed to having to
  create another account to streamline the login process; **publicly displaying items** that are
  being sold on the website to attract interest and attention.
  [Status: The recommendation is only partially met. Eligibility remains restricted to UBC-
  Vancouver faculty or staff, the "Reuse-it!" website has not been made visible on the UBC
  Finance website, log-in with CWL is not possible, and current for-sale items are not displayed.
  However, the "Reuse-it!" banner text on the UBC Sustainability website has been improved]
- **Improve the transaction process through the UBC "Reuse it" platform** (Sundaram et al., 2021). 🔴
  Specifically, the payment process must be clear to all parties, must be completed through an
  online secure server, and the $1000 dollar limit for purchases must be eliminated to all
  purchases can be completed through a single we service (Sundaram et al., 2021). [Status:
  Unclear if payment is currently completed through an online secure server, the $1000 limit still
  exists]
- **Improve methods for ensuring equipment reliability** on the "Reuse it" platform (Sundaram et 🟠
  al., 2021). One suggestion is to update the required information for each listing to include 1) the
  equipment retail name, brand, model number, date of purchase, retail price, 2) equipment
  history, 3) video demonstrations on how to use the equipment, 4) equipment training, 5)
  equipment standard operating procedure, 6) service contract details (if any), and 7) the
  economic cost of ownership. Another idea is to implement a two-part application for

selling/giving away, modelled after Columbia University's process: the first phase requires documentation including recent images of the item, dimensions and specifications, a detailed history of use, and current condition (list of issues reported). This initial application is reviewed, and in the second phase the item is inspected in person by program coordinators. Once approved, a product is then uploaded and made available for donation. Items with digital memories should be wiped using memory-erasing software such as DBAN. [Status: The "Reuse-it!" quick reference guide recommends including images, training content, and other useful information. However, such information does not appear to be required and no review process exists]

- **Improve logistics and coordination for re-housing items. UBC should consider a donation-storage based system modelled after UMichigan's reuse program** (Sundaram et al., 2021). At UMichigan, the Office of Campus Sustainability receives and sells donations from labs. They have an online inventory that is frequently updated. Buyers can apply for an item with a request form or submit wish lists and be contacted when items become available. Equipment is required to be in good condition, and delivery and fees are determined on case-by-case basis. The Office of Campus Sustainability has set up a storage space for donated equipment. [Status: UBC has set up a Furniture Reuse Program but lab equipment is not eligible for donation. The "Reuse-it!" platform is still the main option for lab equipment, but no associated storage space exists]

General recommendations to increase furniture reuse

Recommendations for increasing furniture reuse at UBC

- **Use Warp It as UBC's new online reuse platform (Kirk, 2020).** [Status: Warp It does not appear to have been integrated into UBC furniture reuse initiatives]
- **Update the Surplus Equipment Policy (UP3) and the Purchasing Policy (FM2)** and ensure substantial awareness of both on campus (Kirk, 2020). UBC procurement guidelines/policies should be standardized and applied to all furniture purchases. Guidelines should ensure longevity, flexibility, and ergonomics of purchased items (Kirk, 2020; Wong et al., 2022) [Status: UBC policy UP3 has not been updated and still makes reference to SERF. UBC Policy FM2 does not include a clause to prevent unnecessary purchasing to secure funding. However, the Sustainable Purchasing Guide through UBC Finance outlines what types of furniture to purchase and where to purchase furniture]
- **Create a Furniture Coordination/Officer role** within the Facilities Planning (FP) team and allocate an associated budget (Kirk, 2020; Wong et al., 2022; Wysocki, 2016). Responsibilities

could include tracking of items that are disposed and purchased, deciding which items can be re-used, managing the "Reuse-it!" website, communicating between different departments, contacting other educational institutions and external partners within the "Pool of Partners", selling surplus furniture, managing the budget, and identifying storage space (Wysocki, 2016) [Status: Unclear if a formal role has been created]

- **Identify more storage** space (e.g., a warehouse) for surplus items to prevent disposal (Kirk, 2020; Wong et al., 2022; Wysocki, 2016). Ideas include an on-campus storage warehouse, container, parking lots, unused buildings or off-campus storage (Wysocki, 2016). [Status: The UBC Furniture Reuse Program has storage space for surplus items]

- **Create a new Surplus Asset form or system to improve the tracking** of surplus items (no system is currently in place on campus that allows formal tracking across all departments)(Kirk, 2020; Wysocki, 2016). [Status: The UBC Furniture Reuse Program requires an application via email, it is not clear if a form or tracking system exists for items]

- **Create a standardized process for furniture reuse on campus.** Two models have been proposed. First, implement the above recommendations gradually using a 3-phase approach (Kirk, 2020). Phase 1 (immediate) should include the creation of a Furniture Coordinator role and the initiation of Warp It as the main reuse platform. Phase 2 (short-term) would lay the foundation for a Furniture Services Unit at UBC, including the creation of two new roles: Furniture Assistant and Furniture Planner. Further, storage space should be identified to hold surplus items temporarily. Phase 3 (medium- to long-term) would centralize purchasing and disposal by creating a manager position, a furniture buyer role and a furniture relocation team to help with moving. Estimated savings from implementation of phases 1, 2 and 3 are $1,180,500 (Kirk, 2020). A second possible procedure is outlined in Wysocki (2016), and would involve a Surplus Asset Declaration Form, a Surplus Assets Manager who oversees the process and coordinates resale and reallocation, revenues supporting the budget of the manager and storage space, and ultimately disposal as a last resort (Wysock, 2016). [Status: The UBC Furniture Reuse Program has implemented a standard process for furniture reuse; how many roles are involved is unclear]

- **Merge and/or harmonize "Reuse-it!" with the informal furniture transfer network** within Facilities Planning (Wong et al., 2022). [Status: "Reuse-it!" remains a standalone platform; the UBC Furniture Reuse program recommends use of "Reuse-it!" for items that cannot be accepted by the program]

- Create a **dedicated project budget to support staffing and project costs for furniture reuse**, including either a specific budget for a dedicated furniture reuse "removal service", or,

alternatively, subsidizing a free or discounted removal service for users of the furniture reuse network (Wong et al., 2022). [Status: Difficult to assess. Not much information exists on the budget and staffing of the UBC Furniture Reuse Program]

- **UBC should provide financial incentives or subsidies to departments who are participating in exchanges** by giving furniture away for free (Wong et al., 2022). [Status: Unclear if any subsidies related to furniture donation exist]   ○

- **UBC should increase marketing and communications** efforts around furniture reuse. For example, social "marketing" events throughout the year could help promote furniture reuse and the UBC reuse program itself (Wong et al., 2022). [Status: Difficult to assess if marketing efforts have increased]   ○

- **Create educational "how-to" materials on furniture exchange and circulate widely.** Departments should be especially aware of how to remove furniture and transfer funds between departments (Wong et al., 2022). [Status: Difficult to assess if "how-to" materials on furniture exchange have ben circulated]   ○

- **Establish a "pool of partners" for asset resale and donation, both on campus and external** (Wysocki, 2016). UBC departments should have priority access. External partners could include **other educational institutions** like the Vancouver School Board, Simon Fraser University, Vancouver Film School, Capilano University, and **external institutions** like Impact PROPS, Impact Office Furnishing, the Office Shop, Smart Office Solutions, Green Standards, and **locations for donation** like Habitat for Humanity Restore, Look Out Emergency Aid Society, SPCA Thrift store, Downtown Eastside Women's Centre, Helping Families in Need Society. [Status: Unclear if a pool of partners have been identified, however members of the public and external organizations are able to purchase furniture from the UBC Furniture Reuse Program]   ●

Recommendations for Melt Collective[6]

- **Melt Collective should purchase a hot press machine** to allow for melting and joining without requiring metal bolts or nuts (Chang et al., 2017). [Status: Difficult to assess]   ○

- **Melt Collective should purchase a laser cutter** to allow uniqueness and precision (Chang et al., 2017). [Status: Difficult to assess]   ○

- **Melt Collective should initiate collaboration with students** (volunteers) who have a background in UBC Theatre Production Design and UBC Visual Arts, to support in furniture design (Chang et al., 2017). [Status: Difficult to assess]   ○

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[6] Melt Collective is a Circular Economy Innovation Lab at UBC that uses complex recycling processes to transform waste into usable products (e.g., cigarette skateboards to mushroom toilets). It's not clear if Melt Collective is still operating in 2024.

- **Melt Collective should create a closed-loop model,** where every piece of furniture made by Melt Collective will be 100% recycled and remodelled to become another piece of furniture (Chang et al., 2017). [Status: Difficult to assess]
- **Melt Collective should allow customers that lease furniture the opportunity to also return the product** at the end of their contract, or to **purchase** at a discount (Chang et al., 2017). [Status: Difficult to assess]
- Melt Collective should Allow customers who have purchased from Melt Collective in the past the ability to return furniture to get it remodelled, for a fee (Chang et al., 2017). [Status: Difficult to assess]

Formal wear rental

- **Implement a formal wear rental service for UBC students in the UBC bookstore.** The service could start by providing six categories of formal wear: suits for men and for women, dress shirts, tuxedos, tuxedo shirts, and formal dresses. It will be necessary to acquire an inventory of formal wear and establish a process for cleaning and repairing rental items (Fan et al., 2014). [Status: the UBC bookstore does not provide suit or tuxedo rentals. However, graduation gowns and caps are available from the UBC bookstore]
- **Partner with eco-friendly dry cleaners** for the cleaning of rental wear (Fan et al., 2014). [Status: Difficult to assess if current graduation wear is dry cleaned at eco friendly dry cleaners]

Future research

- **Grow and expand the UBC Furniture Reuse Program** (Gondaliya et al., 2024). [Status: Difficult to know if additional funding has been provided since the recommendation was made recently in summer of 2024]
- **Develop marketing strategies to increase public exposure and awareness of the UBC Furniture Reuse Program**, both at UBC and other educational institutions (Gondaliya et al., 2024). [Status: Unlikely given the recency of the recommendation. An Instagram account has been set up, but no posts have been made]
- **Conduct further research on environmental impacts of furniture brands and furniture items**; include brands/items other than IKEA and Wayfair tables, explore alternate scenarios (e.g., beyond a 10-year lifespan, frequent replacement due to high degree of use, etc.), more thorough cradle-to-grave analysis including the transportation of raw materials to the manufacturing sites, production facilities and warehouses (Gondaliya et al., 2024).

[Status: No other reports have looked at the environmental impacts of specific furniture pieces or brands]

- **Modify existing procurement guidelines** to ensure purchasing of high quality, ergonomic and aesthetic furniture (Wong et al., 2022; Wysocki, 2016). Determine how to modify guidelines by exploring practices from other institutions and interviewing stakeholders responsible for procurement. [Status: The UBC Finance Sustainable Purchasing Guide was updated in January of 2023 and outlines criteria for high quality, durable, and ergonomic furniture]

- Explore methods for improving interdepartmental transfers of furniture (Wong et al., 2022). [Status: Difficult to assess]

- Investigate how UBC could engage with furniture buy-back programs (Wong et al., 2022). [Status: Difficult to assess]

- Assess the specific financial costs and benefits of investing in a "furniture transfer network". This analysis should consider 1) how cost savings that are likely to be felt by individual departments and 2) environmental benefits accounting for the difficulty in capturing environmental benefits in standard cost-benefit analyses or profit-loss statements (Wong et al., 2022). [Status: Difficult to assess, no public report on financial costs and benefits is available on SEEDS Sustainability Library]

References

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Appendix A

Barriers that make it challenging to prevent furniture disposal, taken from Kirk (2020)

Barrier	Explanation
Lack of storage on campus	It becomes more convenient to send items to the landfill, harming UBC's diversion rate.
Variance in procurement across departments	Decreases the "standardization" of furniture, or ease of sharing between departments. This limits the ability to reuse across departments, and it also increases the variance in furniture quality we see on campus.
Limited tracking of items or awareness of inventory	Can lead to unnecessary purchases and limits a department's knowledge about what assets they have to utilize.
Lack of disposal tracking	Prevents UBC from knowing exact amount of furniture disposed of, the value of these items and overall cost to the university.
Fiscal year-end spending	Motivates departments to make unnecessary purchases in order to maintain equivalent funding amounts in future years, and increases the furniture sent to the landfill.
Policy UP3	This policy is vague, outdated, not known to everyone and is not mandated. Due to these reasons, there are minimal actions taken to prevent items from going to the landfill.
The cost of time	It takes time to upload items onto ReuseIt! and of an individual to claim the item. Therefore, people often prefer disposal, especially because timeline for projects are often quite short.
Cost of high quality furniture	Many of UBC's preferred vendors sell high-quality items at corresponding price points, which encourages departments to purchase the lower quality options. This decreases product lifetimes and increases disposal rates.
Culture	The belief that new spaces or new staff require brand new furniture increases unnecessary purchasing and disposal rates.
Shifting requirements	- Less need for filing cabinets and bookshelves - Increase in shared office spaces - More desire for ergonomic desks These shifts change the purchasing habits of departments and increase the need to dispose of the old items- many of which are not in high demand amongst campus departments and are often thrown away (i.e., filing cabinets).
Lack of centralization	Savings from "Reuse-it!" ! And Warp It will not be fully realized by the department that has to pay for the online platform - Smaller economies of scale achieved on the ordering of furniture as each department functions separately - Difficulty mandating and monitoring the procedures that take place - Huge variety in aesthetic requirements by departments: minimizes the flexibility of furniture across spaces Overall, these issues decrease the motivation in implementing a project such as this one, and limit the ability to mandate the necessary processes.
Variability in delivery timeline	Due to the range of tasks that the Labor Group (Building Operations) is responsible for, moving cannot always be prioritized. This then delays deliveries, increases the time it takes for individuals to get rid of items, and increases the desirability of sending items to the landfill. Movers may also show up prior to the scheduled time, which can create other issues within a project's timeline.

Lack of paid work to facilitate Reuse	In numerous interviews, it was mentioned that sustainability was "a part of a role" or disposal was "one of many tasks." Therefore, the people who try to ensure that items are reused, simply have to be self-motivated out of the goodness of their hearts, because their hours are taken up with other things, often seen as "more important." Mismatch between funding, and expectations on what needs to be achieved. If people want to correctly dispose, then they also want money, and therefore, UBC has to allocate more budget and roles toward this.

Appendix B

Policy UP3 for furniture reuse at UBC, taken from Kirk (2020)

Policy UP3

DEPT declares project (reno, demo, move).	DEPT ADMIN identifies surplus items early in the process.	Items are officially declared as surplus through formal processes.

FP and or PS receive declaration of the project.

S.E.R.F.

Item relocation.

UBC Dept.

Public Institution.

Charity or Individual.

Landfill.

Legend:
- ...... Outdated
- Items leaving UBC
- ▲ Building Ops involved in the moving process.
- ◣ Building Ops may be involved OR external group.