DESIGN FOR UNMAKING
FACILITATING NEW LIFE FOR THE POST-LIFE OF THINGS

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1. INTRODUCTION

"To unmake waste, we have to unmake the outlooks, values, and priorities that lead to waste."
Design for Life Stuart Walker, 2017, 95

We are quite good at discussing sustainability and social practice in their ideal, in visioning how things could be, sometimes framed narrowly as how things 'should be', but the really messy bits of change involve navigating complex systems, of shifting people and things to grow new social and cultural possibilities within, and out of, what currently exists. They require shifting our values and relationships with objects, both as designers and consumers, and anticipating the social and technical skills, as well as resources and infrastructure, we might need to evolve such new contexts.

This paper presents 'unmaking' as a pedagogical methodology developed through a Master's degree research study at Emily Carr University of Art and Design. Unmaking, as a method, evolved in two directions addressing two sides of the same coin, everyday citizens/consumers and designers. The first, using unmaking as an ethnographic research methodology for understanding the relationship between tacit skills, blackboxing, and agency in everyday citizenry. The second, utilizing unmaking as a pedagogical method for early design education aimed at exploring design's role in facilitating post-life economies for things. The overarching research study explored these two paths to investigate key aspects of our material culture related to sustainability, localization, skilled circular economies, and resilient communities.
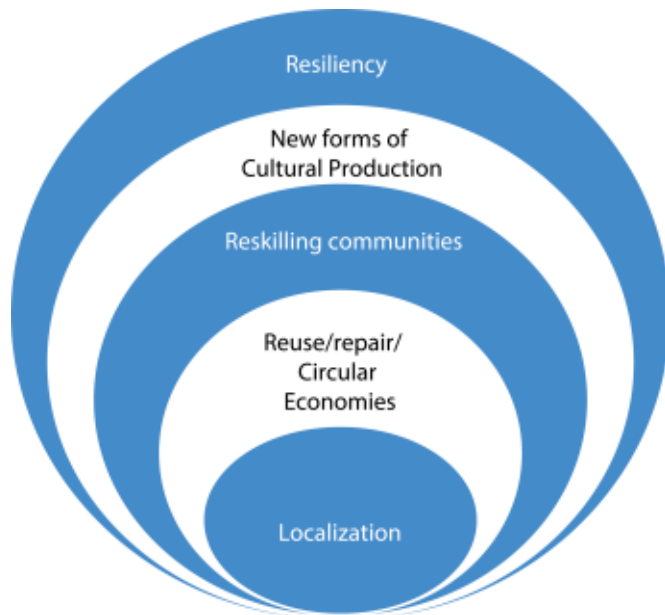

Figure 1. Sustainability Paths Within Localization.

Through the act of unmaking, this work seeks to investigate our understandings of objects, the implications of how they are designed and made and the possibilities for thinking them differently. Unmaking as a pedagogical method for early design education looks to open up design students to investigate new possibilities and understandings for sustainability. The discoveries made seek to frame their path of inquiry as emerging designers for an expanded range of consideration of the post-life of the things they will make and the communities left to deal with them.

2.   DESKILLED COMMUNITIES

According to E.F. Schumacher, as a key strategy for sustainability, it is important to build and develop localised economic ecosystems that, at a minimum, that can satisfy basic needs (Schumacher, 1973, p39). To do this, communities need the core skills base that could enable participation. Ezio Manzini, argues that consumer 'throwaway culture' might be a major contributing factor to the loss of such practical skills and capabilities in people, due to the lack of a need for maintenance, repair, and upkeep of everyday products and services (Manzini, 2015, p95).

It was this loss of skills that the overarching research project was most interested in exploring, opening up questions about the relationship between the loss of skills and throwaway culture and what the contributing factors were to the problem. In order for us to be able to transition toward localisation, reuse and repair economies, core skills development, new forms of cultural production, and potentially circular economies, all which are seen as important milestones for sustainability and resilient communities, it would mean that many (if not most) of our objects, systems, and public policies would have to be redesigned to aid that transition (Manzini, 2008; Thackara, 2017; Walker, 2017, Scruton, 2012).

Currently our systems, policies, and products do not support such a transition, and it is no more evident than by looking at the impact the ban on plastic exports to China is having on recycling exporters all over the world. If we cannot effectively recycle something arguably as simple as our own juice boxes, when we start to consider complex consumer electronics and appliances, we can see there is much needed work to be done (Freytas-Tamura, 2018).

The Unmaking project seeks to have a serious dialogue about the agency that we have lost through blackboxing in consumer culture of our systems and the objects we are surrounded by. It seeks to investigate the observed gap between a person's sense of agency and their capabilities to act in more sustainable ways. Through a series of hands-on 'Unmaking' workshops the project leverages our relationship to waste electronics and appliances as mode of exploration to discuss ideas around design and sustainability. As a last stand, it gives these poor discarded objects one more chance to be useful.

3.   THE UNMAKING WORKSHOP

As an ethnographic participatory exploration, The Unmaking Workshop uses discarded objects, be they electronic or otherwise, as a vehicle to engage participants with simple tools, disassembling them into their smallest possible components. The workshops are intended to start a conversation around agency, capability, and blackboxing within everyday objects.

In the participatory ethnographic research stage of the project, workshops were held at three locations in Vancouver, Canada - DESIS Lab at Emily Carr University of Art + Design, Makerlabs, and Simon Fraser University. After a brief introduction and provocative framing questions, and an orientation to best practices for safety, participants engaged in the unmaking (i.e. taking apart) of a wide variety of everyday objects, from small household appliances, toys, textiles, computers, phones, printers, among other things with some very basic tools provided which included Phillips head screwdrivers, a few sets of pliers and wire cutters.

Figure 2. DESIS Lab Unmaking workshop.

Participants were then asked to consider the object in front of them, and while taking them apart, discuss the experience through facilitated dialogue. The methodology of Unmaking sparks curiosity, and curiosity is used as a driver for inquiry. The process presents an element of risk and uncertainty, but offers in return the promise of discovery. This process of discovery builds confidence and contributes to the development of skills for resiliency, understanding, and engagement with sustainability.

Based on the discussions, experience, and reflections of participants in the workshops, Unmaking lowers a barrier to engagement and opens up curiosity with the objects and appliances around us. This process helps reverse engineer our perceptions of these objects as previously impenetrable, potentially dangerous, and sometimes precious objects. Unmaking, as a tacit learning tool, reveals much about how our objects are made, but also reveals aspects about ourselves that we did not anticipate in the onset. When taking things apart, we are faced with new questions about our habits and assumptions about our own capabilities and understandings of the things we use daily.

4. BLACKBOXING

"Why is it so difficult to measure, with any precision, the mediating role of techniques? Because the action that we are trying to measure is subject to blackboxing, a process that makes the joint production of actors and artifacts entirely opaque."

Bruno Latour, Pandora's Hope, 1999, p183

We are surrounded by blackboxes. We handle them every day in our smartphones and laptops, our electronic appliances, and even increasingly in the cars we drive to work in. The complexity of the inner workings of these technologies are invisible and in many instances the only aspects we can actively engage with are their inputs and outputs. Bruno Latour suggests that as our technologies become more complex and sophisticated, they also become more 'opaque and obscure' (Latour, 1999, p304). Blackboxing refers to the opacity that has been designed or built into processes, objects or systems.

Most people do not know how a smartphone works, they just do, and when they stop working we have to replace them or seek professional help as we do not have the skills to diagnose and repair them. The idea behind the blackboxing of our devices is that we, as a community, do not have to worry about how our everyday objects work, where they come from, how they are made and what their implications are for us or the environment. This is more overtly evidenced in the use of proprietary screws that only special tools can open, present in many of the technological objects we are surrounded by, from our blenders to our smartphones. When one looks back at the last thirty years of product development, it is easy to see the vast differences in how things are made and which of the many little daily tasks we have systematically removed for ourselves, and while these conveniences have certainly made things easier, they sometimes correspond to a loss of tacit skill and understanding of how things work.

We are now so incredibly reliant on technology to do simple things for us that when these technologies fail we are seemingly lost. Albert Borgmann states that "the trend in contemporary culture that becomes visible when you look back 150 years is that the environment we have constructed mitigates against comprehension and competence" (Badke, 2009). Borgmann also posits that while striving to create conditions for ourselves to make things easier, we do not often stop to consider the possibility that maybe some things should not always be made easier, in order for us, as a community and arguably society, to maintain our sense of agency and our capability (Borgmann, 2003). There was a time when it was possible for us to change the oil in our own cars and the RAM in our PC's, but as technology becomes more complex, our ability to tinker and try our hand at maintaining and repairing things, has largely been reduced.

The ethnographic workshops were aimed at exploring these ideas about deskilling and agency by taking apart some of these technological blackboxes in order to discover where we are situated in our understanding on the implications of these technologies and discuss how we might move forward to reclaim our ability to act and what other skills we might need to navigate these complexities.

A key issue identified in the research is not necessarily resistance to living or designing for more sustainable lifestyles, but a possible lack of understanding or awareness about the sometimes limited the range of possibilities designed into our products through specialized and single purpose or proprietary components, composite materials, and fused parts. These are important considerations, both in terms of the resources and energy involved in their production and eventual disposal, but also importantly the ways in which design and engineering decisions can limit the post-life potential of products and the capacity of citizens to be involved with new sustainable practices and economies at the end of life of the things we throw away.

The ethnographic workshops when ran exclusively with designers at varies stages of their education or careers opened up many questions about the kinds of future waste that are designed into our products, as well as the role design can play in either opening up or closing off citizens from a post-life engagement with things. The rich discussions and sometimes personally transformative discoveries made in the workshops led to the researchers to ask what value this method might have when integrated into the early education of designers and if it might break some of our status quo design patterns and engage a long-term path of inquiry and framing towards designing a more sustainable life and post-life of things.

5. UNMAKING AS A PEDAGOGICAL METHOD IN EARLY DESIGN EDUCTAION

This section introduces and elaborates on the pedagogical approach of this work and how it can be situated within the education of designers. The Unmaking workshop once again engages participants in

the unmaking of technology, but this time with student's learning design. Pedagogically this workshop takes a constructivist approach in which learners' activities, when facilitated in a group setting, connect and overlap with several conceptual frameworks that relate to how we learn and absorb information. Constructivism refers to the process in which "individuals form or construct much of what they learn and understand" through doing it themselves and embedded within this approach the process connects to discovery learning, inquiry based learning, cooperative learning or peer assisted learning (Bruner, 1961).

Figure 3. DESIS Lab Unmaking workshop.

6. LEARNING THEORIES

Utilizing a constructivist (transformative) approach to learning, the goal of the workshop is exploratory and experiential. This is a component of learning that Stephen Sterling argues for as essential for sustainable education (Sterling, 2001, p38). Discovery learning is a variation of inductive reasoning that come from engaging in experiential, problem based inquiry, in which the learner participates in formulating their own ideas and rules. Inquiry based learning is a variation of discovery learning and suggest that a learner engages in an activity, deriving questions and then attempts to answer them. These two frameworks connect to a cooperative learning process in which learning happens from engaging peers in discussion that may or may not relate directly to this activity, but acquire knowledge by intuition within a group setting (Bruner, 1961).

Acts of unmaking and learning can be understood as a collaborative practice, which requires critical engagement with others in the process, providing an opportunity for early designers to engage with emerging issues that are deeply relevant to their future practice. Furthermore, through this contextual collaborative exercise, a value based practice can be initiated by hosting an active discussion with each other in relation to sustainability, materiality, purpose, and disposal, before even engaging in the act of design. According to Jerome Bruner, discovery learning sets up a foundation for insight and critique and therefore cognitive engagement with design and making as a practice (Bruner, 1961). In an expanded conversation within the context of this workshop it sets up a platform for problem based learning by discussing the implications and the future of the object in front of them, by simply asking *'what now?'*. This immersive tacit learning experience can help students situate themselves within the problem space relative to the larger ecological issues associated with designed artifacts, and orient their practice/research toward new transitional paths, hopefully sparking curiosity and questions about how to participate in the undoing, or unmaking, of what has been done.

7. SUMMARY OF UNMAKING

It is important to note what this method of inquiry is, and is not, trying to achieve. Taking apart everyday consumer objects, and exploring their 'innards' is not about an attempt to try and understand their functional workings, reverse engineering, or even make attempts at the repair of these items. Repairing contemporary technology is a specialized vocation and requires specialized knowledge of circuitry, faultfinding, parts sourcing and replacement, all of which there is currently very little infrastructure to support such practices. The complexity of these objects is shrouded with secrecy and hidden inside the beautiful black boxes we surround ourselves with.

The core research project was aimed at investigating how design and development decisions can often limit our agency to act, reducing our role to passive consumers and not people and communities who could participate more actively in the objects they live with. Unmaking as a method, when situated within the context of a design education at a formative junction, such as the foundation or first year of a design degree or diploma program, offers a way for emerging designers to deconstruct some the ideas around making technology and objects. The workshop facilitates a discussion around concepts and thinking around materiality, design for disassembly, tacit understandings of lifecycle, etc., and starts a path of inquiry with designers to explore the environmental and social impact of their work. Importantly, this thesis explores an expanded range of concerns surrounding the role design might play in enabling the agency of citizens to take on a more active role in environmental sustainability and the development of potential mitigation strategies.

Integrated within an early design course aimed at introducing ideas around materiality, consumption, sustainability, and design culture, Unmaking could be used to facilitate hands on tacit exploration of concepts in sustainability. Unmaking, coupled with cursory research on components, could ground discussions through a lens of resource use, manufacturing processes, and to understand the way we currently design and make things, hopefully opening up discussions around possibilities for, and barriers to, alternative end of life strategies.

This is an important segue into the relationship this process might have to exploring longer term strategies toward increasing localization, reuse, repair and conceptions of circular economies, new forms of cultural production, and resilience, all of which would require skilled/reskilled communities to be able to implement them. This process aims at starting design students down a path of consideration as to what the post-life or objects could be and what new forms of infrastructure and citizen skills we would need to facilitate such cultural shifts.

This Unmaking project, in both its pedagogical and ethnographic outcomes, is ultimately about understanding what might be needed to create an enabling environment for citizens to be able to move toward the ability to act and participate in the post-life of things. On a philosophical level, it is important to discuss the ideas around our relationship as designers to the conception of these objects, as well as the roles of manufacturing, engineering, communities, and individual consumers. Unmaking gives us the opportunity to pause and think about our contributions toward the materialization of these objects and their eventual end of life and what role everyday citizens could play in a substantive move towards more sustainable material economies.

Figure 3. Unmaking a printer.

8.   DESIGN FOR UNMAKING

The seemingly simple nature of this project facilitates a very accessible way to engage in an enabling activity that activates participants to open up about their relationships to everyday objects. These workshops are a platform for having a candid experiential conversation about the implications and impacts of designed objects in the world and our complicity to their existence.

A key problem identified in this project, is not necessarily people's resistance to living more sustainable lifestyles, but possibly the lack of understanding or attention paid to our belongings in the built environment, the resources and energy involved in their production and eventual disposal, and having a sense of value or attachment to the things we encounter in our everyday lives. The Unmaking workshop offers affordances, affordances to look at these objects from a different perspective, from the inside out through a lens of curiosity. It gives us an accessible way to check our assumptions about the designed world of objects and systems around us. Through our hands we can have a discussion with each other about who we are and who we would like to be when it comes to the way we use our resources. The hope is that unmaking might serve as a mediator between thinking and doing and a tool to explore our agency and capabilities.

Design for Unmaking is a long term transitional goal of the work, a path for thinking and designing for the post-life of things and the communities of people who might be able to use, reuse, and creatively recreate economies of useful goods in the afterlife of designed objects. Considered from a community and a design perspective, what social and technical skills and infrastructures will we need to grow to enable circular economies and what changes in our design priorities have to shift to facilitate such a systemic shift.

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