

ALTERNATIVE WORKSPACES

Changing Where + How People Work

Scott A. Wilson

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◀ Figure 01 Nomadic Workscape (Above)

Abstract

The modern workspace is constantly evolving; what is in store for the future of how and where we work? Workspace creators need to provide a variety of activity landscapes intended for specific activities, and accessible to all. One size, one design, does not fit all!

This thesis explores possibilities of connecting generations by transforming the traditional workspace to accommodate the ever-blurring boundaries between the workspace, hospitality spaces and the home spaces with the infusion of sophisticated modularity. Four generations contribute to today's work environment including Baby Boomers, Generation X, Generation Y and Post Millennials. All of these generations have different expectations, values and motivations about their work environments. How can we become attuned to this emerging generation of workspace users, who often have very different ideas about how work should get done?

Moreover, this thesis analyzes the integration and emphasis of work/life balance, workspace flexibility and user wellbeing, reinforced ideas generated through an open design processes, and explores how co-creation can facilitate the diffusion of innovation within an organization's common workspaces known as lounge space. This thesis builds upon an existing product portfolio of office furniture by implementing human centered design through co-creation, and finding inspiration for innovation through heuristic methodologies in order to inform design decisions.

With an emphasis on workspace ideologies and theories, exciting propositions based on design principles and workspace psychology, such as the incorporation of sophisticated modularity, lounge-as-office principles, prioritizing play, and supporting working happy, provide interesting insights into this research. This collection of artifacts provides functional and flexible characteristics while being attractive enough to be enjoyed outside of workspaces.

KEYWORDS: Creative Workspace, Workspace Culture, Work/life Balance, Modular Furniture, User-centered design, User Choice, Human-centered Design, Open Design, Ergonomics, Activity Landscapes, Nature, and Wellbeing



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Introduction

The focus of my inquiry is a two-year research project on the design of physical workspaces that accommodate an infusion of sophisticated modularity as participants in a culture that sees ever-blurring boundaries between the workspace, hospitality spaces like hotel lobbies, bars, cafés, and home spaces. Current cubical workspaces dehumanize users, creating a static workspace landscape affecting moral and creativity. Krippendorff (1989) describes how form and meaning are intrinsically correlated, saying “something must have form to be seen but must make sense to be understood and used” (p. 14). This thesis explores alternative workspaces that give choice to the user while integrating a stronger sense of working culture, modularity and natural environments.

The distinction between three key terms, – *workspace*, *workplace*, and *alternative workspace* – is fundamental to this research.

WORKSPACES

In the traditional sense, a workspace is a place to work, typically using a task-chair and a horizontal surface, which may be enclosed in a built environment or by walls, commonly referred to as a cubicle.

ALTERNATIVE WORKSPACES

The alternative workspace is a series of artifacts that create a multifunctional, multimodal space where people gather, have a degree of control over their physical setting, and conduct daily tasks.

This research primarily investigates workspace as defined above, and not the entirety of a physical building envelope, commonly described as workplace. This distinction is made in regards to design concepts, such as the open-office movement and co-working spaces. These elements are important references within office design; they are not, however, the concentration of this thesis dissertation.

WORKPLACES VS. WORKSPACES

As noted above, workplaces are the physical building envelopes of where work is conducted. Workspaces are the curated hubs within the built environment that allow workspace users to

conduct their tasks individually or in collaboration. Workspaces as described in this thesis are not assigned to one individual, but are part of an active landscape that promotes workspace variety and user choice. The right ensemble can be wonderfully felicitous for creative work, but each element has certain affordances and constraints that affect the interplay of artifact, environment and user.

This thesis is written with the goal of promoting alternative workspaces. A strong emphasis on heuristic methodology, overlapped with human-centered design, reinforces the foundation of this of design outcome. However, alternative workspaces are not for everyone and may not fit every work style. The goal is to educate, cultivate conversation, set precedent and build on the movement of where and how people work.

The modern workspace is constantly evolving; creating and sharing new knowledge is, therefore, an essential requirement that workspace users need to embrace. An emphasis on people in relation to workspace design and strategy are critical to the effectiveness of the organization they work within. Further development is needed in order to kindle social interaction by improving the flow and vibe of workspaces holistically. Moreover, the consideration of users’ wellbeing, and work life balance need to be significant factors in workspaces design

PROBLEM STATEMENT

Most traditional organizations struggle to implement alternative workspaces that accommodate the ever-blurring boundaries between the workspace, hospitality spaces and home spaces.

THESIS STATEMENT

Through a combination of heuristic design and human centered design methodologies, this thesis advocates for the viability of alternative workspaces that promote user wellbeing, balance and a unique perspective on workspace lifestyle.

DESIGN OBJECTIVES

Through primary research and case studies, the project creates a series of workspace artifacts and contributes to the growing discussion on design for alternative workspaces.

THE TORCHBEARER'S CALLING

The future is a formless void,
a blank space waiting to be filled.
And then a Torchbearer envisions a new possibility.

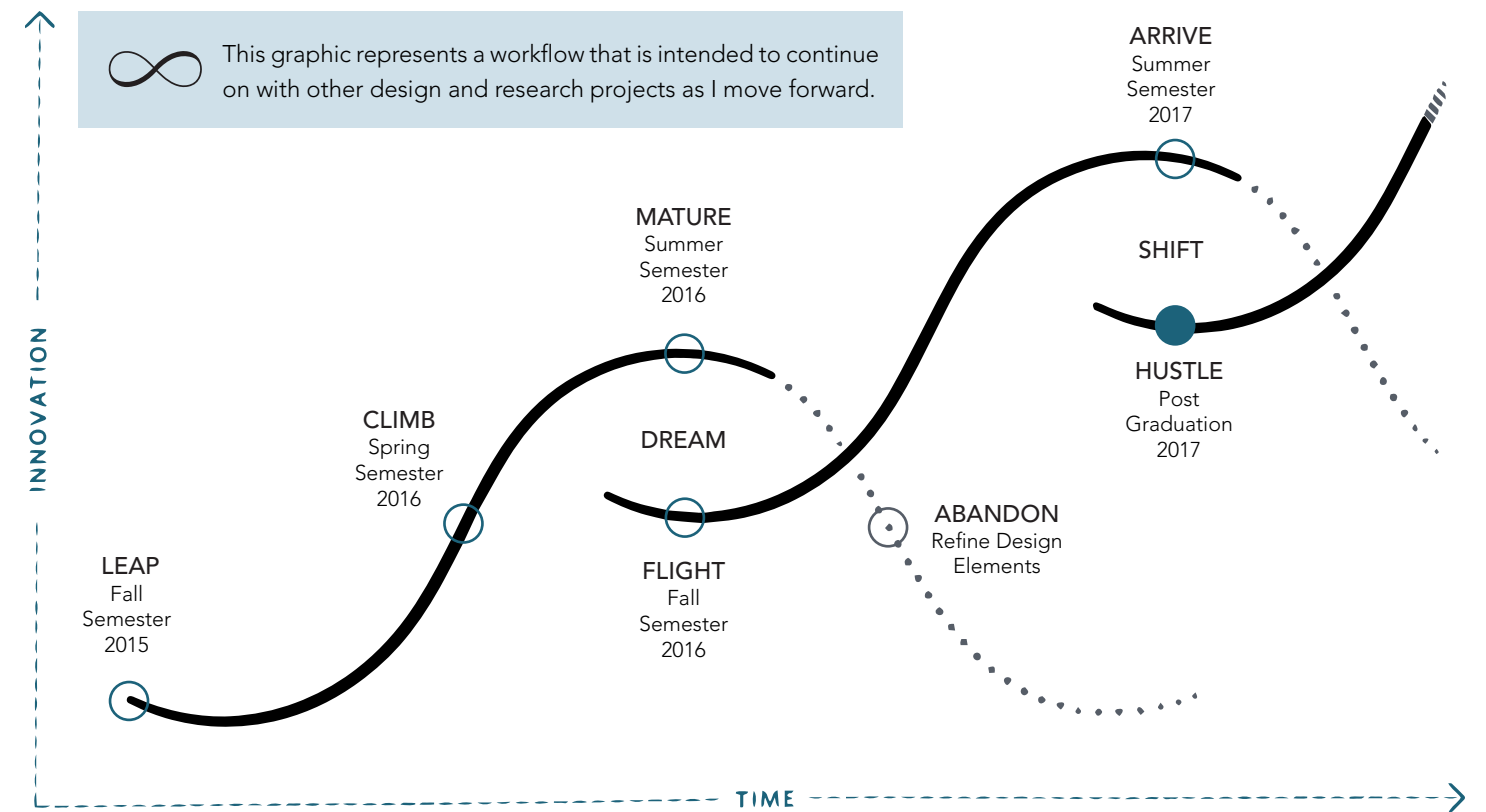
That vision is your dream, your calling,
and it burns like a fire in your belly.
But you can't create the future alone.
You need Travelers to come along.

Yet the path through the unknown is dark and
unclear.

You have to illuminate the path for travelers.
Torchbearers communicate in a way that conquers
fear and inspires hope.

Some say being a torchbearer is a burden. Some
say it's a blessing.
Either way, those who light the path are the ones
who change the world (p. 7)

Durate (2016)



▲ Figure 03 Innovation of Research Timeline

LEAP | FALL 2015

I attended Emily Carr University of Art and Design to broaden my perspective and gain new research and design skills, to better communicate my design intent. The focus of the fall semester included orientating myself within an academic setting and beginning to build a framework for workspaces by determining appropriate methodology.

CLIMB | SPRING 2016

The theme of spring semester included a focus on making by emphasizing old skills and exploring new approaches. This included developing a significant amount of ideation studies while producing low-fidelity prototypes. A paradigm shift away from designing inclusively for millennials becomes apparent and aided in the transition of the research.

MATURE | SUMMER 2016

The summer afforded excellent opportunities to travel and expand my independent research in broader contexts. Chicago laid a framework for current trends and innovation, while Milan created conversations about my own research, but also gave me insights into how others research and design. These probes created momentum for planning and executing a series of dynamic co-creation activities.

GROW | FALL 2016

The ability to learn quickly and adapt, significantly influenced my research and design endeavors. With great momentum from the co-creation workshop and driven by human-centered design outcomes, I began to heavily explore via fabrication by making a series of integral alternative workspace components that reflected the ethos of the primary research and heuristic insights.

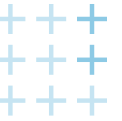
ARRIVE | SPRING 2017

I have reflected on and revised my design practice throughout my research in order to achieve depth of understanding and criticality towards my work. The written component—this thesis—bridges the gap between theory and application, combined with innovative design intent. The work not only communicates to the users I have designed for, but has evolved my own knowledge of designing thinking.

HUSTLE | POST GRADUATION 2017

My life as a designer and my design practice has manifested to new horizons and I now feel like a contributor to the Emily Carr design community. I have gained so many insightful and welcoming connections, and I intend on cultivating and expanding my design network through my passion for design. These research and design provocations are intended to create conversations about all types of workspaces and I aim to be an advocate and representative of the alternative workspace.

◀ Figure 02 CNC Horizontal Screen Malfunction



Inspiration + Motivation

Workspaces have always had a magical and poetic quality for me... Space design has consumed me for most of my adult life as I endeavor to enrich my life through design practice and methodology. My design background stems from the built environment, with a degree from the industry-accreted bachelor of interior program at Kwantlen Polytechnic University (KPU) in Vancouver, Canada. My training and hands-on experience has given me the opportunity to design a multitude of hospitality-influenced spaces including resorts, casinos, restaurants and retail spaces. My aim is to harness the knowledge that I have acquired and direct my expertise into functional alternative workspaces that enhance the workspace and workspace culture.

As an emerging multi-disciplinary designer in the built environment, I have spent thousands of hours in what most people would call the prototypical workspace. The daily grind of working nine to five, five days a week in a static seated position is simply an unbearable habit; society and decision makers, however, too often choose to accept our place and make do, while yearning for more. I have struggled with this for the last ten years as I have acknowledged the toll this style of workspace has taken on my body, spirit and mind. Most disheartening as a designer of the built environment is recognizing we are provided with and inherently have access to so many wonderful resources; we are the first, however, to under appreciate our training in our own design practice workspaces.

The concept of practicing and developing gratitude and empathy are at the core my design practice; I am grateful that I have the outlet to be a voice and advocate in offering a unique opinion about the workspace. Both of these qualities are contributing factors to the methodology and theoretical framework of this thesis. The aspirations of my research, though, will not be for everyone or every work style; it would be irrational for everyone to work in the way that I am proposing.

An aspiration of mine is to be part of a team of individuals advocating for change in and altering the traditional philosophy of workspace culture, building off previous notions and modifying the ways we create physical objects for our workspaces. I believe you have to love where and how you work in order to gain fulfillment and meaning in your every day work life.



▲ Figure 04 Research Triangulation: Workspace, Lounge-as-Office, Work Culture



Ideology of Work

This chapter suggests principles and theories, some unexpected or counter-intuitive, that could play a role in creating a great workspace. Sociologist Van Dijk (1998) states, "the philosophy and sociology of science tell us that old theories and approaches are seldom discredited because they are explicitly proven false or inadequate" (p. 4). Because I believe the way we think about modern work is flawed, I am introducing ideas that might unsettle traditional ideologies of work, rather than trying to prove those traditions "false or inadequate" (Van Dijk, 1998, p. 4). By approaching the ideology of work from multiple angles, including my own past experiences and self-reflections, I hope to develop a design solution that discredits traditional systems, while providing solutions and alternatives. I reflect on situations and experiences that I have encountered in the workplace, and am left wondering, why do we work?

I am not going to pretend that I know how to immediately fix the way we work. I am determined, however, to create an avenue for discussion. I have built upon and developed a series of narrative assemblies of thoughts that provide a unique perspective on how we, as a collective group, can work.



THE WORKSPACE

Workspaces should not be static; they should have life, and should evolve over time. My ideas behind the workspace revolve around the notion of not spending significant amounts of time in one resting zone. Such environments as *active workspaces* that evoke innovation and creativity through physical stimulation while blurring the lines between work, life and play. I propose that workspaces can inherently encourage user interaction by providing choice regarding physical setting, maintaining ultimate flexibility through move and sophisticated modularity, and having an integral connection with nature. In such a scenario, *the workspace* is the physical artifacts that populate the eco-system of the built environment, harmoniously working together.



THE WORKSPACE IS NOT

Here, by workspace, I am not referring to the traditional desk and ergonomic task chair; there are new technologies and consequent innovation in the workspace. This new workspace is not assigned exclusively to one person, but is part of a community that encourages interplay between inhabitants. It is time to redefine the role of the workspace in today's world. Ultimately, the workspace is not a stereotypical office, but part of a lifestyle of work that reinforces the engagement of people, leading to innovation, creativity and productivity by providing a new platform.

WORKSPACE PRINCIPLES

A shift in how society views workspaces is needed. The following proposed concepts begin to develop a framework based on psychological and physical elements that can be used to evaluate workspaces. My aspiration is to contribute to the workspace conversation and advocate change regarding workspace culture and workspace design. My reflections are divided into three categories:

WORKSPACE: PHYSICAL TRAITS

- | | |
|------------------|--------------------------|
| Lounge-As-Office | Sophisticated Modularity |
| Neighbourhoods | Integration With Nature |
| Third Place | |

WORKSPACE: PSYCHOLOGY TRAITS

- | | |
|---------------|--------------|
| People Matter | Empathy |
| Work Happy | Gratitude |
| Flow | Being a Host |
| Play | |

WORKSPACE: EVENTS

- | | |
|-------------|---------------|
| The Welcome | The Charrette |
|-------------|---------------|



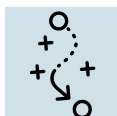
LOUNGE-AS-OFFICE

The traditional way we work needs to change; the desk and task chair is not always the answer. What about a lounge workspace that performs like an office? Imagine a fresh workspace that is constantly changing and growing, infused with elements of hospitality and memories of home. The lounge-as-office is fundamentally welcoming to everyone, while maintaining a distinct DIY feel. The dominant intention of such a space is to create choice within a flexible work environment, while practicing and evolving as a holistic entity. Horizontal workspace surfaces are shared, and engage people in an alternative way. My lounge-as-office paradigm aligns with new technologies such as cellphones, tablets, and laptops, while adapting to change. The setting is most likely shared space, with DIY environments configurable to the task at hand. The lounge-as-office works to create a conversation about how and why we work; it is meant to be a community for like-minded individuals that make up alternative work environments.



NEIGHBOURHOODS

Building upon fundamental urban design planning principles defined by Lynch (1960), workspace designers can consider edifiers such as paths, landmarks, edges, nodes and districts within the social arrangement of workspace artifacts (p. 99). If we start to draw ideas from the urban realm and translate those ideas into the urban work environment, the results can be quite startling. As an example, a dearth of landmarks in the workspace environment could be resolved by a simple trolley stocked with nourishing provisions and beverages that moves around the workplace nomadically in hopes of creating connections and dialogue between people. For Gehl (2010), “urban structures and planning influence human behaviour and the ways in which cities operate” (p. 9). The same conclusion could be made about workspaces in relation to artifacts. Neighbourhoods are an overall planning consideration; however, they have a strong correlation to the artifacts that ultimately make up the workspace.



THIRD PLACE

The concept of the *third place* is about creating personal experiences that enhance the quality of the built environment. Simply, third places are places we spend time outside of home and work (Oldenburg, 1999, p. 42). These spaces address the needs of individuals by enhancing social interaction, creativity and holistic wellbeing, which are also integral to any workspace. Oldenburg (1999), author of *The Great Good Place* suggests, “most needed are those third places which lend a public balance

to the increased privatization of home life” (p. 6). Encouraging user choice, social opportunities and embracing place are important attributes to refresh, invigorate and recharge people in workspaces.



SOPHISTICATED MODULARITY

Modularity is receiving increasing attention as a means of managing complexity and designing flexible organizational and technological systems (Ethiraj & Levinthal, 2004, p.2). Again, it comes down to user control. Sophisticated modularity is about allowing for agile and refined changes in the workspace to allow for flexibility as to when, where and how a person will work, so they can work effectively. This type of workspace furnishing gives people the opportunity to have several workspace components that all work together, but that have the ability to subdivide into smaller segments that can be independently used in different furniture or accessory configurations. This flexibility can allow companies to have dynamic workspaces, adapt to growth fluctuation and create working communities. Finally, while sophisticated modular systems are complex, they can also be easy to use through a series of user-friendly adjustments and settings.



INTEGRATION WITH NATURE

There are lots of ways to bring natural elements into the workspace to influence mood, performance, and health. Biophilic design, as described by Kellert (2008) is the term used to describe an “innovative approach that emphasizes the necessity of maintaining, enhancing and restoring the beneficial experience of nature in the built environment” (p. 1). I am an advocate of letting the outdoors be art by creating living feature walls and otherwise integrating vegetation where possible. Workspace designers can find inspiration in *Biophilia*, which explores the innate human urge to seek connections with nature, creating an instinctive bond between human beings and other living systems (Wilson, 1984, p. 22). Artifacts within the built environment can incorporate natural elements that seamlessly unite, while improving functionality and contributing towards the aesthetics of an overall space. Kellert (2008) provides great insight when describing attributes of the evolved human-nature relationship specifically on change and metamorphosis:

Change is a constant in both natural and human systems, reflected in the process of growth, maturation, and metamorphosis (Bloomer 2000). Many powerful designs capture this dynamic and developmental quality where one form or state appears to flow into another in a quasi-evolutionary sequence. (p. 13)

The change and metamorphosis attribute can contribute to an overall design brief in two distinct manners. Firstly, a cross-pollination can be fostered between nature and human-centered activity. Secondly, a supportive environment can support change and keep evolving.



PEOPLE MATTER:

By understanding peoples’ physical and emotional responses to their working environment, workspace professionals can design and deliver positive experiences that support better organizational performance. As such, it is important to build a framework and purpose for people within organizational workspaces. Here, *purpose* refers to narrative storytelling based on creating experiences within the workspace that benefit the people that work within them. This requires a shared vision between organizations and the people who comprise them. The people element refers to creating opportunities for people to grow within an organization, outside of conventional means. An example of this strategy is for organizations to consider work secondary to the people within the organization, and to demonstrate this through workspace experiences or workspace culture.



WORK HAPPY

Working happy is subjective to every workspace user, but incorporating small personalization can provide immediate impact to an overall workspace experience. Ideally, seating allows workspace users to feel relaxed and work comfortably for heads down tasks. Workspace users, who take small breaks, go for a walk, play table games, or read a chapter of a book come back to work refreshed. Integrating cultural artifacts and relevant accessories, such as objects, writings or artwork, inspires work while giving a sense of home. This can be further supplemented by an organization also incorporating artifacts that have significant meaning to the brand and culture of the organization. Furthermore, by providing youthful obsessions such as old-fashioned puzzles, found objects, classic toys or other tactile things, people can be working with their hands when they need a break.



FLOW

Being in the flow is fully immersing oneself by inherently assimilating the best of one’s focus and full involvement while incorporating enjoyment intrinsically and aligning oneself in the path of least resistance. Murphy (1996) defines flow regarding

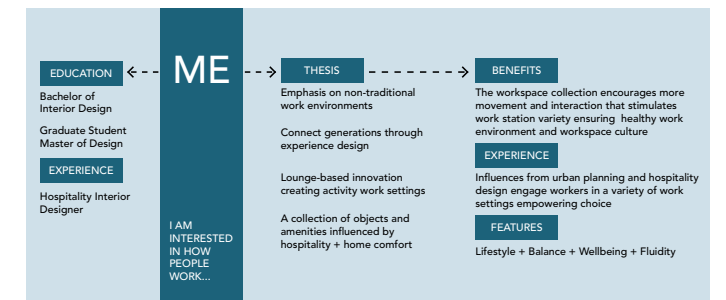


Figure 05 Research Flow Diagram

high performance athletics as “a magical and special place where performance is exceptional and consistent, automatic and flowing” (p. 4). Establishing flow in the workspace helps users to achieve an optimal experience, finding balance between work/life opportunities by allowing reflection and action to coexist. While people cannot enter this attuned state at will, they can master the basics of a series of tasks in order to be prepared to experience it when it happens and to yearn afterward to return to that state (Csikszentmihalyi, 1998). Creating opportunities through workspace design that accentuate these characteristics is important to the physiological element of creating a desirable workspace.



PLAY

Imagine a workspace where play is encouraged, where, play is vital. Play, in my definition, is simply having fun, being joyful and feeling energized. Although usually associated with the young, play is an engaging, fun and safe means to explore and experiment with the unknown for people of all ages (Mainemelis & Ronson 2006). These characteristics suggest that there are plenty of benefits to establishing play within the workspace. The opportunity to play suggests that people are valued and contributes to a balanced work/life scenario. Potential outcomes could lead to more engagement, collaboration and increased creativity, leading to overall workspace happiness. Workspace design can encourage a sense of play through adding play-specific elements, or even through allowing workspace users control over their spaces so that they can incorporate their own sense of play into the spaces they use.



EMPATHY

Without an understanding of what people feel and experience, design is a pointless task. Thinking about the ways people work is just as important as considering the physical spaces in which they work. An empathetic approach is needed to understand what people need to enrich their routines regarding their working environment and work/life culture. Demonstrating empathy takes commitment to harnessing awareness and understanding and to putting others first.

“The pleasures of relaxed chat, of casual conversation, encourage the ethnographer in everyone” (p. 23).

Sennett (2012)



GRATITUDE

The act of practicing gratitude can contribute to the success of people within an organization. In correlation with *working happy*, the maintenance of a state of relentless optimism by concentrating on solutions, and seeing all possibilities in any situation, contributes to happiness and success. *Gratitude* includes embracing change, and the unknown, and situating oneself by helping others find ways to show their talents through change and disruption. Maintaining an authentic welcoming approach by embracing an open, generous and collaborative atmosphere is integral to work culture and the workspace.



BEING A HOST

Being a host originates from the hospitality sector, as well as from within our own homes. In this exploration, the focus is on the philosophical study of the moral obligations that hold in hospitality relationships and practices. Simmel (1950), describes “the stranger as an organic member of the group;” hospitality is about compensating and equalizing strangers to the host, making them feel protected and taken care of, and at the end of the hosting, guiding them to their next destination. Treating all guests in the same manner provides a dynamic and interesting quality to the workspace, reiterating the comforts of home. Bell (2005) suggests, “as new technologies are adopted and adapted in the home, they both change and are changed by the social relations that they mediate, and thus, it may be useful to think of design for the home as, in some senses, a social and political act” (p. 2). Comparing the workspace to home creates an interesting intersection between private and public spaces and the theory of emphasizing the workspace user’s ability to choose within a work environment.



THE WELCOME

In correlation with being a host, a good first impression can create significant fond memories in your workspace. People who feel appreciated tend to stay around longer. The organization can initiate this by making the first gesture of cordial exchange. For example, new people might be given a welcome box filled with objects indicating that the people who make up the organization are happy that the new individual is joining them. A welcome box might consist of: a personal welcome letter, branded merchandise, a map of the organization, a copy of the company’s mission and vision and a personalized orientation schedule. The program could introduce a binder with everyone in the organization’s personal biography and photo to help new

people get to know everyone better. Essentially, this welcome package acts as a creative toolkit to help new people get through their first few weeks of work. Martin (2012) describes creative toolkits as a means of conveniently packing the elements of any participatory method (p. 48). This welcome kit is first and foremost welcoming, but also indoctrinates users into a way of thinking, values, how much fun they will have and what to expect on their new journey. These actions take planning and resources, but are essential to the growth of individuals at any organization.



THE CHARRETTE

A charrette is an intensive planning session where people collaborate on a vision for development. These events can range from community-based projects to improvements around the workspace, and work by creating insight by exploring types of empathy experiences, predicting potential solutions, and finding opportunities to leverage workspace content. Martin (2012) describes a charrette as a creative space provided for a multidisciplinary group to come together and generate potential ideas for a project. Charrettes also create opportunities to invite members outside of the workspace community to participate or lend their own knowledge. Furthermore, the workspace community that hosts the charrette benefits from improving communication and morale, helping employees to get to know each other better, and learning about group members’ strengths and weaknesses as a result of the charrette.

In conclusion, these foundational principles are a starting point for examining the workspace, and provide a platform from which to break down the current state of the office environment. The combination of physical traits, such as the integration of nature; psychological traits, such as working happy; and workspace events, like regular charrettes, establishes a framework to build upon and measure primary research moving forward. These narratives support goals and initiatives of this thesis project by outlining scenarios where people can be at their best in the workspace, and are meant as a starting point to be expanded upon and to allow the reader to cultivate their own viewpoints about workspaces.



Theory + Application

The workspace has evolved dramatically over the last few years and is now one of the most innovative areas of the built environment. Previous models emphasized public place; these models lacked, however, the same creative approach for communal and task based work areas. In addition, there is a growing belief in the importance of work areas as social spaces and dissolution of barriers between work and recreation. My demonstrations, based on theory, intend to find alternative approaches capable of making the twenty-first workspace a better environment for people, with a more dynamic atmosphere. Workspace ideas and inspiration have been sourced in some unlikely places, and are represented here through a series of case studies. Workspace design solutions will triangulate the design process, identifying key cultural insights, ensuring user choice, and integrating nature into the workspace.

My furniture collection creates a unique experience that evokes a sense of playfulness, creativity, and excitement; it allows cluster activities for like-minded people allowing curiosity, modulation and growth to stakeholders and creates a vehicle for participation and generates excitement as a brand lifestyle.

Alongside key insights and integration, a combination of heuristic design and human centered design methods were used to increase the viability of alternative workspaces in the built environment. This can be compared to the process of Jiménez Narváez (2000), described as:

A design project is not only a plan or willingness to act; it is the action to project oneself, and it requires two fundamental aspects: understanding the design problem and the act of developing an idea and defining what needs to be done with respect to social aspects. (p. 7)

The consideration of the problem of reshaping workflow in the built environment demands further understanding of the traits of work culture, user choice in workspaces the incorporation of natural elements and workspace flexibility. Jiménez Narváez suggests a design process through the following four strategies:

1. Thinking about doing, which refers to the design process and project.
2. Thinking about how to do, which refers to technological production problems and technique.
3. Thinking about the dependence on doing, the financial and productive submission of design.
4. Thinking about what needs to be done to achieve institutional and social change. (p. 7)

Jiménez Narváez's strategies of design set the framework for a design-based solution, using case studies combined with key goals such as identifying key work culture insights, ensuring user choice, nature and emphasizing the flexibility of workspace.

The interplay of workspace and work culture creates community within the built environment. A community's work culture is based around the principle of group harmony, creating a unique work lifestyle. Infusing hospitality into a work culture with an emphasis on *being a host* is an integral pillar of a successful workspace. Complimentary to hospitality, lounge-based innovation sets a casual tone in the diminishing classical workspace hierarchy, and emphasizes community and knowledge sharing. Lastly, work/life balance aids in knitting the workspace atmosphere together, as it reiterates the importance of life, work, and play.

LIFESTYLE BRANDING IN THE WORKSPACE

The true essence of lifestyle is about storytelling and engaging with people in a conversational way. In order to create a successful lifestyle brand, organizations work to create narratives that are so compelling to people within the workspace, that they want to enrich their lives by working in an environment that is inspiring and resonates with their own values.

WORK/LIFE BALANCE

Balance between work duties and everyday life signifies the extent to which people experience feeling fulfilled and having their needs met in both work and non-work facets of life. Through experiencing greater work/life balance, people generally feel better, with greater job and life satisfaction, and tend to behave

in favourable ways that in turn lower turnover and absenteeism. This balance can be encouraged by incorporating self-enriching activities on paid company time, such as initiatives at Hootsuite described by CEO Holmes (2015):

Exercise in the office isn't a new idea. But it's such a clear win-win—in terms of health, morale and productivity—that I think it deserves to be put in the spotlight once more.

Arguably, the actions of senior leaders are heard and observed by people that work for them. Self care, as an act of balance within work/life, is one contribution to the overall replenishing of body, mind and soul. Optimistically, decisions, policies, values, and expectations in the workspace support people in work/life balance choices. The furniture collection I have developed promotes layout must be able to expand and contract according to a organizations needs, enabling workspace users to enjoy the flexibility, comfort and convenience of a circuit of artifacts that promote user interaction and wellbeing.

Creating a positive work environment is one thing; creating a positive workspace is another thing entirely. Desk and task chair alone are not enough: we need workspaces that can handle different functions. The workspace is becoming more complex and will require conversations about how to optimize it. Making a decision, with the amount of choice that we now have in the workspace, is truly an important component of when considering a holistic work environment. More and more, organizations require spaces to meet a variety of different types of work and needs. Concentrations on encouraging the development of workspace identity, using a plug-and-play approach and



▲ Figure 06 Nomadic Workspace, Integration of Nature

considering new standards in ergonomics are critical factors to consider in the design of workspace furniture.

PERSONAL IDENTITY

Visual expression is perhaps one of the most exciting attributes for celebrating a workspace user's identity within the built environment. When carving out three-dimensional space, Rengel (2008), frames and values identity as a key project driver:

Identity refers to the embodiments, in tangible ways, of the qualities that distinguish a particular person or group. You can think of it as the physical manifestation of the entity's personality. The identity may be real or ideal. (p. 257)

Years of research have been dedicated to furthering knowledge in the fields of consumer behavior. Personality, self-concept and lifestyle choices help further define consumers' patterns and preferences. Based on popular consumer behavior traits, Rengel (2008) suggests the following character analysis:

1. Actual self-image: or how people actually see themselves
2. Ideal self-image: or how people would like to see themselves
3. Social self-image: or how people feel others see them
4. Ideal social self-image: or how people would like others to see them
5. Expected self image: or how people expect to see themselves at some point in the future. (p. 258)

Allowing the end user tools to create an individual environment

will reinforce self-expression. However, a careful line must be walked in the allowance of creative freedom. Rengel best describes this with the following example:

There are many factors that contribute to a project's personality and, therefore, many considerations that have to be made to decide how to externalize identity. The topic of identity and its expression in design is complicated and sensitive. (p. 258)

PLUG-AND-PLAY

Plug-and-play aspects of the workspace can accommodate individuals as well as team configurations and allow for easily made changes within the configuration. This feature allows for an individuals or team identity to come to the forefront in an effort to stimulate and incorporate ideal work styles, technologies, organization, and aesthetics. Furthermore, the movement of *plug-and-play* originates from DIY (do-it-yourself) culture, and allows easy or simple modification to an object in order to enhance workspace environment. This, then, allows both the designer and the user the freedom to creatively arrange a simple modular system to create individual designs.

SOPHISTICATED MODULARITY

Studies show that organizations that offer workspace flexibility have less absenteeism and turnover, and higher levels of engagement and productivity. Again, it comes down to control. Sophisticated modularity, or design based on easily interchangeable parts, is about the ability to make agile changes in the workspace to when, where and how a person will work. This feature allows workspace users the opportunity to have several components that all work together, but which can also subdivide into smaller segments that can be used independently or in different configurations. This allows companies to have dynamic workspaces, adapt to growth fluctuations and create working communities. Finally, sophisticated modularity allows for a complex system that is easy to use through a series of user-friendly adjustments and settings.

ERGONOMICS

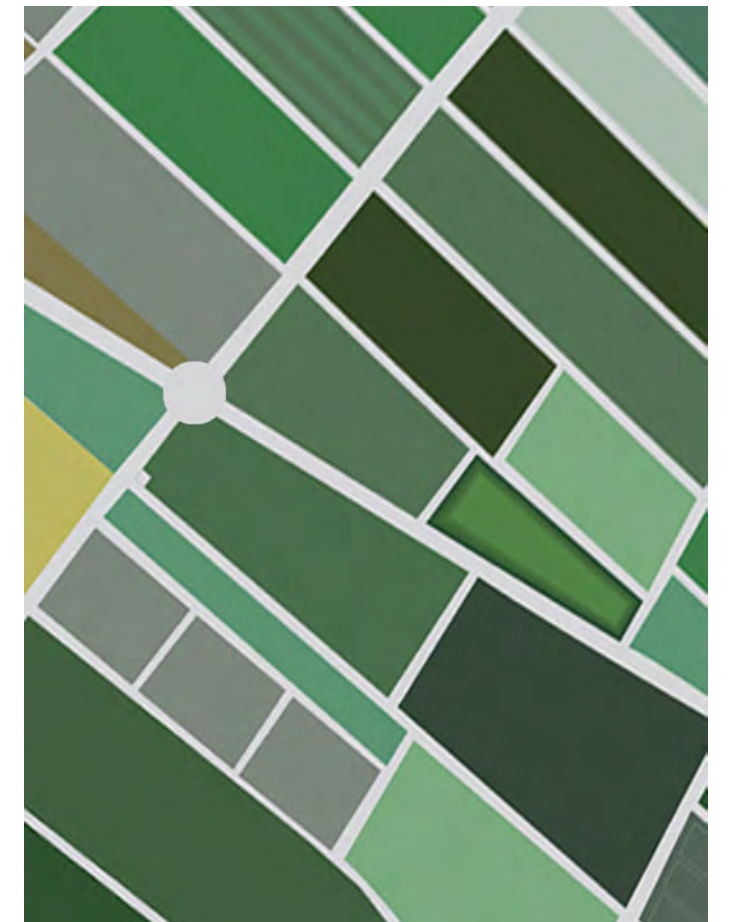
Ergonomics and human factors play a significant role in workspace design and the overall health, safety and wellness of the people that work there. My observations indicate that published physical ergonomic standards are out-of-date, due to rapid changes in of technology and the way work is done on a day-to-day basis. New work style postures and working conditions need to be inspected and documented. The ability to adjust and modify settings easily are critical to semi-casual work settings. Ergonomics are now about mapping the interactive nature of changing technology, and the ever-changing built-environment, creating interplay between physical science and providing users a variety of choices.

URBAN PLANNING

Urban design is concerned with the arrangement, appearance and function of our suburbs, towns and cities. It is both a process

and an outcome of creating localities in which people live, engage with each other, and engage with the physical places around them. Urban planning principles can be an effective planning tool for workspaces. Chopovsky's (2014) research has shown that the use of quantitative information can help organizations optimize their spaces in ways that positively reinforce their overarching mission, and accommodates their unique work styles. Urban physics has the power to transform workspaces to reflect companies' true ethos and values, to instill a sense of belonging in employees, and to encourage productivity, engagement, and overall happiness. The physical attributes of urban spaces, such as paths, edges, landmarks, nodes and districts can provide create a strong correlation to workspace design and the social arrangement of people that work within it.

Whether considering the workspace in terms of organizational culture or ideal workspace infrastructure, these theories should inform any disruption of workspace traditions. Organizational culture can be shifted to foster work/life balance, or emphasize lifestyle branding. Workspace infrastructure ideals can be informed by well-trodden paths in urban planning, ergonomics, sophisticated modularity, plug and play aesthetics, or displays of personal identity. In chapter eight, I present my own solution to the tired desk-and-chair workspace with furniture that incorporates the above theories, allowing workspace users to pursue workspace goals discussed in chapter 3, such as getting in the flow, being happy, and acting as a host.



▲ Figure 07 Urban Pathways, Edges, Nodes, Landmarks, and Districts

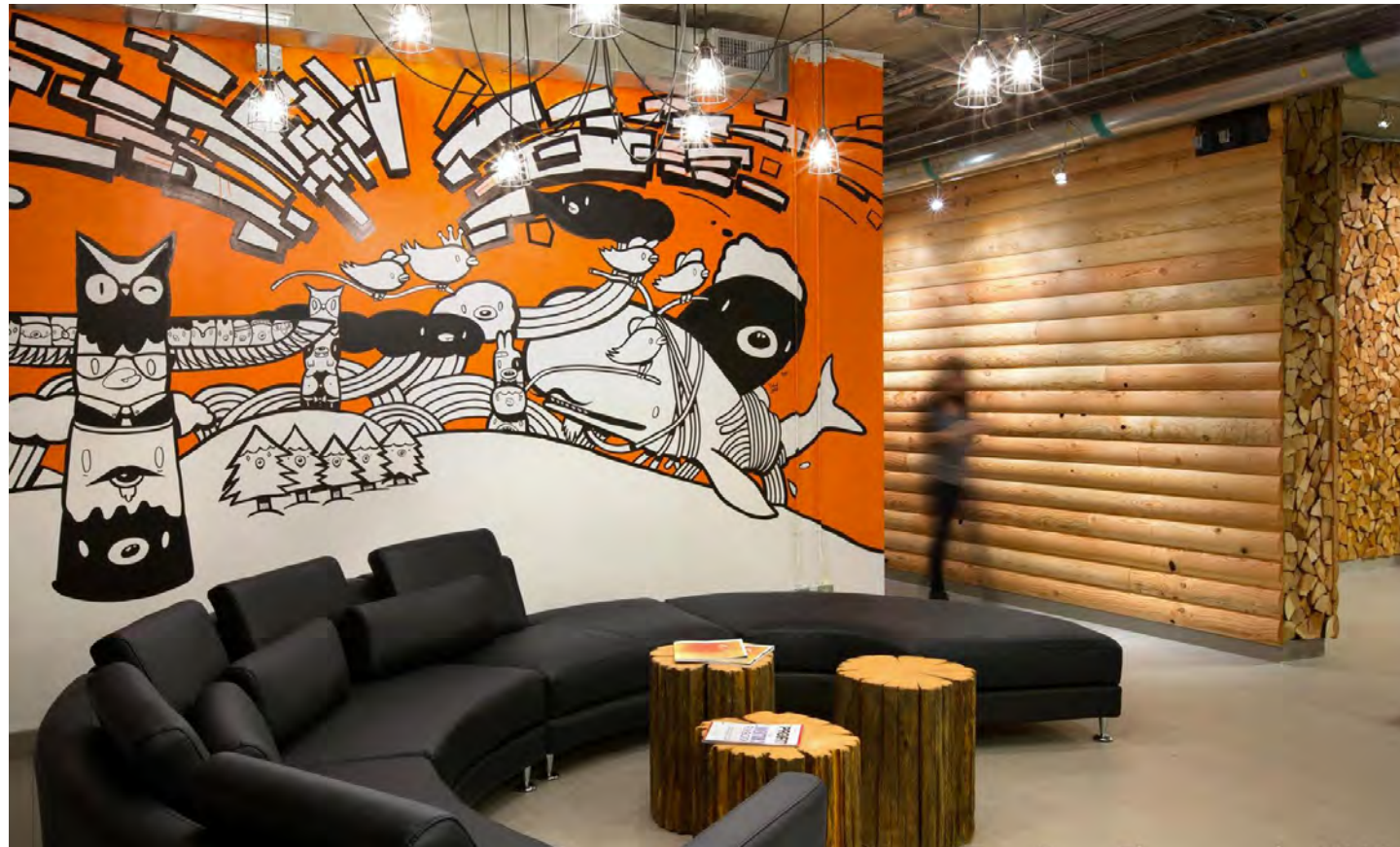


Case Studies



In order to be able to investigate the problem area of workspaces and have more input for the project, a series of case studies have been introduced to provide further insight into the literature review. Each case study builds on the foundation of physical characteristics of space combined with work culture as described in the literature review, while developing a relationship within the context of the local community. My research has given me the opportunity to explore three different cities: Vancouver, Milan and Chicago. These cities provide different working cultures, but highlight similarities in how alternative workspaces may be perceived.

◀ Figure 08 Studio Urquiola



▲ Figure 09 Hootsuite Headquarters, Reception

VANCOUVER, CANADA

Vancouver is a metropolitan city known for its rainforest-wrapped beautiful coastline and stunning glacial mountain ranges while also embracing multiculturalism and community. Vancouver is also my home city, where I work and study. Vancouver presents some promising examples of innovative working environments that have the ability to inspire people and begin to change the way people work. Vancouver is also coming to the attention of the technology sector as a viable location for start-ups, regional offices and headquarters. One example of an innovative organization and workspace is Hootsuite headquarters in Vancouver.

HOOTSUITE HEADQUARTERS

The common spaces at Hootsuite's corporate office embody the spirit of lounge-based innovation, combined with elements of a Pacific Northwest aesthetic that integrates the warm characteristics of a cabin-in-the-woods look. The use of natural, organic elements include log cabin walls, tree stump artifacts and the playful use of large tents to create meeting rooms. Furthermore, the combination of found objects and graphic murals creates a charming west-coast style throughout the workspace. Hootsuite uses large communal workspaces, clumping large densities of people together. From a work culture and interior design perspective, Hootsuite clearly understands the importance of supporting workspace users mentally and emotionally, at work and at home.

MILAN, ITALY

In correlation with my experiences in Vancouver, this past summer I participated in the XXI International Exhibition of the Triennale di Milano, hosted in Milan. The Triennale included Liminal Labs – an internationally networked exhibition and working studio space, which consisted of select undergraduate, graduate, alumni and faculty participants. Focusing on new crafts, Liminal Lab participants exchanged ideas on creativity and open innovation processes, while discovering the nuances and intricacies of Milan. The substructure and context of the urban realm lead to unexpected moments of relief throughout the neighbourhoods and districts in Milan. Three notable destinations included 10 Corso Como Café, the Moleskin Café and Patricia Urquiola Studio.



▲ Figure 10 10 Corso Como Cafe

10 CORSO COMO CAFÉ

This complex features a unique blend of place: part bookstore, part garden café, part workspace and part boutique hotel. The rich composition features designs blurring the boundaries between nature and architecture, outside and inside, with this blurriness appearing to be a fundamental concept and model for this space's success.

MOLESKINE CAFÉ

This space was derived from a value system that prioritizes culture, memories, and exploration, emphasizing lifestyle and the actives that consume us. The most notable feature of the space is its connection to an analogue product – the high quality Moleskine notebook. A variety of comfortable seating configurations reinforce working with Moleskine products in an analogue setting, while limiting connectivity to technological devices. The space also offers comforts of hospitality and home spaces.



▲ Figure 11 Moleskine Café in Milan



▲ Figure 12 Urquiola Workspace Furniture

URQUIOLA STUDIO - MILAN - ITALY

It is not necessarily Urquiola's studio that is impressive, but the quality of her recent work related to the comfort of home and the workspaces that resides in her studio space. Urquiola's work in furniture design is widely known to be playful and poetic, yet pragmatic and functional – a creative combination that is the magic behind her work. She comes and goes through conventional time – rethinking, reinventing, and creating new. The effect is a powerful reminder of the past and exploration into the now, always creating a new experience for the user.

CHICAGO, UNITED STATES

In order to test and gather further insight into my research and my own perceptions, I attended an international commercial interior design fair that primarily focuses on corporate environments – the NeoCon 2016 conference, held in Chicago. As a first time attendee, I gained many industry connections that lead to stimulating conversations about design and my thesis work.

NEOCON CONFERENCE 2016

NeoCon is a commercial interior design conference that focuses on vertical markets such as workplace, healthcare and hospitality design. Here, all major workspace design companies release their newest workspace trends and design takeaways begin to come to fruition. The major advancements displayed at the 2016 conference were: colour as a captivating trend, movable lounge pieces for breakaway spaces, and workspaces that aimed to improve wellness and enhance creativity. The conference also allowed me to informally interview lead global research and workspace strategist O'Neill regarding achieving flow in the workspace. Furthermore, attending NeoCon allowed me to validate my research and design responses through my observations, conversations and experiences while in Chicago.



▲ Figure 13 NeoCon, South Lobby at the Mart

These case studies aid in the triangulation of the theory and application described in chapter four, and gave me first hand experiences of being in an unknown place. I have tried to expand my horizon of what I know, and develop a deep interplay between theory and experience. These experiences ultimately helped contribute to my own research framework and built up a foundation of reputable theories, values, studies and experiences to contribute to my knowledge base on making and workspace culture.



Research

In order to gain insight into what workspace users value, and how alternative workspaces might be designed to take work culture, user choice, and the integration of nature into account, I conducted qualitative inquiries by organizing a large co-creation session with strategic activities. The methods deployed included brainstorming, artifact analysis and prototyping, with participants cycling through these activities twice. The group of seventy-eight participants included interior design faculty and students at various levels. Workshop participants, who had a diverse background outside the research area, were given a primer presentation on workspace research before starting the activities. This research was further supplemented by my own heuristic methodology in an effort to explore practice-based fieldwork, which will be discussed in Chapter 7.

KWANTLEN POLYTECHNIC UNIVERSITY CO-CREATION WORKSHOP

This co-creation exercise provided insight into workspace users' needs and values, as explored across my research journey. The co-creation programming was extensively planned and tested using my peer cohort before the workshop was conducted on September 8, 2016. The cross-pollination of heuristic and human centered methodologies shows evidence of intersection during my fieldwork.

OBSERVATION AND INSIGHT

The intention of this three-part study was to identify a human centered design approach in order to interrogate my own preliminary findings. Here, by human-centered design, I build upon the approach that Brown (2009) of think tank IDEO's uses as a creative process that starts with the people you are designing for and ends with new solutions to suit their needs. Information was captured in multiple forms in order to create a dynamic set of qualitative data. A summary of each brainstorming, artifact analysis and prototyping activity can be reviewed in can be reviewed in the appendices: pages 57-58.

On September 8, 2016, I conducted an informal verbal questionnaire of the workshop participants. The single question asked participants, on a scale of one to five, "What

is the importance of workspace design?" with 1 indicating less important and 5 indicating more important. Survey results demonstrated that participants value workspace design as having a 4.5 level of importance, with many participants indicating 5.0 as the level of importance.

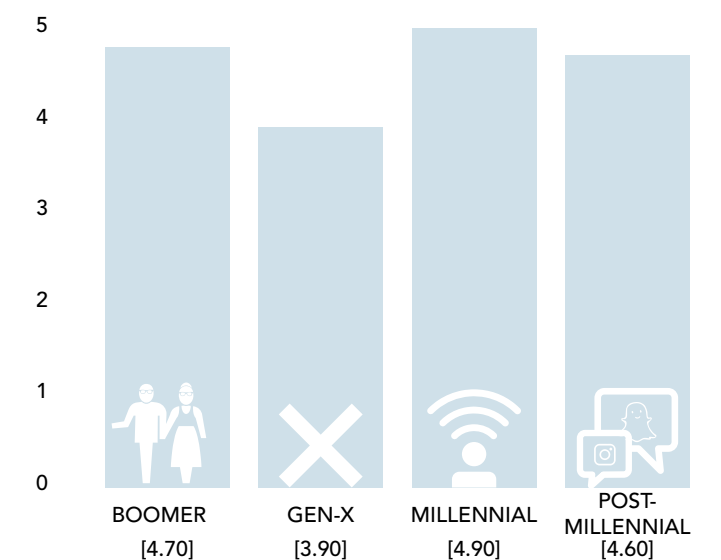
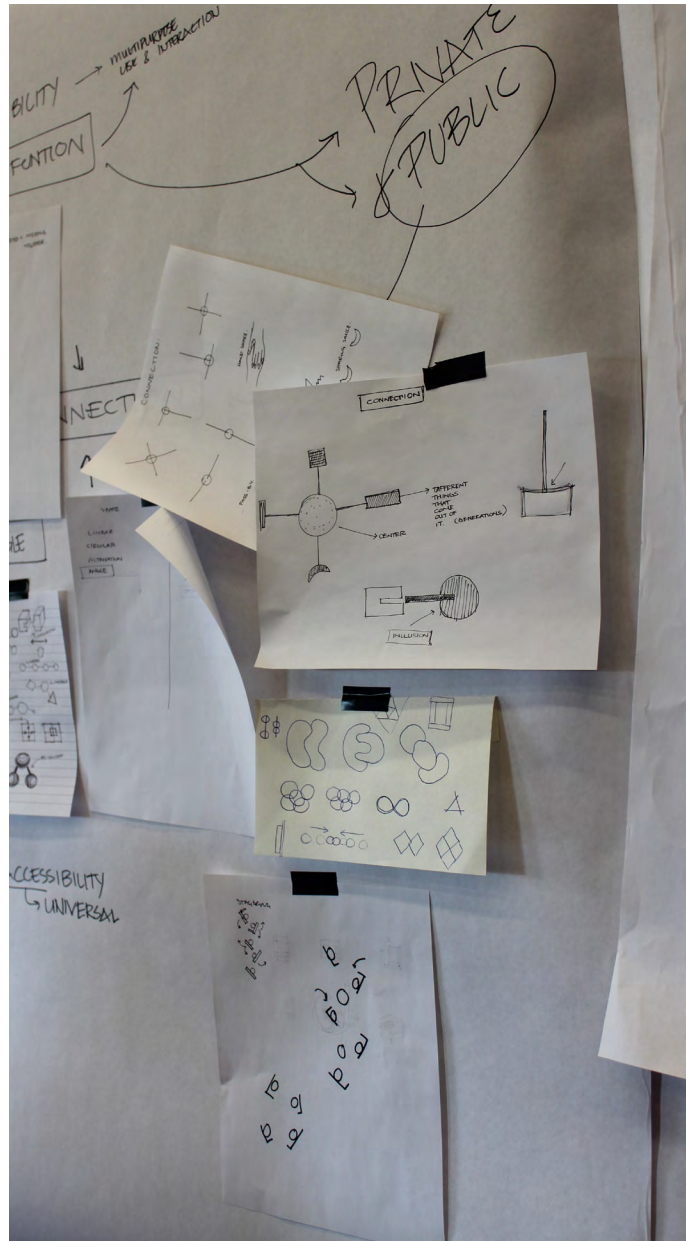


Figure 14 Importance of Workspace Questionnaire

When reviewing the generated work and conversations, my main goal was to discover patterns in the language and context. These narratives were described through words, diagrams, drawings, body language and conversations. The co-creation data highlighted the following prevalent themes in how participants valued workspace choices:



Figure 15 Patterns in Workspace Language



▲ Figure 16 Participant Brainstorming & Process

An unexpected outcome was the variety of different working positions participants engaged in while involved in the workshop. Participants adapted the workshop space with less uniformity than I expected, and used a wide range of seating options such as sitting up, lounging or sitting in a relaxed position, lying down, kneeling, squatting, sitting cross-legged and perching halfway between sitting and standing. The curated workspace landscape that I provided gradually morphed throughout the day as participants made the space their own. The structure of the space went from a clean, rigid configuration to a working incubator for design ideas. I was quite intrigued by the participants' natural approach to the environment and the materials and objects that made up the space. A general theme appeared, as many participants collaborated and learned in networks or swarms. The main conclusion I drew from this exercise is that we need several different positions for working in, and should move away from training people at an early age to always remain seated.



▲ Figure 17 Participant Workspace Conversations

My approach to the workshop was to encourage participants to communicate in whatever manner best supported them. Participants were able to write on the tables or on the walls, which had been covered in craft paper. The tables could be reconfigured to any position, with everything mobile and on wheels. This process was inadvertently validated by the spontaneous response of one participant, who explained that the user experience of the workshop achieved a sense of play fostered by the removal of barriers and encouragement of creativity. The primary outcome – that multiple resting positions must be provided for – is essential for a good working environment. After reviewing the video footage of the workshop and reflecting on field observation notes, I would argue that the session had an energy which reflected productivity evidenced by people working together, combined with a sense of fun, non-competitiveness, and non-hierarchical approaches. The energy of the workshop was in part encouraged along by the fact that participants had the freedom to move and rest their bodies in various ways of their choosing.



▲ Figure 18 Participant Workspace Prototyping

Lastly, as a welcoming and hosting measure, music softly played in the background of the session; music selection also had an effect on the performance of participants. In the morning, the music selection was curated to resemble a hospitality setting, such as a hotel lobby, with smooth jazz creating a calming and soothing atmosphere. The result was a serene playfulness in participants' attitudes, with participants staying fairly organized. In contrast, in the afternoon session, participants were invited to select the music, which ended up being top-40 and popular choice. The result of the afternoon session evoked an energy in the form of playful chaos, however, the participants were very focused in their activities.

PROCESS KNOWLEDGE

The participants' approach regarding making and the design process developed into an overlying theme. No matter how many times I communicated, "make before thinking" participants continually planned and strategized their actions in a concentrated effort. This development was surprising and not surprising at the same time. Personally, I would have enjoyed observing more participants letting go of their natural design tendencies and using a making first approach. A creative disruption point was scheduled into the program by allowing participants and teams to establish a new composition or respond and add to a previous group's design work and process. The general consensus was that this design variable added to the experience of the workshop by enriching the quality of work. While this aspect of the workshop did not go as I planned, it reinforced the idea that, overall, we need to allow people to work in the way they determine they need to work, and not create rules that force them to work in some other way.



▲ Figure 19 Workshop Set-up and Launch



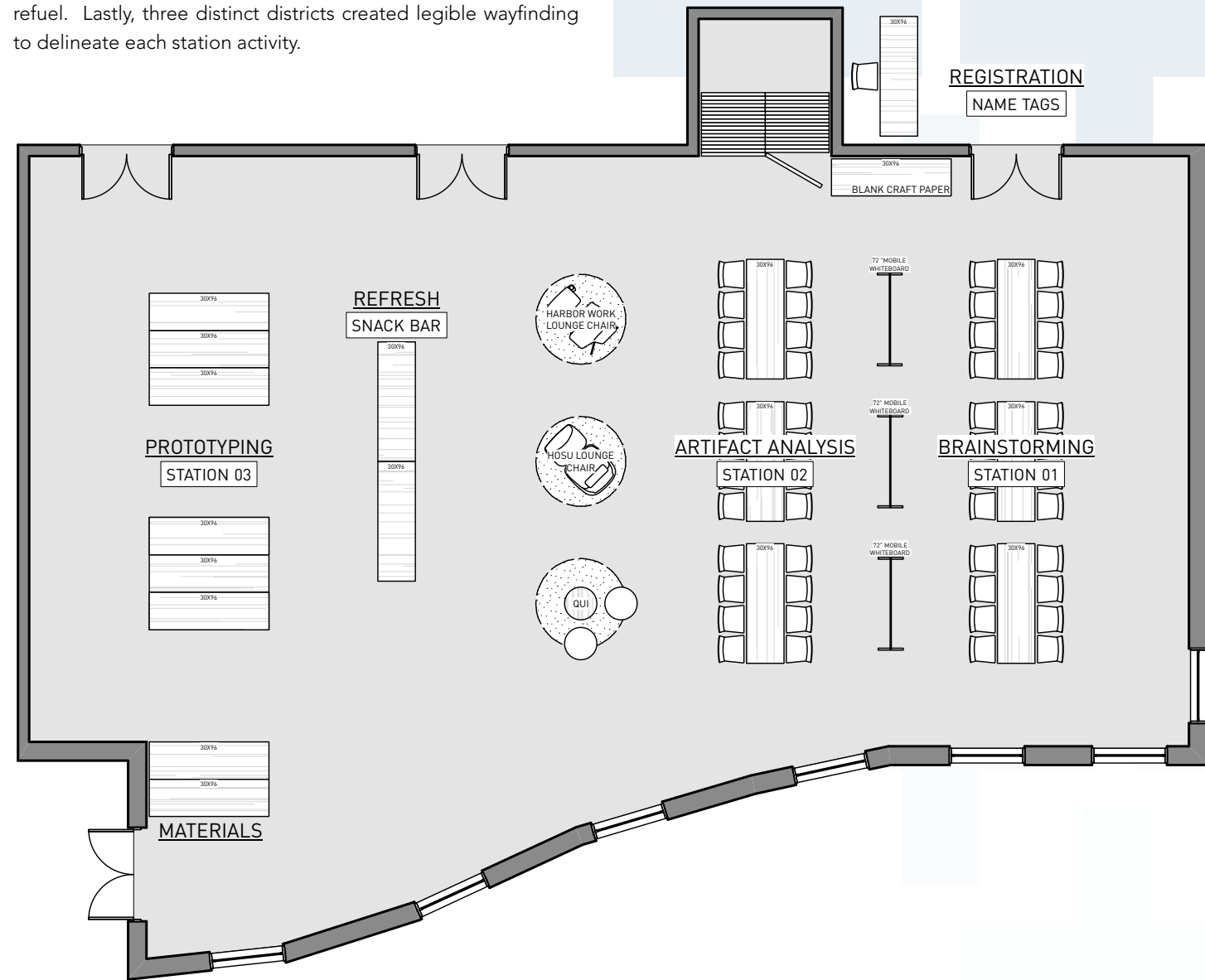
▲ Figure 20 Participant Brainstorming & Process



▲ Figure 21 KPU Workshop Set-up & Layout

DESIGNING THE WORKSHOP

The workshop space was planned to reflect basic principles of urban planning including nodes, pathways, edges, landmarks and districts. The term *nodes* here indicates temporary communal clusters intended for participants to congregate around and share ideas. *Pathways* are simply the negative space allotted for people to circulate through the various stations. *Edges* are both vertical and horizontal, allowing participants to communicate with multiple approaches. A refresh-and-refuel *landmark* allowed participants to continually stay hydrated and refreshed throughout the workshop. Various healthy and non-healthy snacks gave participants choice on how they want to refuel. Lastly, three distinct districts created legible wayfinding to delineate each station activity.



▲ Figure 22 KPU Workshop Floor Plan

Evaluating my own process, planning and execution of the co-creation session is an important form of deconstruction for my own self-reflection and progress. Organizing an event for 78 participants can be cumbersome, as well as, extremely rewarding. I faced challenges with inter-agency politics stemming from differences between the two universities that I applied to for research ethics approval. The process was long and strenuous, however, I learned how important clear communication is when writing such applications. I have gained insight on how long co-creation activities can last; a three hour maximum session (preferably in the morning) tended to have the best results. Lastly, co-creation needs a great supporting cast, and I am grateful for all the support that I have received to date.

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Schedule

Wednesday September 07 3:00pm - 4:00pm

Emily Carr University of Art +Design's graduate researcher Scott Wilson will present a half-hour workshop primer disseminating his research: Workspaces in Transition - Connecting Generations. The seminar will serve as a design briefing to inform potential participants of the value and intrigue of the workspace research. The Workspaces in Transition research specifically will be valuable to first, second and third year students in preparation for the third year office design studio project. Four years students will gain valuable insights and narratives suited for their final studio capstone project. Voluntary registration for the participation of the research workshop will follow the seminar and will be open for approximately 30 minutes.

Seminar Presentation: 3:00pm - 3:30pm
Participation Registration: 3:30pm - 4:00pm

Thursday September 08 9:00am - 4:00pm

This study is a participatory design workshop featuring three stations (brainstorming, artifact analysis and prototyping) that participants will cycle through two times. The Brainstorming station will spur creativity through group member collaboration exploring workspace's attributes, think quality over quantity. The artifact analysis station will allow participants to engage with leading office furniture manufacture's latest lounge-based solutions by reviewing, analyzing and critiquing in constructive manner. The physical prototyping station will allow participants to build, to think and develop a physical representation of an artifact(s) related to workspace design. All of these stations allow teams to establish a new composition or respond and add to a previous group's design work and process.

Workshop Session #1: 9:00am - 12:00pm
Lunch (TBC) - Catered: 12:00pm - 1:00pm
Workshop Session #2: 1:00pm - 4:00pm

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Artifact Analysis 02

Description: Artifact Analysis

A systematic examination of the material, aesthetic, and interactive qualities of objects contributes to an understanding of their physical, social, and cultural contexts. The emphasis of artifact analysis is on the object itself. Artifact analysis asks: what do objects have to say about people and their culture, time, and place? The researcher is attempting to understand the substance of the object and what it says through its material, aesthetic, and interactive qualities. Material observation and analysis addresses the quantitative inventory of artifacts in the environment under study, and such defining characteristics as the material composition, function and performance.

Exercise + Task:
In your assigned teams: interact, experience, observe, analyze and describe the featured office furniture configurations. Create and develop a strategy of communicating the strengths and challenges of each furniture artifact by considering how the furniture relates to lounge-based innovation and connecting generations.

Artifacts:

- Harbor Work Lounge - Haworth
- Lagunitas Lounge Seating - Coalesse
- Qui - Teknion Studio

Learning Outcomes:

- Information gathering + analysis
- Illustrative sketching
- Communicate clearly in writing
- The relationship between human behavior + the built environment
- Ergonomic + human factors data
- Reflect on your own experiences

Provided Supplies:

- Surfaces: various post-it notes, letter paper, audit + analysis guide
- Writing tools: various sharpies + fine pens

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▲ Figure 23 KPU Workshop Schedule
▲ Figure 24 Brainstorming 01 Activity
▲ Figure 25 Artifact Analysis 02 Activity
▲ Figure 26 Prototyping 03 Activity

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Brainstorming 01

Description: Brainstorming Graphic Organizers

Beyond creating lists of ideas and concepts, brainstorm graphic organizers help in the creation of new knowledge by visually structuring a deep dive into a problem space. Brainstorming has traditionally been used to spur group creativity with the intention of generating concepts and ideas regarding a specific challenge. "Go for quantity over quality," "withhold judgment and criticism," "build on each other's ideas," and "welcome oddity." The intention of these guidelines is to create a safe forum of expression and a free association of creative ideas by providing a judgment free-zone to explore new concepts. By using this framework, new knowledge and meaning can emerge, with the added benefit that the rigor of this workspace brainstorming session is visually-documented.

Exercise + Task:
In your assigned teams: create a visual framework using brainstorming webs to develop a central concept that communicates how workspaces 'how people work within space' are transitioning in the built-environment. Consider the potential impact of trends in hospitality and home design, consumer behaviour, well-being and technology.

Session 01 60 mins
Session 02 60 mins

Learning Outcomes:

- Information gathering + analysis
- Illustrative sketching + mapping
- Communicate clearly in writing
- The relationship between human behavior + the built environment
- Ergonomic + human factors data
- Reflect on your own experiences

Provided Supplies:

- Surfaces: various post-it notes, letter paper, kraft paper backing
- Connectors: string + black tape
- Writing tools: various sharpies

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Prototyping 03

Description: Physical Prototyping

Physical prototyping is the pivotal activity that structures innovation, collaboration, and creativity in design. Prototypes embody design hypotheses and enable designers to test them. Framing design as a thinking-by-doing activity foregrounds iteration as a central concern. Physical Prototyping is the process of making a physical representation of an idea. Early in the process physical prototypes can be made of all kinds of materials, you should create low-resolution prototypes that are quick to make, make several prototypes. Physical prototypes allow the designer and users to interact with the idea. By building an idea designers are challenged to "build to think" and thus gain deeper insights.

Exercise + Task:
In your assigned teams: challenge each other to build to think and develop a physical representation of a furniture artifact that help connect generations in the workplace, embody lounge-based innovation, or using urban planning principles. Use your collective team knowledge of the interior design process including programming, concept and design development to aid you in your composition.

How to prototype:

- Start building. Even if you aren't sure what you're doing, the act of picking up some materials (post-its, tape, and found objects are a good way to start) will be enough to get you going. Prototypes can be conceptual...
- Attempt to build prototypes using 1:1 or 1:2 scale to understand the form in relation to the end user.
- Don't spend too long on one prototype. Let go before you find yourself getting too emotionally attached to any one prototype.
- Identify what's being tested with each prototype. A prototype should answer a particular question when tested.
- Build with the user in mind: What do you hope to test with the user? What sorts of behavior do you expect? Answering these questions will focus your prototyping.

Learning Outcomes:

- Discover + hypothesize
- Build + make + test + iterate
- The relationship between human behavior + the built environment
- Ergonomic + human factors data
- Reflect on your own experiences

Provided Supplies:

- Surfaces: cardstock, corrugated fiberboard, paper, fabric
- Connectors: duct tape, masking tape, yarn, string, fasteners
- Equipment: utility knives, rulers, scissors, sewing kit + glue gun

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Design Process

After extensively reviewing multiple current examples of workspace design and developing the workshop held at KPU, I began to think about one of the most basic principles of human-centered design: empathy. McDonagh and Thomas (2011) advocate for “employing empathic research strategies” in order to “gain insight and shared understanding with users.” Designers are then able “to create more intuitive, sustainable and successful product outcomes” (p. 147). As an empathy exercise, I began formulating a collection of workspace artifacts in direct response to the current state of the workspace conditions at Emily Carr University of Art and Design’s (ECUAD) graduate student studios. When beginning to formulate a thesis proposal on artifacts within workspace design, it seemed natural to question my cohort’s current working conditions and how they could be improved.

Learning through problem solving and exploration provided a secondary avenue to confirm or challenge the conclusions reached by the co-creation research. Heuristics are learned from experience within a domain, and tend to be implicit and difficult to verbalize (Nisbett & Ross, 1980, p. 18). Design heuristics offer a conceptual bridge between more general design theories and individual design precedents that are often provided to learners. Dealing with craft and building artifacts cannot necessarily be defined through human centered research. ECUAD’s network of craft community members is only so large; while I generally received excellent recommendations and direction, a significant portion of my work was driven by self-exploration and problem solving.

Supplemented by a human centered design rationale, much of my work was based on self-discovery with craft and material. I have discovered that skilled manual work offers spiritual rewards when working through the front-end design process, which I have spent most of my academic and professional career doing. For me, as for Korn (2013), “designing and building furniture... has never lost the challenge of exploration and the delight of discovery” (p.37). Making with my own hands and seeking guidance from experienced craftspeople has provided a paradigm for celebrating material and skill as sources of meaningful work. Moreover, continually acquiring knowledge

and the lifelong practice of learning is an element of what makes our lives worthwhile.

Transitioning from design iteration and design development to the making and crafting of physical goods has been a journey of self-discovery. The support system within the university community has been good; much of my learning, however, has been supplemented by hustling outside familiar grounds. In the beginning of my overarching design process, I hesitated to make, as I could easily detail my projects by producing hand sketches or computer generated models. I also produced high-level technical shop drawings communicating the nuances of the design, which in my experience at ECUAD are a rare sight. These intuitive steps created a substructure for analyzing my progress while situating myself in the making culture. I learned much about craft and also made significant mistakes when attempting fabrication processes for the first time. I also developed an interesting perspective on the contrasts between making by hand and making with digital processes. Moreover, my practice and the substance of my thesis work combines both of these processes in order to create modern and dynamic solutions that reflect consistency and quality.

PROCESSES I HAVE LEARNED

In order to achieve the projects that I set out to make, I had to learn several new skill sets. The following descriptions discuss the processes I have learned and share the trials and tribulations that are inherently tied to skill acquisition.



I explored an advanced computer-aided drawing software, called Rhinoceros 3D, which allowed me to experiment with freeform surfaces and aided in further refining fairly developed designs previously done in SketchUp, a more basic 3D modeling software program. Rhino proved to be very helpful for producing files for wood CNC fabrication, laser cutting and plasma cutting fabrication.

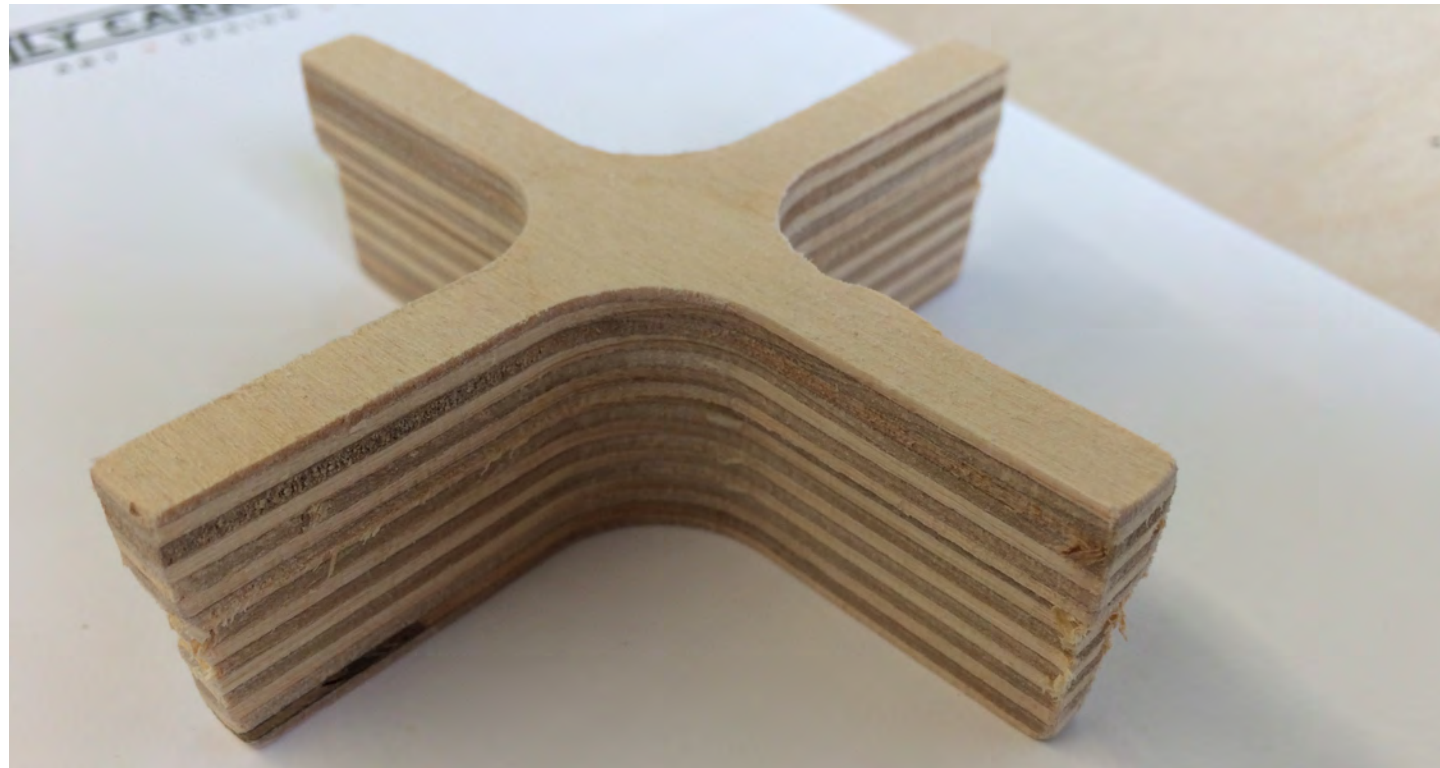


Figure 27 Plus Shape Artifact, Process Development

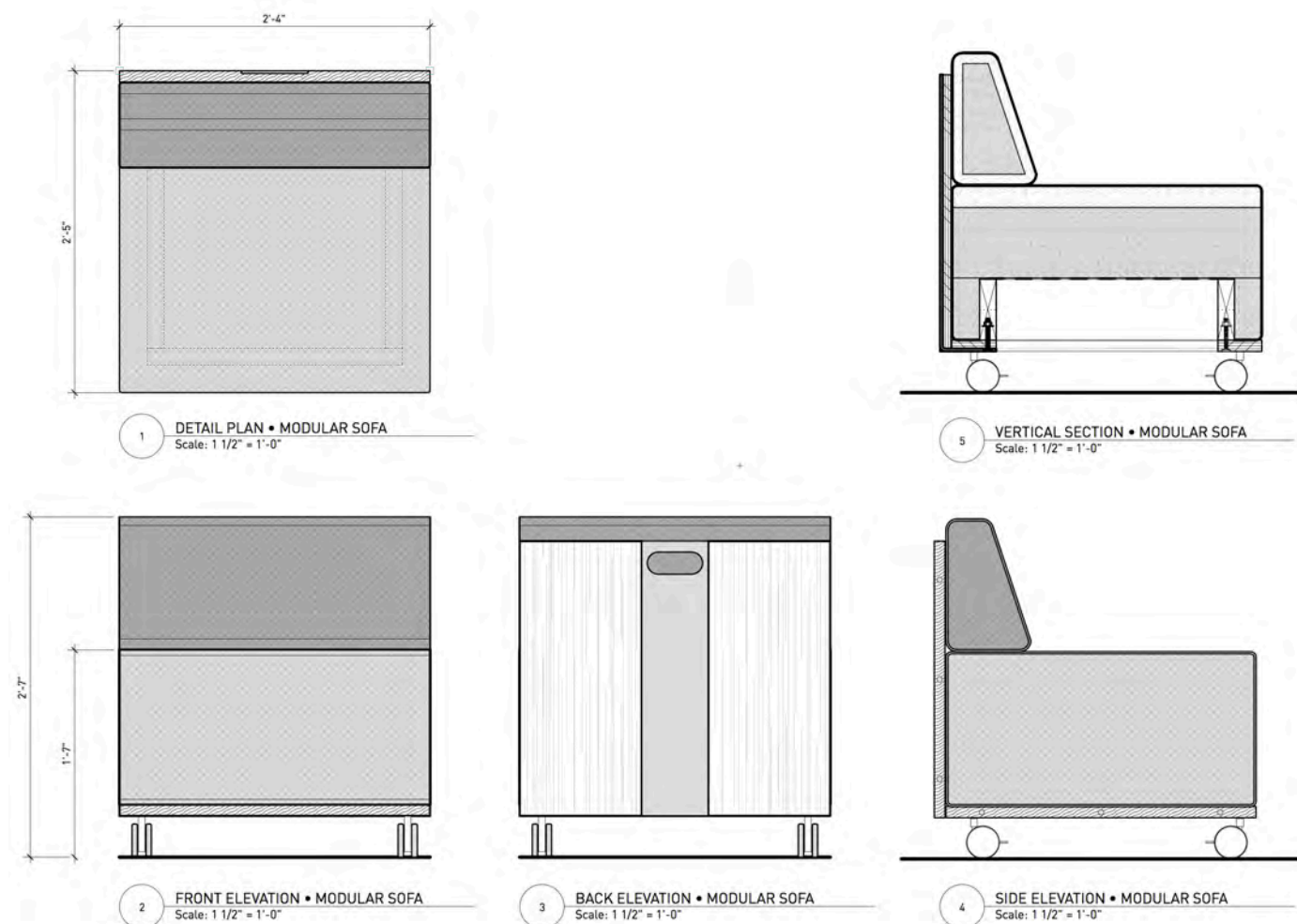


Figure 28 CAD Drawing Explorations for Sofa Module

Wood and woodworking has been a critical component and dominate form of exploration in my practice while I have been exploring solutions for workspaces. Wood is arguably one of the most widely used materials in workspaces. Wood's warmth and aspirational appeal have a rich appeal within workspaces. I have chosen to work primarily in Baltic birch plywood, as my workspace components needed to be humble and workable prototypes that could communicate the design's aesthetic vision and functional appeal. The general extent of my woodworking practice is for practical problem solving in order to execute woodworking tasks related to my designs. Much of my time in the wood shop is spent researching how to execute something and then reflecting on how I can use these woodworking processes to benefit my own designs. Many times I underestimated a series of steps or had not yet developed the refined skills to execute a woodworking process on my first attempt. Since I am not a master woodworker, I am informed by Korn's (2013) ideology, that "to look at a drawing, mock-up or prototype and make judgments well, one must gauge and trust one's first pulse of reaction to the arc of the curve, the trust of a leg, or any other aesthetic stimulus" (p. 114). This ideology informs my decision-making and helps guide me through the making process. An unexpected result of my experience working with wood was the newfound impulse to embrace and celebrate the failures of my craft as a form of visual communication and a reminder to others and myself. Moreover, woodworking is an empowering skill built on trusting oneself, respecting the material and executing creative problem solving techniques while adjusting to the unknown, such as how a design might have different outcomes if executed using a CNC machine.

Integrating computer-controlled processes, such as CNC machining, into my practice has allowed me to explore texture in three-dimensional space with a high level of quality and consistency. Computer numerical control, or CNC machining is a process where automated cutting tools follow programmed sequences of commands, allowing for very precise cutting and carving of materials. Preparing carefully designed computer files allowed me to achieve high efficiency in cutting vital assembly components of my furniture collection. CNC fabrication helped bridge the gaps of my limited woodworking knowledge by simplifying the making of custom components. A major insight was recognizing the importance of clearly communicating my file setup and design intent to the university technician so that we could achieve precise execution based on the machine's capabilities. Human error did occur; however, the design learning opportunities outweighed the shortsighted mistakes. The ability to make mistakes and learn from them in the comfort of the university community afforded me, as a designer, knowledge for future opportunities involving my woodworking and metalwork designs.

I was also excited to explore metal fabrication processes and bring a metal practice into the components of my workspace furniture collection. This happened later in the design and making process, therefore, I had limited time to learn metalwork

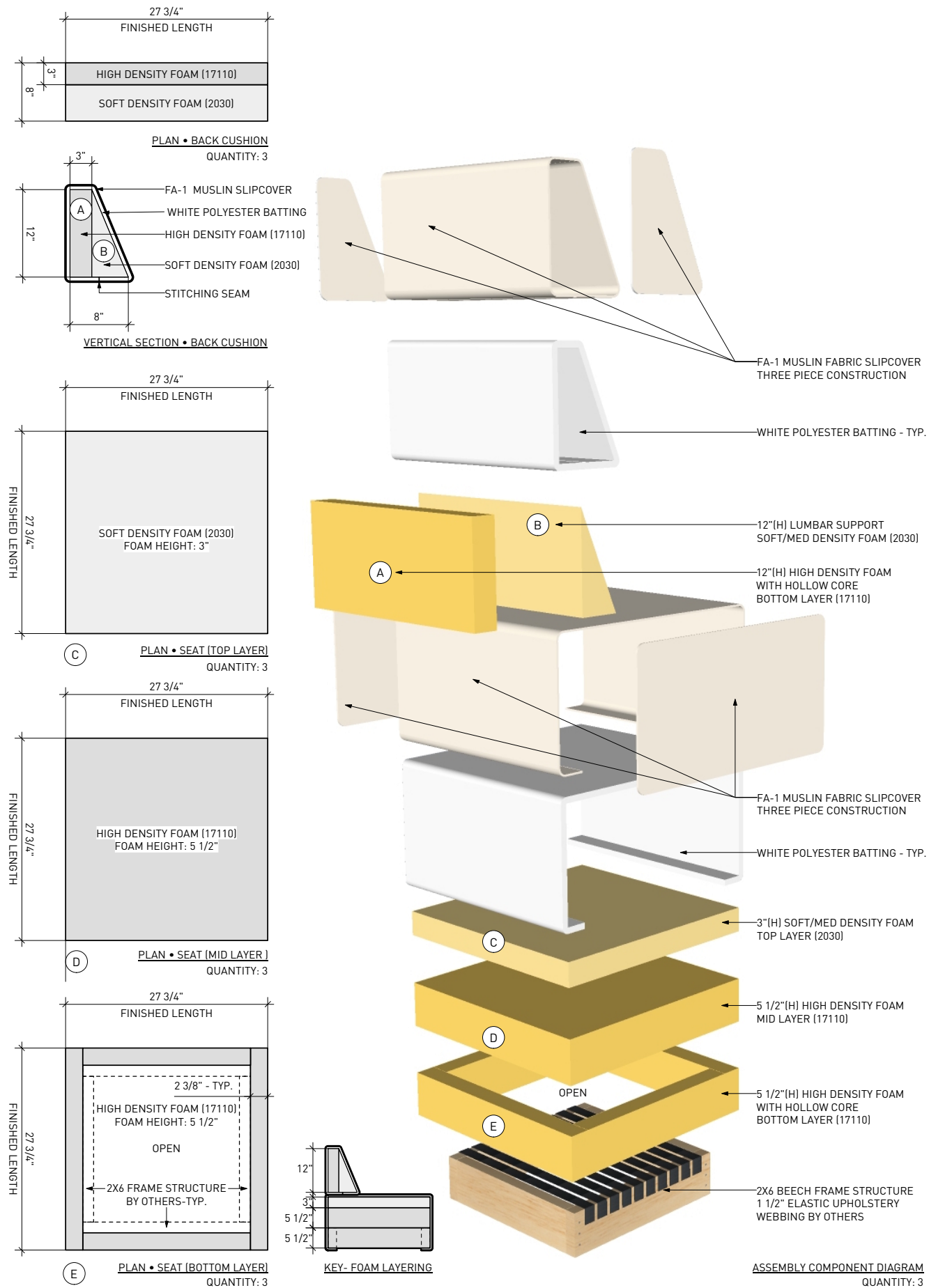
common techniques and process leading to the quick execution of the technical shop drawings. In order to produce the desired shapes for the metal frames, I had to explore processes outside of the university community. The general shapes I designed were professionally cut with a computer-automated plasma cutter to ensure the accuracy required to join them with the plywood assemblies. I then de-burred the frames' edges using an angle grinder and then manually drilled holes with a drill press and hand drill. This process was essential but time consuming, and would need to be refined for mass manufacture. Lastly, the metal components were professionally powder coated including chemical cleaning and sandblasting to ensure a quality finish. The metal components paired nicely with the natural finished plywood and fit precisely because of the exacting manufacturing processes and design.

Discovering upholstery processes pushed my mind, as well as my hand, to evolve in unforeseen ways. I sought the advice and expertise of a seasoned upholster who guided me through upholstery processes, explaining where I was making mistakes and correcting my assumptions. In an effort to keep my costs down, the upholster guided me through the techniques required to complete the sofa modules by personally instructing me on how to sew on his machines. This act of kindness and generosity reinforced the gratitude that I have for making and the spiritual connection to the craft and the materials I am working with.

Preparing wood materials for finishing is a science and experimental process weaved into one. With intuition and manual processes, I carefully prepared all of the plywood surfaces by hand. In hindsight, this was probably an archaic process considering the technology available to me; however, a hand process allowed me to work at my own pace in my home studio. Working with various sanding blocks, files and rasps allowed me to have precise control, ensuring my desired level of smoothness and detail in my first furniture project. Later, I applied several spray layers of protective clear matte interior polycrylic until I achieved a level pleasing to my hand and eye. Once finished, I roughened the finish with a brown paper bag, as advised by a wood specialist, to remove unwanted tacky areas. While I was going through this tedious finishing process, I was extremely close to the work, and could see many of the minute flaws; these flaws, however, might not otherwise have been noticed. Sennett (2008) comments, "to the absolutist in every craftsman, each imperfection is a failure; to the practitioner, obsession with perfection seems a perception for failure" (p. 45-46). As I understand, this phenomenon haunts many makers; however, this experience is rarely reflected on or willingly pointed out.

MANUFACTURING

Although these physical investigations are a representation of an exercise in producing artifacts for an alternative workspace at ECUAD, I anticipated a potential manufacturing process for wider use. The collection is designed to be sourced and produced locally in Vancouver by myself, or a small team. The prototypes

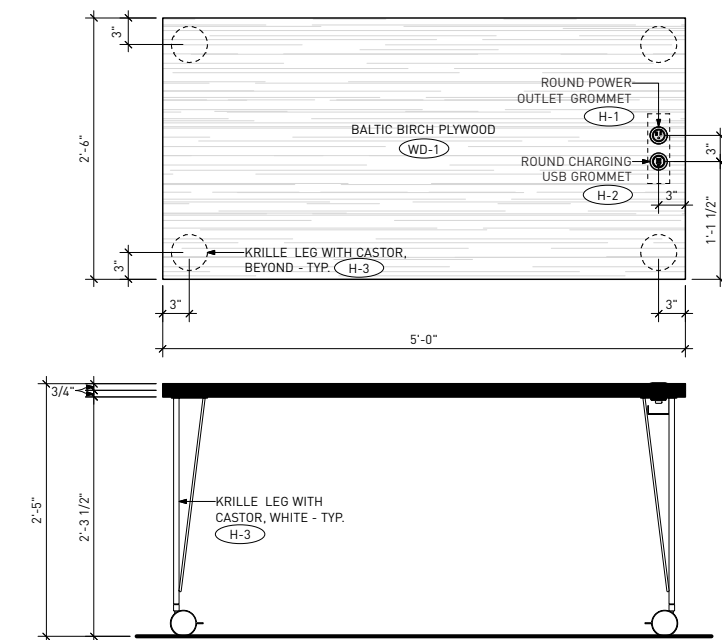


▲ Figure 29 Sofa Module Assembly Study

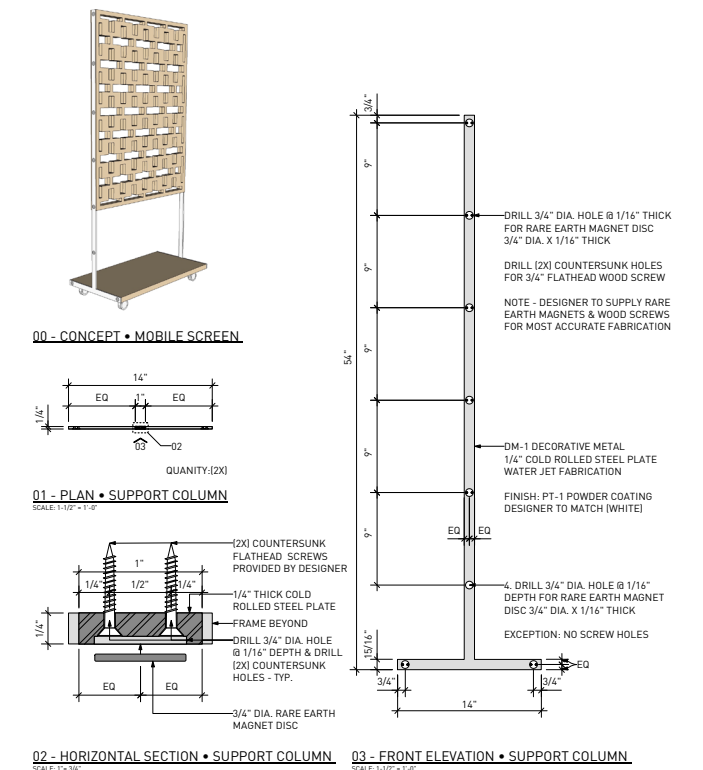
feature Baltic birch plywood, white powder coated metal, mixed density foam and muslin canvas. The collection uses common, commercially available parts where possible to ensure the artifacts remain reasonable in cost. The production chain considers a small scale of production, using local collaborators when necessary. This is extremely important to the ethos of the workspace prototypes, as the expense of quality offshore manufacturing and accompanying shipping costs defeats aims and goals of this research.

In summary, many learning processes and strategies were deployed in an effort to achieve a dynamic and thoughtful solution based on feedback from others, as well as my own personal journey. Reflecting on these processes, gaining experience through making and engaging with like-minded craftspeople was not only extremely beneficial, but was also a journey of sharing knowledge and experiences. These experiences and teachings are the core learning outcomes of this project, with the final product representing the spirit of progression and acting as milestones of self-growth and achievement.

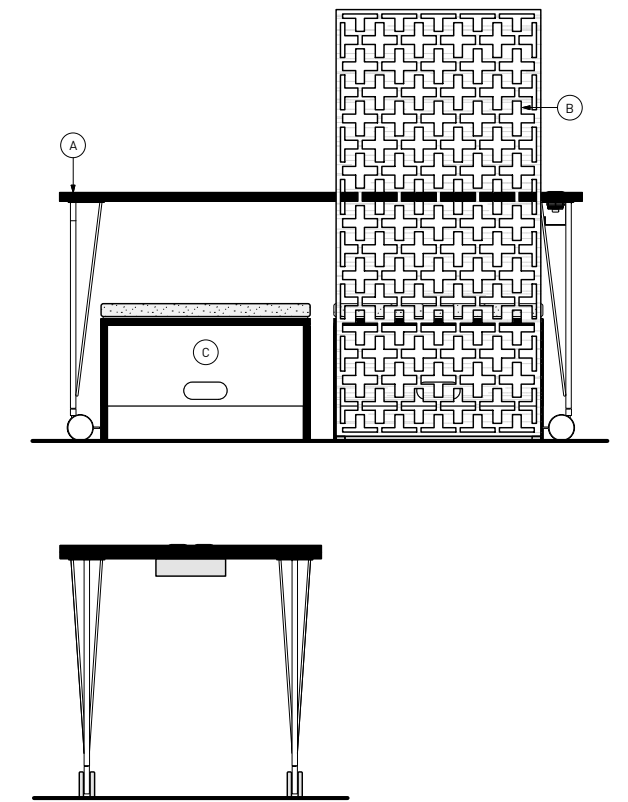
A life-enhancing experience in Milano, Italy this past summer allowed me to explore additive manufacturing by researching, preparing and producing 3D printed forms as part as the Liminal Labs studio. These explorations did not directly inform my current efforts; however, I would like to integrate additive manufacturing in my process moving forward as I gain more experience and expertise. I anticipate the additive-manufacturing processes becoming prevalent in my modular workspace furniture going forward. As a designer, one must adapt to constantly changing and evolving technologies in order to give each design opportunity the best solution possible. Additive manufacturing will be part of the solution, the design process, and will impact how I design.

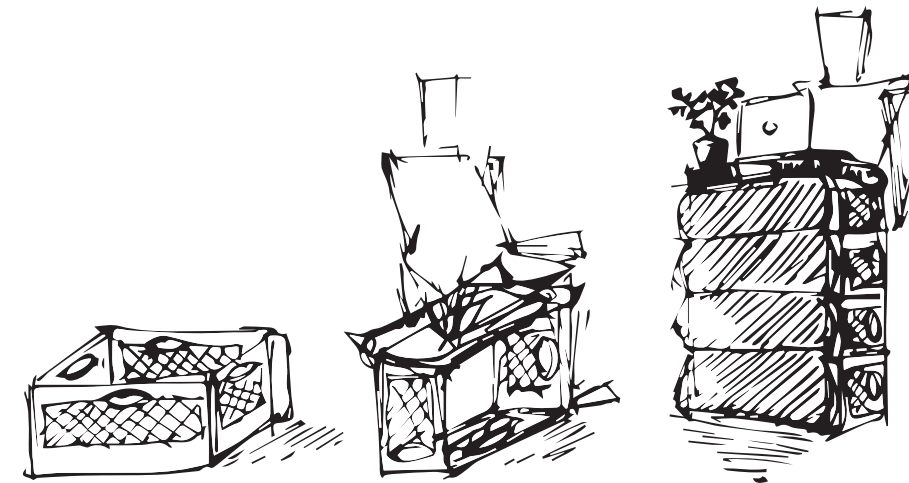


▲ Figure 31 Preliminary Desk CAD Drawings



▲ Figure 30 Screen Shop Drawing, Metal Work





^ Figure 32 Early Design Iteration and Exploration

The Nomadic Workspace

While addressing the workspace conditions at ECUAD's graduate student studios was an empathetic impulse, the resulting artifacts have grown beyond this initial urge. Verbeek (1998) examines the problematic nature of designing for function, noting that this type of focus can "result in a loss of attachment with products" wherein "their individual characteristics become less important" (p. 33). While this project started with my questioning of my cohort's working conditions, the more universal characteristics of good workspaces became my focus .

Taking into account the work ideologies I have proposed in chapter three and the human centered research discussed in chapter six, I began to experiment with artifacts that reflected the proposed principles and characteristics. The journey incorporated new processes, craft, material exploration, problem solving and, of course, self-reflection. The combination of human centered design and self-guided design, or intuition, creates a playful dialogue between artifact and purpose.

The objective of *The Nomadic Workspace* – workspace here being a collection of varied workspace artifacts – is to provide a system in which a series of flexible and modular components make up a changeable district in a work environment. The

emphasis on flexibility means that all components contain mobile attributes such as castors, or are light enough in scale for most people to relocate. Modularity was included to provide choice to the user as well as to create a DIY canvas for the user to interact with and personalize their workspace. The following first iteration prototypes make up *The Nomadic Workspace*:



^ Figure 33 Nomadic Workspace (Above)



▲ Figure 35 Nomadic Workscape, Vertical Screen and Guest Stool (Front)

VERTICAL SURFACE (SCREEN)

The screen is a vertical plane inspired by hospitality environments that provide varied levels of privacy as well as functional support for workspace users. The screen uses castors, making it mobile, and can be attached to other screens. The design of the screen includes many plus-shaped voids, offering workspace users a balance of privacy and transparency. The design also offers several small plus-shaped objects that allow workspace users to control that level of privacy; they also provide functional accessories that can be tailored to the particular task at hand. Additionally, a lower shelf stores a guest stool for break out sessions. The optional accessories include small planters, cord organizers, lighting, shelves, pin-up boards, and coat/bag hooks. The intention of the vertical screen is for it to develop a personalized look over time, based on the user's evolving requirements, thus providing eclectic character and a functional design. 28"(L) x 14"(W) x 54"(H)

◀ Figure 34 Nomadic Workscape, Vertical Screen: Shade and Shadow

GUEST STOOL

The stool was originally inspired by typical rigid milk crates. Although cleverly abstracted, the handle layout plays homage to this original inspiration. The guest stool's purpose is as a casual breakout session seating device that acts as a secondary seat to any environment. Light in scale, the stool is easily moved and can be carried to a desired location. The prototype features a plywood structure, combined with recycled white plastic acrylic and a soft cushion. The stool's dimensions are based on use in a casual atmosphere, and it has the ability to be stored on the vertical screen's lower shelf when not in use. 27"(L) x 12"(W) x 16"(H)



▲ Figure 36 Nomadic Workscape, Guest Stool



▲ Figure 37 Nomadic Workscape, Vertical Screen and Guest Stool (Side)



▲ Figure 38 Nomadic Workspace, Horizontal Surface

HORIZONTAL SURFACE

A nod to the traditional worktable that allows users to focus on heads-down work, this surface is also intended to allow users to recharge their technology devices. Integrated power receptacle and USB chargers allow the user to recharge their device with ease. The table also features a removable pan that can be used to integrate natural elements, such as plants, rocks, sand or found objects into the table, or to allow a more functional approach by storing common office supplies at arms reach. A secondary, removable standing height vessel allows users to easily transform the surface into a standing desk, to promote activity and varied work positions within the workspace. 60"(L) x 28"(W) x 29-42"(H)



▲ Figure 39 Nomadic Workspace, Horizontal Surface with Integrated Nature

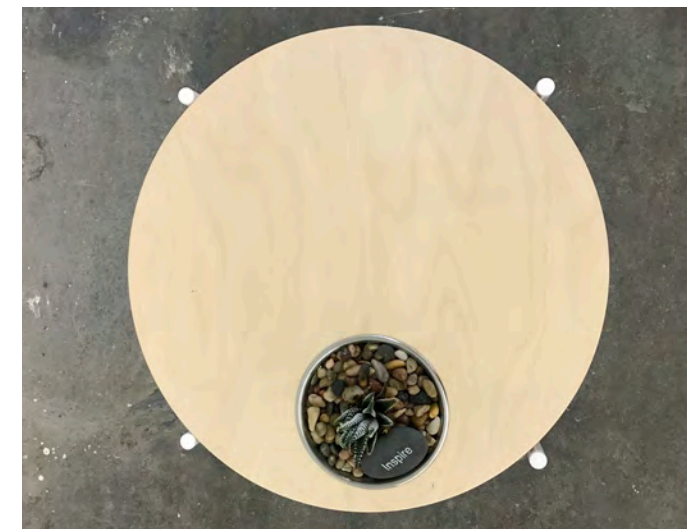
The Nomadic Workspace generates emphasis on user choice to make it their own, while hinting at the natural expression, adaptation, and flexibility, since so many creatures migrate. The collection aims to satisfy the functional and aesthetic demands of today's innovative organizations, by offering a novel alternative workspace to the traditional office desks.

SIDE TABLE

The collection includes an occasional and multi-purpose side table to place, store or stack your work while providing functional opportunities to store treats, office supplies or have a clean look by incorporating natural elements, such as a plant. The side tables are meant to be scattered around the workspace, providing open storage, and a station to work in casual and alternative manners. The side table provides opportunities for subtle gestures such as including a welcoming artifact through a connection to nature or just a simple candy dish. 21"(Dia) x 24"(H)



▲ Figure 40 Nomadic Workspace, Side Table



▲ Figure 41 Nomadic Workspace, Side Table (Top)

LOUNGE SOFA MODULES

The sofa modules offer a destination for lounging, snacking, working on a laptop, or conversing with colleagues. The construction creates different support scenarios, with lumbar pillows to nudge users to use ergonomic positions. The sofa modules embody the notion of lounge-as-office design by promoting an alternative way of sitting and working. The generous seating area provides firm but casual support. The next iteration as this sofa design will feature an improved lumbar cushion that allows for even more working styles and seated positions. The modular sofa components feature a mix of sustainable high-density foams, a plywood shell, metal skeleton and multi-directional castors. 28"(L) x 28"(W) x 26"(H)



▲ Figure 42 Nomadic Workspace, Sofa Module

While this collection of furniture artifacts started out as response to an education environment, they now reflect an ongoing shift in current work styles and work culture. The artifacts themselves are complete, but are a work in progress in terms of being an answer to a bigger design problem. This collection is the start of realizing an imaginative approach to fresh workspaces that are constantly changing and growing, with an emphasis on infusing elements of hospitality and memories of home. The lounge-as-office works to create welcoming experiences with a distinct DIY feel. The dominant intension is to create choice within a flexible work environment, while practicing and evolving as holistic entity. Moreover, *The Nomadic Workspace* artifacts work to initiate a conversation about how and why we work; they create a starting point for a community for like-minded individuals who work in alternative workspaces.



Conclusions

The nomadic workspace model is a framework for supporting alternative workspace environments. The nomadic model challenges traditional ways of doing things in workspace settings. This thesis also builds a support model for cultural inquiry within the workspace by adding a contrary voice to the discussion. Acknowledging the impact work culture creates is a crucial interplay with the physical design of the artifacts. Forming an enhanced work culture system of ideologies and principles of an organization is essential to attract and retain incoming generations.

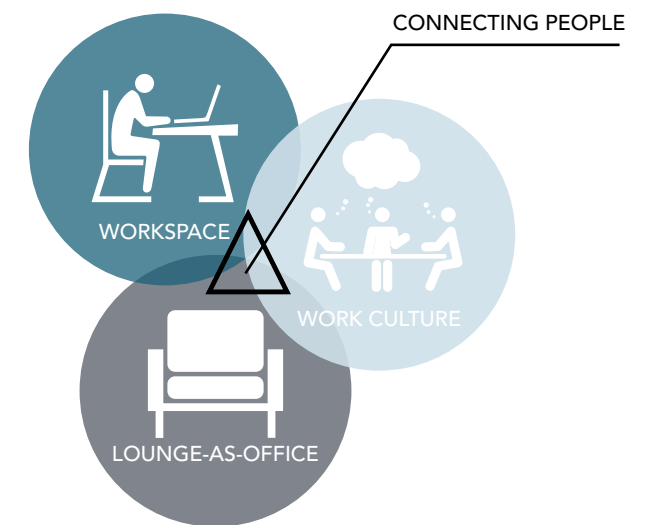
MAKING PROCESS + INSIGHTS

Transitioning to include making as part of my design practice has been a rewarding journey of self-growth and discovery. Learning new skills has been paramount to my success in expanding my knowledge of making while refining my approach to design thinking. Creating conversations about my practice has led me to meet some incredible mentors and fellow makers. Walker (2011) comments that “tacit ways of knowledge can be perceived internally, felt and recognized, but cannot be adequately described in words” (p. 164). As a maker, this statement speaks volumes, however, the importance of reflecting on methods and processes is truly vital to the work. My dedication to the design process continues to lead me to many interesting crossroads of learning, self-growth and abundant opportunity.

FUTURE DIRECTIONS

Future directions for this research include many realistic and hopeful opportunities. I view the alternative workspace as an early prototype and proof of concept for an innovative workspace system. My vision for the future of this project includes a larger or more dynamic workspace that allows multiple people to work together, harmoniously, to achieve excellence in their pursuits and endeavors. Incorporating and expanding on the ideologies of work in chapter three would provide workspace users with a visually rich workspace combined with a multi-layered work culture. Additional user testing, combined with further refining the design, will strengthen the alternative workspace.

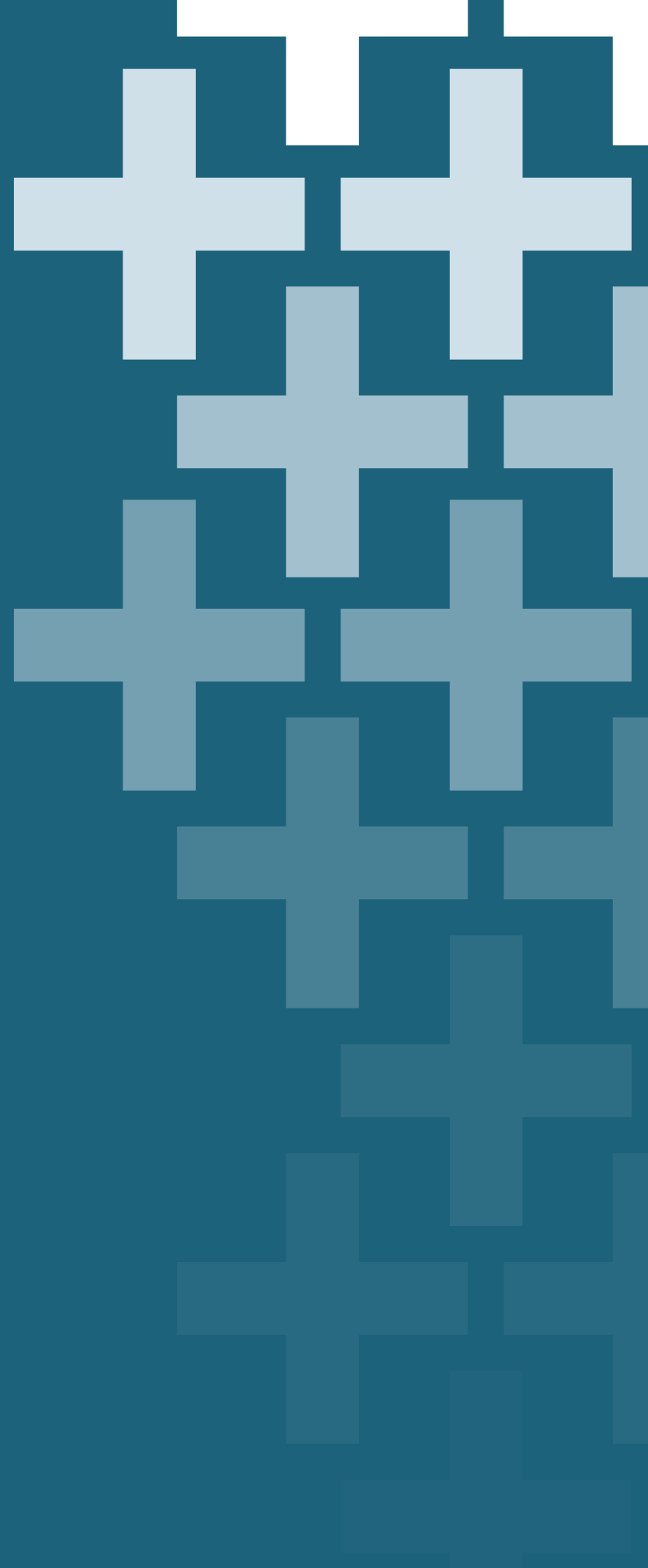
The objective of the nomadic workspace prototype is to start a conversation about alternative workspaces and work styles. This solution may not work for everyone or every organization, but design aspects can be integrated as part of the workspace experience within the context of the built environment. Moreover, the ability to integrate culture into flexible and agile spaces, while maintaining a direct connection to nature, are important factors to consider for any workspace. In an effort to sustain the regionally relevant aspects of the system, the nomadic workspace is not intended for large-scale production by foreign companies. Readers of this thesis will want to make their own journey and draw their own conclusions. That consideration, in the end, is the most important thing, if we really want to improve the human and social dynamics of our future workspaces.



▲ Figure 43 Research Triangulation: Workspace, Lounge-as-Office, Work Culture

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Appendices

PANEL OF RESEARCH ETHICS CERTIFICATE

**PANEL ON
RESEARCH ETHICS** **TCPS 2: CORE**
Navigating the ethics of human research

Certificate of Completion

This document certifies that


Scott Wilson

*has completed the Tri-Council Policy Statement:
Ethical Conduct for Research Involving Humans
Course on Research Ethics (TCPS 2: CORE)*

Date of Issue: **11 November, 2015**



RESEARCH ETHICS BOARD
Certificate of Approval

Researcher Name	Institution	Number
Keith Doyle	Emily Carr University of Art + Design	2016-029
Institution where Research will be carried out:		
Kwantlen Polytechnic University		
Co-Investigators:		
Scott Wilson		
Sponsoring Agencies (if any):		
Project Title:		
Workspace in Transition: Connecting Generations		
Approval Date:	Documents Included in the Approval:	
August 29, 2016	None	
End Date:		
May 1, 2017		
Certification:		
<p>The protocol describing the above-named project has been reviewed by the Kwantlen Polytechnic University Research Ethics Board and found to be acceptable on ethical grounds for research involving human subjects.</p> 		
<p>Dr. Arleigh Reichl Chair, Research Ethics Board</p> <p>This Certificate of Approval is valid for the above term provided there is no change in the research protocol. It is renewable, subject to annual review and approval. A completion report must be filed at the completion of the project.</p>		



1399 Johnston Street, Vancouver, BC, Canada V6H 3R9 ecuat.ca

Research + Industry Office

Emily Carr University of Art and Design
Research Ethics Board

May 24, 2016

MEMORANDUM TO:

Keith Doyle, Associate Professor, Principal Investigator, Faculty of Design + Dynamic Media
Scott Wilson, Graduate Student Co-Investigator, Faculty of Design + Dynamic Media

Re: Application for Ethics Approval (File #2016030702)

Thank you for sending in the requested clarifications to your research ethics application for **'Workspace in Transition'**. These were reviewed by Glen Lowry, Chair of the Emily Carr University Research Ethics Board, on May 24, 2016. As a result of that review, this project now **has full approval to proceed with participant research**.

The dates for this approval are May 24, 2016 – May 1st, 2017.

Please note, the following:

- This approval extends until May 1st, 2017, after which time renewal is available. To ensure timely renewal, you are invited to use **FORM 204.1 Annual Review / Request to Amend Approved Research** to communicate the progress of the research and to request any required changes. This form is provided with this letter.
- If you need to make any changes to any aspect of the approved application, you are required to inform the ECU-REB *prior* to the implementation of changes. **FORM 204.1 Annual Review / Request to Amend Approved Research** should be used to communicate changes. This form is provided with this letter.
- In the event of an adverse event associated with the participant research, the applicant must notify the ECU-REB within five (5) days. **FORM 204.2 Adverse Incident Report** is available for you to use to communicate these incidents. This form is provided with this letter.
- At the conclusion of the project, please complete **FORM 204.3 Research Ethics Completion** so that the file can be closed in an appropriate manner. This form is provided with this letter.

This signed Approval Status Letter is an official ethics status document. Please keep it for reference purposes. If you have not received a signed paper copy of this letter please contact me at ethics@ecuat.ca. The approval status listed above, the date of this letter, and the ECU-REB file number should all appear on materials that are circulated to the participants in this way: "This project has Full Research Ethics Approval from the Emily Carr University Research Ethics Board (May 24, 2016, ECU-REB #2016030702). If you have any comments or concerns about ethical issues in the research, you are invited to contact the Emily Carr University REB Coordinator at ethics@ecuat.ca or (604) 844-3800 ext 2848."

Schedule

Wednesday September 07 3:00pm - 4:00pm

Emily Carr University of Art +Design's graduate researcher Scott Wilson will present a half-hour workshop primer disseminating his research: Workspaces in Transition - Connecting Generations. The seminar will serve as a design briefing to inform potential participants of the value and intrigue of the workspace research. The Workspaces in Transition research specifically will be valuable to first, second and third year students in preparation for the third year office design studio project. Four years students will gain valuable insights and narratives suited for their final studio capstone project. Voluntary registration for the participation of the research workshop will follow the seminar and will be open for approximately 30 minutes.

Seminar Presentation 3:00pm - 3:30pm

Participation Registration 3:30pm - 4:00pm

Thursday September 08 9:00am - 4:00pm

This study is a participatory design workshop featuring three stations (brainstorming, artifact analysis and prototyping) that participants will cycle through two times. The Brainstorming station will spur creativity through group member collaboration exploring workspace's attributes, think quality over quantity. The artifact analysis station will allow participants to engage with leading office furniture manufacture's latest lounge-based solutions by reviewing, analyzing and critiquing in constructive manner. The physical prototyping station will allow participants to build, to think and develop a physical representation of an artifact(s) related to workspace design. All of these stations allow teams to establish a new composition or respond and add to a previous group's design work and process.

Workshop: Session #1 9:00am - 12:00pm

Lunch (TBC - Catered) 12:00pm - 1:00pm

Workshop: Session #2 1:00pm - 4:00pm

Brainstorming 01

Description: Brainstorming Graphic Organizers

Beyond creating lists of ideas and concepts, brainstorm graphic organizers help in the creation of new knowledge by visually structuring a deep dive into a problem space. Brainstorming has traditionally been used to spur group creativity with the intention of generating concepts and ideas regarding a specific challenge. 'Go for quantity over quality,' 'withhold judgment and criticism,' 'build on each other's ideas,' and 'welcome oddity.' The intention of these guidelines is to create a safe forum of expression and a free association of creative ideas by providing a judgment free-zone to explore new concepts. By using this framework, new knowledge and meaning can emerge, with the added benefit that the rigor of this workspace brainstorming session is visually documented.

Exercise + Task:

In your assigned teams: create a visual framework using brainstorming webs to develop a central concept that communicates how workspaces 'how people work within space' are transitioning in the built-environment. Consider the potential impact of trends in hospitality and home design, consumer behaviour, well-being and technology.



Session 01
60 mins



Session 02
60 mins

Starting Points: (expand on the following)

- How can office furniture connect with generations?
- What types of artifacts (furniture and accessories) are essential in the workspace?
- As described, how can 'lounge based innovation' affect the workspace?
- How could urban planning principles be used in the design or arrangement of office space?
- What emerging materials, components and technologies need to be considered in the workspace?
- What are important functional and aesthetical considerations in the workspace?
- How can a holistic culture of wellness be incorporated into the design of workspace furniture?

Learning Outcomes:

- information gathering + analysis
- illustrative sketching + mapping
- communicate clearly in writing
- the relationship between human behavior + the built environment
- ergonomic + human factors data
- reflect on your own experiences

Provided Supplies:

- surfaces: various post-it notes, letter paper, kraft paper backing
- connectors: string + black tape
- writing tools: various sharpies

Artifact Analysis 02

Description: Artifact Analysis

A systematic examination of the material, aesthetic, and interactive qualities of objects contributes to an understanding of their physical, social, and cultural contexts. The emphasis of artifact analysis is on the object itself. Artifact analysis asks: what do objects have to say about people and their culture, time, and place? The researcher is attempting to understand the substance of the object and what it says through its material, aesthetic, and interactive qualities. Material observation and analysis addresses the quantitative inventory of artifacts in the environment under study, and such defining characteristics as the material composition, function and performance.

Exercise + Task:

In your assigned teams: interact, experience, observe, analyze and describe the featured office furniture configurations. Create and develop a strategy of communicating the strengths and challenges of each furniture artifact by considering how the furniture relates to lounge-based innovation and connecting generations.

Artifacts:



Harbor Work Lounge - Haworth



Lagunitas Lounge Seating - Coalesse



Qui - Teknion Studio



Session 01
60 mins



Session 02
60 mins

Learning Outcomes:

- information gathering + analysis
- illustrative sketching
- communicate clearly in writing
- the relationship between human behavior + the built environment
- ergonomic + human factors data
- reflect on your own experiences

Provided Supplies:

- surfaces: various post-it notes, letter paper, audit + analysis guide
- writing tools: various sharpies + fine pens

Prototyping 03

Description: Physical Prototyping

Physical prototyping is the pivotal activity that structures innovation, collaboration, and creativity in design. Prototypes embody design hypotheses and enable designers to test them. Framing design as a thinking-by-doing activity foregrounds iteration as a central concern. Physical Prototyping is the process of making a physical representation of an idea. Early in the process physical prototypes can be made of all kinds of materials, you should create low-resolution prototypes that are quick to make, make several prototypes. Physical prototypes allow the designer and users to interact with the idea. By building an idea designers are challenged to "build to think" and thus gain deeper insights.

Exercise + Task:

In your assigned teams: challenge each other to build to think and develop a physical representation of a furniture artifact that help connect generations in the workplace, embody lounge-based innovation, or using urban planning principles. Use your collective team knowledge of the interior design process including programming, concept and design development to aid you in your composition.

How to prototype:

- **Start building.** Even if you aren't sure what you're doing, the act of picking up some materials (post-its, tape, and found objects are a good way to start!) will be enough to get you going. Prototypes can be conceptual...
- Attempt to build prototypes using 1:1 or 1:2 scale to understand the form in relation to the end user.
- **Don't spend too long on one prototype.** Let go before you find yourself getting too emotionally attached to any one prototype.
- Identify what's being tested with each prototype. A prototype should answer a particular question when tested.
- **Build with the user in mind.** What do you hope to test with the user? What sorts of behavior do you expect? Answering these questions will focus your prototyping.



Session 01
60 mins



Session 02
60 mins

Learning Outcomes:

- discover + hypothesize
- build + make + test + iterate
- the relationship between human behavior + the built environment
- ergonomic + human factors data
- reflect on your own experiences

Provided Supplies:

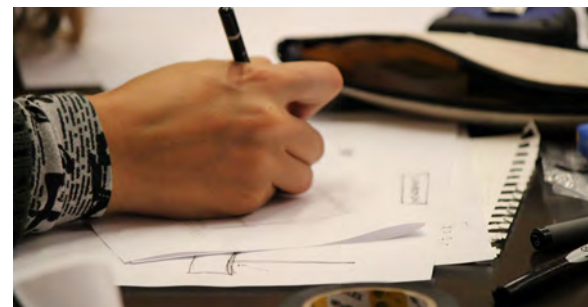
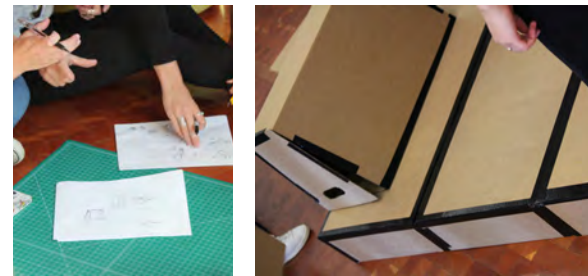
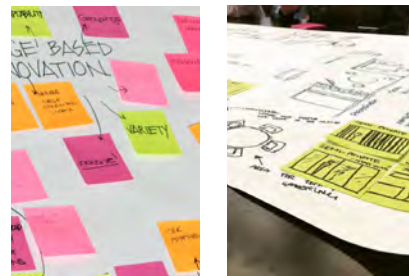
- surfaces: cardstock, corrugated fiberboard, paper, fabric
- connectors: duct tape, masking tape, yarn, string, fasteners,
- equipment: utility knives, rulers, scissors, sewing kit + glue gun



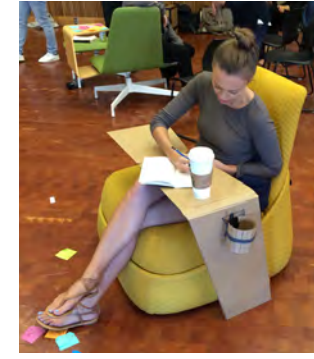
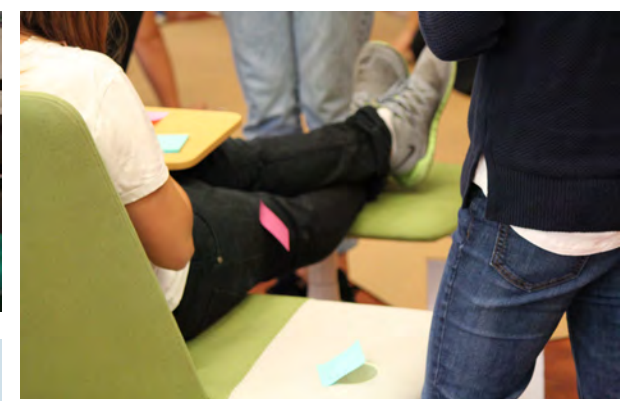
LIFESTYLE



REGIONALLY RELEVANT



LEGIBILITY



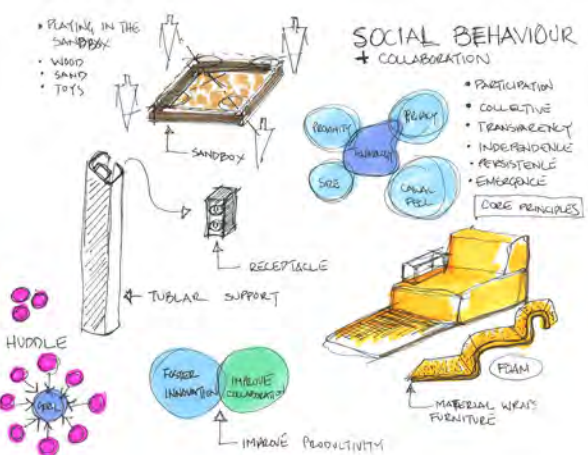
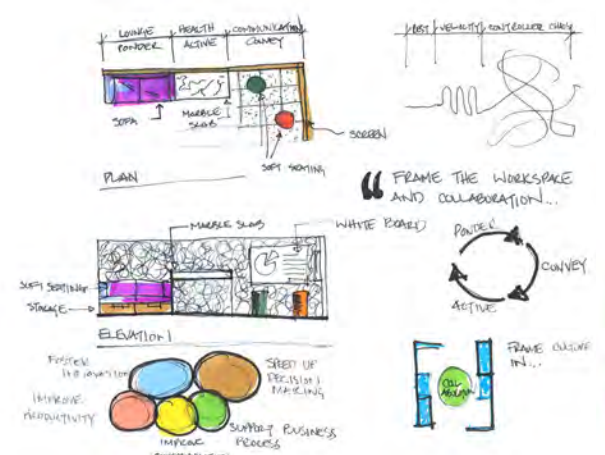
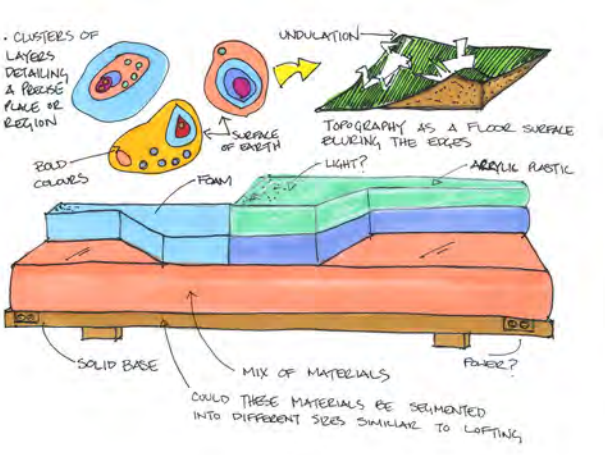
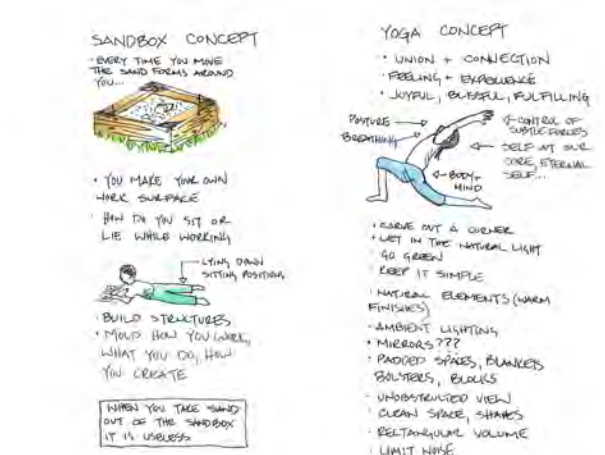
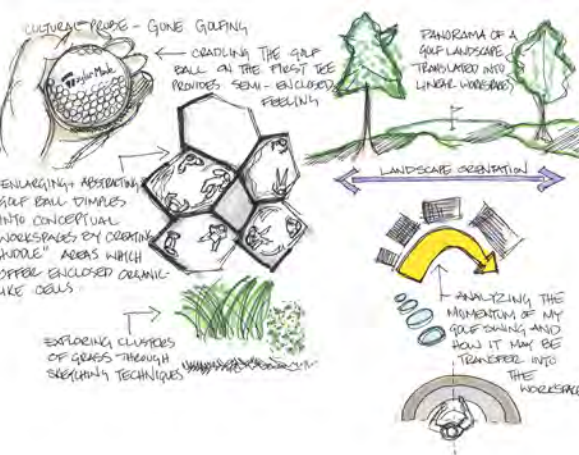
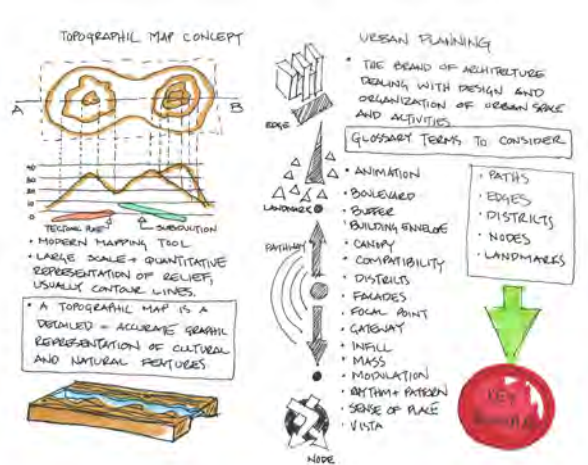
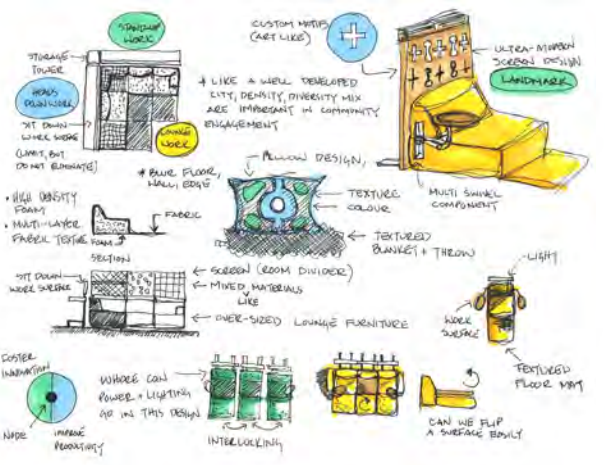
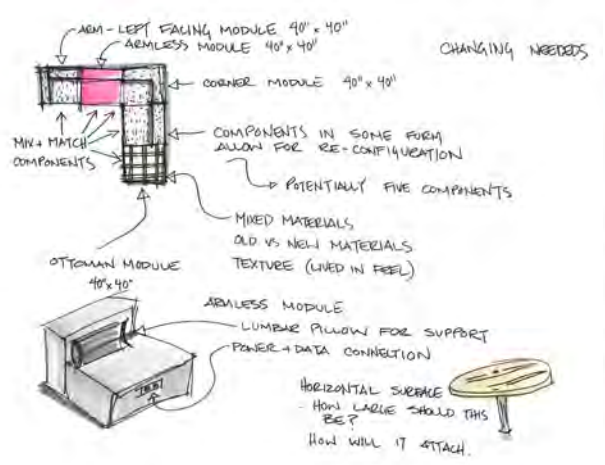
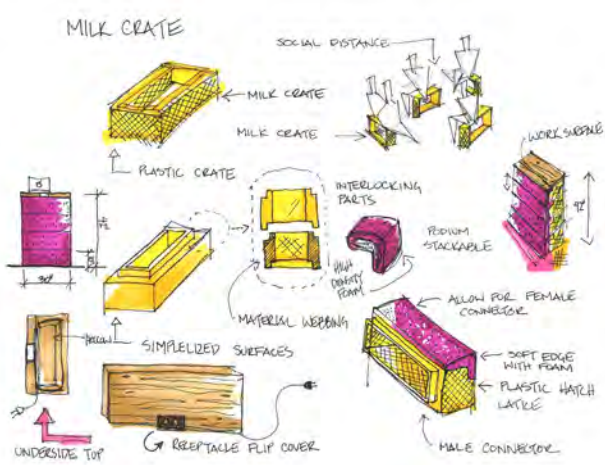
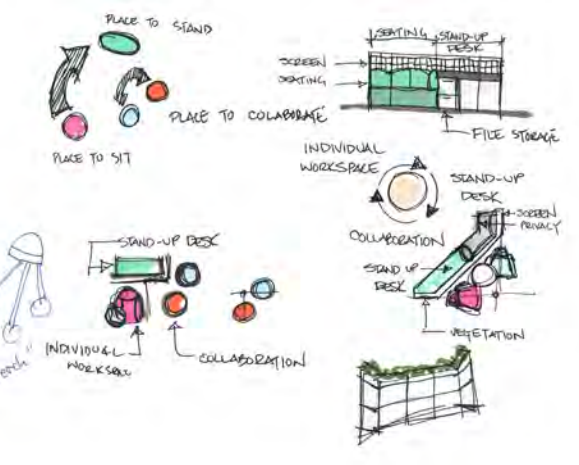
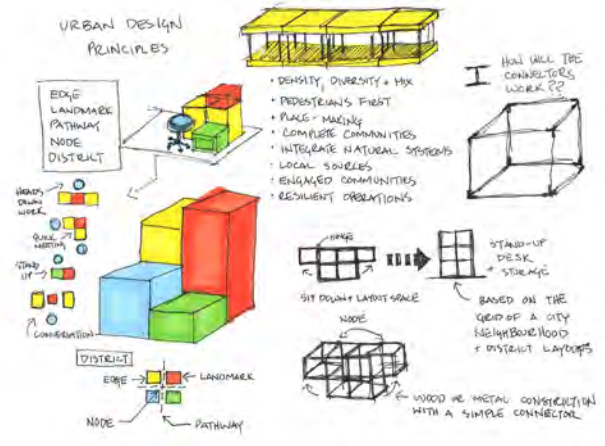
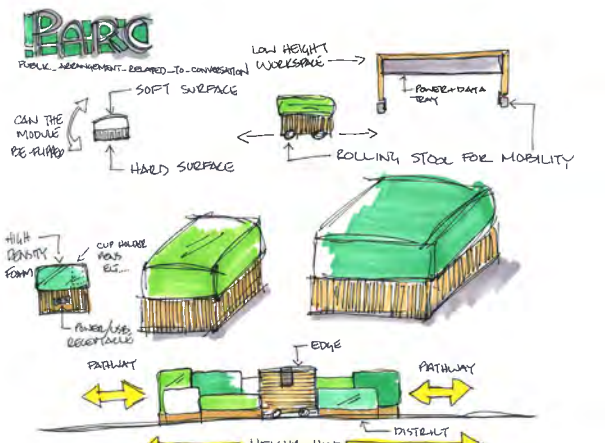
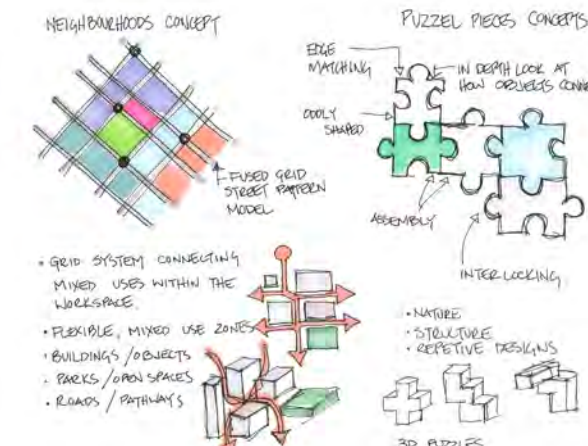
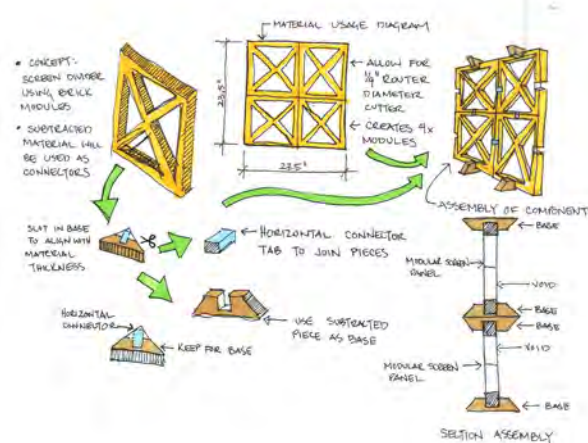
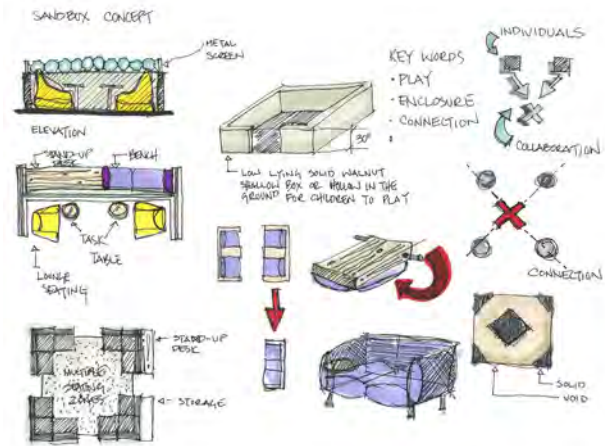
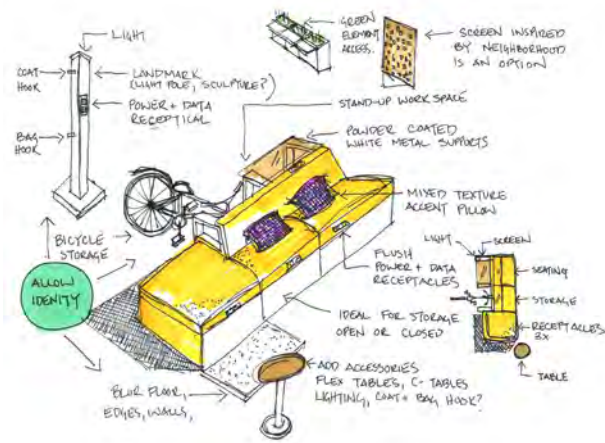
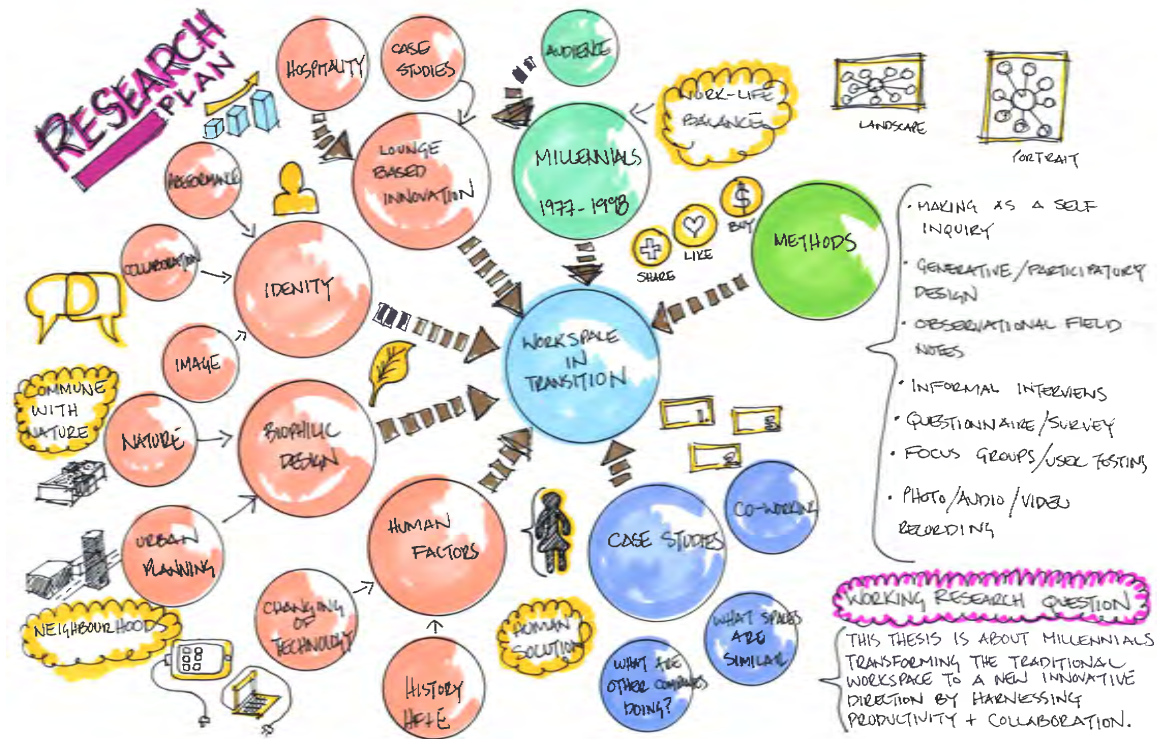
FLUIDITY



WORK/LIFE BALANCE



IDEATION SKETCHES



**EMILY
CARR**
UNIVERSITY

