

An Exploration of the Effects of
Creative Office Design Within Workplaces

by
Mariel Vandeloo
mariel.vandeloo@gmail.com

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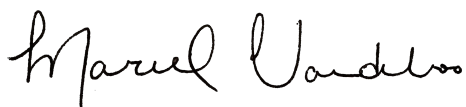
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Mariel Vandello

Abstract

This study examines the latest phenomena of creative office design; a new concept of open-planning that focuses on boosting creative culture through the designed work environment. The effects of creative workplaces on the users within is explored, with attention to employee creativity, engagement, and levels of distraction. Does a workplace that has embraced creative office design, increase creativity resulting in a greater and more innovative system? A framework is designed to gain insights and understandings about the factors that affect creative output. This framework suggests that a creative workplace ecosystem is fabricated through three facets; social culture, tools and materials, and cognitive experiences. Four case studies are examined and discussed according to the framework, including two corporate offices, a public collaborative workspace, and the learning spaces of a University program. Findings show that the optimal workplace for fostering creativity is an environment where differing core values can be explored, without interference from each other. Values explored in this study include collaboration, chance encounters, curiosity, available tools, creative outlets, employee involvement, encouraged failure, a focus on wellbeing, a sense of community and attainable opportunities.

Keywords

Creative Workplace, Inclusive Design, Innovation, Work Environment

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Table Of Contents

1.0 Introduction	1 - 2
2.0 The Changing Workplace: The Evolution of Creative Environments	3
2.1 The Emergence of Office Design	3-5
2.2 The Current Standing of Creative Workplace Design	5
2.3 Ambiguous Theories of Environment and Creativity Relation	5-10
3.0 Understanding Creativity and Influencing Factors	11
3.1 Understanding Creativity	11-13
3.2 Techniques for Overcoming Creative Blocks	14-17
3.3 Challenges of Measuring Creativity	17-18
4.0 Towards a Framework for Environment & Creativity Associations	19
4.1 Associations Between the Designed Environment and Creativity.	19-20
4.2 Factors Affecting Social Culture/Climate	20-22
4.3 Tools to Support Creative Behaviour	23
4.4 Factors Affecting Cognitive Experiences	23-25
4.5 Engagement/Stimulation and Creativity Associations	26-27
4.6 Disengagement/Distraction and Creativity Associations	27-28
5.0 Research Methodology	29
5.1 Research Design Overview	29-32
5.2 Contextual Search and Review	32
5.3 Ethnographic & Environmental Study	33
5.4 Participant Survey.....	33-34
5.5 Focus Group Discussions	34-35
5.6 Ethics & Research Procedures	35

6.0 Space Studies	36
6.1 OCAD University Digital Futures Learning Spaces	36
6.1.1 Participants	36
6.1.2 Study Setting	36-37
6.1.3 Results	37-45
6.2 Office of Google/Youtube	45
6.2.1 Participants	45
6.2.2 Study Setting	45-50
6.2.3 Results	50-53
6.3 Bento Miso Collaboration Space	53
6.3.1 Participants	53
6.3.2 Study Setting	54-55
6.3.3 Results	56-58
6.4 Office of Idea Couture	58
6.4.1 Participants	58-59
6.4.2 Study Setting	59-63
6.4.3 Results	63-68
7.0 Discussion	69
7.1 Emerging Themes from Quantitative Results and Participant Narratives	69-75
7.2 Future Implications in Office Design & Research	75-77
8.0 References	78-83
9.0 Appendices	84
Appendix A: Survey Guide	84-85
Appendix B: Focus Group Discussion Guide	86-87
Appendix C: Letter of Participant Invitation / Consent Form	88-90
Appendix D: REB Approval	91
Appendix E: Personal Communications Transcripts	92-107

List of Figures

<i>Figure 1: Framework for understanding associations between the designed environment and the resulting creative output from individuals within..</i>	20
<i>Figure 2: Ceiling and Floor plans of the redesigned student learning space.</i>	37
<i>Figure 3: Collaborative OCAD DFI learning space.</i>	35
<i>Figure 4: An image showing clutter which was found to be distracting for some students.</i>	40
<i>Figure 5: Rows of lockers are provided for students to use.</i>	41
<i>Figure 6: An image of the small kitchen area in the space.</i>	42
<i>Figure 7: Results from the survey indicating that most students felt that materials and equipment were only slightly available.</i>	43
<i>Figure 8: Collaborative spaces for students to interact.</i>	44
<i>Figure 9: Survey results showing that most students perceived the environment to be only slightly conducive to creative work.</i>	45
<i>Figure 10: A drum set in the music room where people can take a break from their work.</i>	46
<i>Figure 11: A collaborative art piece, where a local artist drew a stencil of the Toronto skyline, and visitors of the office coloured in the blanks.</i>	47
<i>Figure 12: A unique space to have a meeting, or relax.</i>	48
<i>Figure 13: A meeting room with a pool table.</i>	48
<i>Figure 14: A non-traditional meeting room with an outdoor theme.</i>	48
<i>Figure 15: Seating in the cafeteria.</i>	49
<i>Figure 16: A micro-kitchen providing healthy snacks and communal seating.</i>	50
<i>Figure 17: A collaborative space at Bento Miso.</i>	54
<i>Figure 18: Tools used for idea generation.</i>	55
<i>Figure 19: An event which is hosted at the adaptable space.</i>	57
<i>Figure 20: The entrance to the Idea Couture Toronto location.</i>	59
<i>Figure 21: White umbrellas hanging from the ceiling.</i>	60
<i>Figure 22: The reception area of Idea Couture.</i>	60
<i>Figure 23: The flexible work environment at Idea Couture.</i>	61

Figure 24: The kitchen and communal eating area. 62

Figure 25: A place to have a meeting over tea. 62

Figure 26: A room with tools and equipment for prototyping.. 64

Figure 27: Survey results indicate the availability of creative outlets.. 64

Figure 28: The survey results showing that mistakes were not detrimental or were only slightly detrimental to creative motivation. 66

Figure 29: A table displays the Idea Couture’s quarterly magazine. 68

List of Tables

Table 1: Recurring themes across study sites. 69

1.0 Introduction

“An office workplace, like so many other products and services in the future, will fail if it only manages to be ordinary,” states Adryan Bell (2010), workplace design analyst. It is for this reason that consequently many creative organizations are embracing new outlets to express their values and core concepts. Due to advancing technologies and diverse work styles, the field of workplace innovation is in a state of immense change and re-invention. As a result of this changing landscape, it is a necessity for these environments to compete with a range of physical and virtual work opportunities. The modern workplace is now obligated to attract employees and reinforce its values in novel and imaginative ways.

The purpose of this study is to establish the effects that creative office design has on employees within an organization, with attention to levels of creativity, engagement and distraction. Does a workplace that has embraced creative office design increase creativity resulting in a greater and more innovative system? How does individual engagement affect this creative output? Are distractions more prominent in these types of surroundings? A variety of diverse creative environments will be explored with a focus on the inclusive nature of the design and the effects of creativity on the individuals.

The intention of this study is to address the gap in knowledge within the fields of architecture, design and psychology. Frequently, office environments are analyzed through individual aspects and it is uncommon for all of the aforementioned facets to be considered concurrently. In this study, a framework

is designed in order to gain insights and understandings about the factors that affect creative output. The conceived framework [Figure 1] is designed to take into consideration all aspects which bridge the physical environment to the creative output in a designed workplace; social culture, tools and materials, and cognitive experiences. This framework can be utilized to inform and supplement existing practice in which architects and designers use their experience or intuition to design for optimal user creativity. Additionally, the study will empower workplace users to audit their own environments and identify changes that they may construct to increase their creative potential.

By executing this study, one can gain a higher level of understanding of the characteristics within creative environments that positively affects the occupants within it with regards to creativity, engagement and levels of distraction. The findings of this research will serve as a guide for future designers involved in the development of creative workplaces. The consequential achievements aim to contribute to the fields of architecture, design and creative research with the desired outcome to advise and inspire those who design in inspirational, innovative work environments.

2.0 The Changing Workplace: The Evolution of Creative Work Environments

2.1 The Emergence of Office Design

Over the past century office design has undergone many transformations to facilitate different demands such as collaboration, privacy, interaction, autonomy, in hopes of a more productive and achieving system. These transformations have reflected changing attitudes among employees, according to the office arrangement.

The emergence of office planning dates back to the early nineteenth hundreds when American engineer, Frederick Taylor, who was known for his obsession with productivity developed Taylor-ism; an open environment where bosses could overlook their employees from private offices, exposing individuals to supervision, similar to a factory floor (Kuang, 2009). This open-plan design employed principles of distance and visibility, suggesting a hierarchy in status between employees and managers (Hofbauer, 2000). Eventually values shifted from managerial to communicative, and office landscaping, an informal and interactive style of office design became popular. In 1964, the first line of modular office furniture, entitled Action Office featuring low dividers and semi-enclosed work surfaces was designed and manufactured by Herman Miller (Kuang, 2009). This influential product line is better known today as the cubicle. Originally designed to encourage moderate interaction, the cubicle concept was overexerted, creating a "sea" of middle managers (Kuang, 2009). These walls were broken down with the arrival of the telecommunications revolution.

The concept of virtual offices began to emerge, although failed to proliferate due to overwhelmingly negative responses from both employees and upper management. In an effort to solve the issue of small headquarters and a quickly expanding staff, Chiat/Day developed the virtual office “and equipped everyone with a mobile phone, a laptop and a personal locker, and turned a problem into a much vaunted workplace experiment” (Anderton, 1998). Unfortunately, shortly after this implementation of the virtual office, productivity dramatically dropped and the firm quickly terminated this office design approach.

Many attribute the beginnings of this workplace design revolution to the emergence of Apple’s informal attitude and social corporate culture. The Apple company valued creativity, new initiatives and opposed strict timetables, rigid uniforms, and corporate structures. “New terms like ‘hot-desking’ and ‘hotelling’ entered the vocabulary of office design and an increasing number of workplaces have come to contain ‘chill-out rooms’ and fitness centers” (Bell, 2007).

Google was the first to step away from traditional corporate office design, and embrace architectural and interior design concepts. What was once an autonomous environment, that valued privacy and seclusion was now comprised of various types of imaginative spaces, both secluded and collaborative, with the intent of fostering creativity and innovation. However, not all of Google is arranged in this way. As outlined by recent Google CEO, Eric Schmidt, “there is only a small part of Google that works like this: the parts where new ideas and innovations are developed” (Cummings, Thanem & Värlander 2011). Most of the organization is very ‘tight’ and conventional . The company could not function otherwise (Bilton & Cummings, 2010). In recent years, creative companies have

facilitated a combination of both creative open spaces, and private secluded spaces for optimal innovation and productivity.

2.2 The Current Standing of Creative Workplace Design

The field of workplace innovation is in a state of immense change and re-invention, due to advancing technologies and diverse work styles. Because of this changing landscape, workplace environments need to compete with a range of physical and virtual work opportunities. The modern workplace now needs to attract employees and reinforce its organizational values in new and imaginative ways.

This increase in competition for innovative workplace culture, can explain the latest phenomena of creative office design; a new concept of open-planning that focuses on boosting creative culture through the designed work environment, including spaces that reflect the core values of the company. "Conceptualizations of creativity have suggested that the physical environment plays an important role in facilitating the development of creative processes and products" (Amabile, 1988). By removing spatial and social structures, the intention is to "increase performance by fostering spontaneous interaction, fun, creativity, and learning" (Cummings, Thanem & Värlander, 2011). In present day environments this is associated with creative layouts that use unique colours, graphics, furnishings, and lighting features; variations in floor coverings and screening features with the intention of creating a space that is positive and enticing to its visitors and occupants.

2.3 Ambiguous Theories of Environment and Creativity Relation

Little empirical investigation has been given to this new and emerging field, specifically how the physical environment affects individuals' perceptions of creativity. The rapidly emerging concepts of creative office design have prompted a growing interest amongst researchers, with specific attention towards the values that it offers organizations and individuals. Preliminary research findings within this stream remain divided, contradictory, and inconclusive (Maher & von Hippel, 2005). Thus, further study is needed.

Creative office design efforts are largely based on company values rather than evaluation research; the social culture and the ideas generated regarding the optimal environment for fostering creativity. A number of workplace innovation studies have presented differing theories of best practices for stimulating creativity within the occupational environment. Common themes include cohesive collaboration and open office design as a system to foster creativity, conflict and evaluation as creative drivers and environmental cues which create cognitive ingenuity (Maher & Von Hippel, 2005 Stokols, Clitheroe & Zumidzinas, 2002, Thanem & Värlander, 2011). Conversely, other studies have shown that these practices are complicated and flawed, hindering the stimulation of creative output (Davis, Leach & Clegg, 2010, Porter, 2013, Stokols, Clitheroe & Zumidzinas, 2002, Thanem & Värlander, 2011).

Firstly, the notion of cohesion and collaboration as influencing factors to increase employee well-being and foster creativity is explored. When envisioning creative teams one typically envisions open floor plans, relaxed dress codes and

unrestricted social interaction. Research has found that work spaces in open office design are flexible, allowing for reduced set-up and renovation time, therefore accommodating greater numbers of employees in smaller spaces, that in turn facilitates social interaction and communication (Zahn, 1991). These workspace elements have been shown to improve job satisfaction, employee morale, information exchange and productivity.

The study, *Collaborative digital environments to enhance the creativity of designers*, directly shows the correlation between social interaction and creative output. Findings showed that the social environment is closely related to the success of idea generation in creative processes (Karakaya & Demirkan, 2014). Additional findings suggest that the ideas produced, as a result of group critiques, enhanced creativity in collaborative environments (Karakaya & Demirkan, 2014). Through exploration of this type of social interaction, it is apparent that collaboration is an essential component of creative processes.

An opposing viewpoint suggests conflict and evaluation are essential drivers of a creative environment. Creativity and innovation expert, David Burkus (2014), states "An excessive focus on cohesiveness, however can actually dampen a team's creativity. It can narrow down options and cause those with a unique perspective to censor themselves rather than risk not being seen as part of the team." It is imperative for organizations to recognize the value of conflict, rather than complete cohesion for this very reason. A further study by Cummings and colleagues solidifies Burkus' statement, and proposes that the aforementioned creative environment may "undermine the kind of creativity that it is intended to foster, producing unforeseen forms of employee creativity that normalize

rather than disrupt structures and boundaries" (Cummings, Thanem & Värlander 2011). In this study, their findings showed that environmental distractions and poor social climate can restrict experiences of creativity by interfering with concentration and heightening feelings of unpredictability.

Burkus (2014), describes this belief as the cohesive myth; the assumption that "creative people thrive in fun, playful atmospheres and that they must therefore need playful interactions." The belief that designing in for cohesive teams to suspend criticism and produce exceptional creativity, is in fact quite flawed. The organizational psychologist Matthew Davis reviewed more than a hundred studies regarding office environments. He discovered that open offices often foster a symbolic sense of organizational mission making employees feel like they were part of a more laid-back, innovative enterprise. However, these types of environmental structures were damaging to the workers' attention spans, productivity, creative thinking and satisfaction (Davis, Leach & Clegg 2011). Creative insight is not always a product of cohesive team-work but it is often the opposite; conflict.

A subsequent conjecture suggests cognitive responses to architectural and interior design are imperative to stimulating creativity (Vartanian, Kwiatkowski & Martindale, 1999, Jaffe, 2013) . Architects and designers use environmental cues to change behaviour, thus influencing the way that individuals think. For example, architectural research has determined that persons within rooms with high ceilings are more apt to think abstractly, while persons in rooms with low ceilings are more apt to perform tasks requiring attention to detail (McGinn, 2013). These architectural cues may suggest the concepts of wayfinding, safety

and emotion. However, these designed experiences can also be a cause for employee distraction and a sense of disturbance. Certain environmental prompts can “frustrate rather than facilitate human relations and make life harder for some humans” (Cummings, Thanem & Värlander 2011). This too poses conflicting ideas of what truly aids in the production of creative work.

In recent years, a growing number of organizations are integrating values suggested by several of these notions through creative strategies. Pixar, for example, incorporates a combination of values and beliefs about what fosters creativity, including collaboration, social culture, cognitive responses, conflict and disagreement. At this impressive corporation, creative processes rely on structured conflict; the perfect balance between collaboration and dispute. The company’s California campus is an architectural wonder which encourages collaboration, an active social culture, and creative freedom. The headquarters feature eccentric offices, a football-field sized atrium, a large theatre, a fitness center and a hidden cocktail lounge. It is not surprising that this detailed, material-focused, timeless architectural marvel was the brain child of Steve Jobs, now renamed The Steve Jobs Building, after its creator (Burkus, 2014). “The Pixar teams collaborative creativity isn’t just evidenced in their films; it can be seen in how they’ve transformed all areas of Pixar headquarters” (Burkus, 2014).

What is not as easily noticed as the astounding architecture, is the attention that is given to the importance of conflict amongst the employees, which is highly valued at the company. Areas where crucial creative meetings and discussions are held have been designed in a way that embraces creative competition and welcomes criticism. Animators, directors and computer scientists engage in

“shredding” of animations where “no detail is too small to critique, and no one is prohibited from challenging someone else’s work” (Burkus, 2014).

Pixar embodies an appropriate variation of practices but what is most significant and valuable is that every environmental detail is the reflection and product of their core beliefs and values. Ed Catmull, president of Walt Disney Animation Studios and Pixar Animation Studios believes in empowering employees through creative freedom, a healthy social culture, a communicative environment, and embracing “post-mortems” or blunders (2008). By creating environments that reflect these values, Pixar has developed an inspiring and imaginative headquarters, where individuals produce a plethora of creative work.

3.0 Understanding Creativity and Influencing Factors

3.1 Understanding Creativity

Creativity in particular has been promoted as a means of staying ahead of the competition, the sole motive for innovation and reinvention. This belief has created a demand for facilitating creative environments within organizations, in both creative and business industries.

“People tend to think of creativity as a mysterious solo act,” reducing products to a single idea (Catmull, 2008). However, creativity is messy; it involves many people from differing disciplines, working together to deconstruct problems, and create effective solutions. The creative process involves filtering through mass amounts of ideas to produce a series of cohesive ideas, resulting in some form of creative output.

Some argue that creativity simply cannot be explained. John Cleese, comedian, writer and film producer states that creativity is not a talent, but a way of operating. “Creative people are able to put themselves into a certain state or way of operating, which allows the natural creativity to function (Cleese, 1991).

Through a psychological lens, creativity has traditionally been described to incorporate originality and functionality. Put differently, creativity is theoretically a combination of doing something that hasn't been done before, and producing an idea that provides use or function. However, since this theory emerged, further

research and inquiry have resulted in a deeper understanding and expanded definition of creativity.

In order to examine creativity, one must first understand the foundational knowledge of the psychology around how creativity is experienced. Daniel Kahneman (2011), renowned psychologist and Nobel prize winner, provided explanation to the conditions under which creativity occurs. He explained the experience of creativity by first explaining cognitive ease and cognitive strain. An individual is at cognitive ease when the surroundings are calm and nonthreatening, and understanding comes effortlessly. For example, an individual is at cognitive ease when in a good mood, or text is in a clear font and easily legible, or they have a smile on their face. Kahneman recognized the condition under which creativity can foster cognitive ease; “When in a good mood, people become more intuitive and more creative but also less vigilant and more prone to logical errors”(2011). Conversely, an individual experiences cognitive strain when there is a challenging level of mental effort, unmet demands or surrounding distractions. “When we are uncomfortable and unhappy, we lose touch with our intuition” (Kahneman, 2011). John Cleese refers to these circumstances as an open and closed mind; “creativity is not possible in the closed mood” (2011). He further explained the importance of harnessing both modes, “We need to be in the open mode when pondering a problem — but! — once we come up with a solution, we must then switch to the closed mode to implement it. Because once we’ve made a decision, we are efficient only if we go through with it decisively, undistracted by doubts about its correctness” (2011). It is therefore understood that when an environment produces pleasant, comfortable experiences upon those within it, the individuals will be at cognitive ease, resulting in a more intuitive and creative

body. In order to act on that creative thought, one must think logically with a higher level of mental effort, switching back to the closed mode.

These perceptions of creativity are neurologically related to the physical environment. Architecture and neuroscience researcher, Oshin Vartanain examines various disciplines including architecture, creativity, and our neural responses to the physical environment. He has discovered revolutionary findings in these fields; “advances in neuroscience are now able to explain the ways in which we perceive the world around us and navigate in space and the way our physical environment can affect our cognition, problem-solving ability and mood” (McGinn, 2013). Recently he revealed how both men and women prefer curved spaces, due to its resemblance of natural forms, welcoming impression, and safety (as sharp angles create a sense of danger). These architectural responses also include how architecture can affect persons creative behaviour. For example, it has been found that “higher ceilings tend to promote abstract thinking, while under lower ceilings people are more likely to think concretely,” also known as the cathedral effect (McGinn, 2013). It becomes clear that the physical environment has a direct correlation to creativity of those within the space; “physical environments that are engineered to be cognitively and perceptually stimulating can enhance creativity” (Amabile et al, 1996).

Creativity is a phenomenon where something original and valuable is created such as an idea or solution. This phenomenon can be explained through many facets, including psychology and cognitive science. The potential for fostering creativity however, still remains a contentious topic to be explored.

3.2 Techniques for Overcoming Creative Blocks

It is important to consider what impedes creativity and how to best overcome these obstructions, in order to fully understand what fosters creativity. Many creatives experience this obstruction, which is more commonly referred to as a creative block. Various types of creative blocks exist including cognitive, habitual, and communicative.

Most cases of obstructions exist cognitively; mental traps, emotional barriers, personal problems causing decreased focus, or an overwhelm of obligations. These factors cause a general lack of focus and an increase in stress, mental exhaustion and mental distractions (McGuinness, 2013). These mechanism of experiencing obstructions can be explained through Kahneman's theory of cognitive ease/strain (2011). When individuals encounter these obstructions, they experience cognitive strain where creativity cannot foster. A creative block exists when an individual becomes stuck in this mode. "Under the pressures which are all too familiar to us, we tend to maintain tunnel vision at times when we really need to step back and contemplate the wider view" (Cleese, 1991). When these blocks do not subsist, the mind becomes comfortable at cognitive ease and creativity can flourish.

Creative blocks occur when the creative process is not compatible with personal work habits. This may consist of unsuited hours of work, levels of effort, or intensity of stimulation which cause disturbances in daily work, therefore preventing creative output.

Communication is another factor that influences the production of creative ideas. Frequently in creative organizations, collaboration and communication are encouraged, organizing persons into small teams. Efficient communication is essential, not only for producing great products and services, but also for maximizing individual creativity. When working with others “tensions are inevitable, and can make it hard to do your best work — especially if you have one of those proverbial ‘difficult people’ in your working life” (McGuinness, 2013). There is also a fear that ideas expressed will be criticized and attacked. This fear inhibits creative ideas from being expressed, that in turn interferes with the creative process.

Fortunately, there are many techniques available to overcome creative blocks, by addressing changes in both attitudes and behaviours such as thinking positively, scratching, and purging ideas. Planning for creative ideation is a large part of developing creative habits and can be done in a variety of ways. “Planning can be a receptive process, where information or stimulus serves to fill up the imaginative reserves of the individual, and aids in creative inspiration” (Ray, 2010). By recognizing, planning, and changing habits, individuals can cultivate a creative process and overcome the block.

Thinking positively is a practice that can change the way one works through the creative process, embracing challenges with an attitude of empowerment. This change in perspective can help to eliminate fears which enable blocks. “To be able to face one’s fears with the help of positive affirmations and ridding the mind of the ‘chatterbox’, whose habit it is to fill the subconscious with negativity and self-doubt, is necessary for the individual to move forward in his/her

creative recovery" (Ray, 2010). The extensive research study, *Optimism Predicting Employees' Creativity: The Mediating Role of Positive Affect and the Positivity Ratio*, shows exemplary findings for understanding the benefits of optimism in the workplace (Rego, Sousa, Marques & Pina e Cunha, 2012). The study stresses that optimism promotes and predicts creativity for both individuals and organizations as a whole.

A common technique used to change behaviour is what Twyla Tharp (2006) calls scratching. Scratching can be explained as conscious focus put towards discovering creative inspiration. Examples of scratching vary and can include changing one's environment, reading books, or looking to others for ideas or inspiration. It must be an activity that is the result of a conscious effort to foster creative inspiration. This method aims to "guide the individual to make connections, create thematic unification, and be inspired in his/her own creative work"(Ray, 2010).

Purging ideas is another useful technique to open the flow of creativity. This purge can be accomplished through writing out ideas without consciously thinking about what is being written. Often times individuals use large sheets of paper, or Post-It Note® mind maps to quickly express all possible ideas. Others prefer to engage in linear writing, a method that American teacher and artist, Julia Cameron (1992) calls morning pages. The concept of morning pages is to eradicate all thoughts and ideas that are causing creative blocks. "It is necessary for one to write in this manner in order to get around the logical, censoring part of one's brain to the artistic, inventive part" (Cameron, 1992). This process can also suggest new ideas and streams of creative thinking.

There are numerous examples of techniques that have been used to overcome creative blocks. Through the designed study, techniques utilized in today's creative work environments will be explored further, from the perspectives of the employees through personal narratives (see 6.0, Space Studies).

3.3 Challenges of Measuring Creativity

Creativity can be as difficult to measure as it is to understand. In order to measure this experience, it must be acknowledged that one can only measure perceived support for creativity. In the study, *Qualities of Work Environments that Promote Perceived Support for Creativity*, the researchers examined physical predictors of workplace creativity and measured the perceived support for creativity, rather than attempting to understand individual creativity, and provided scale items with Cronbach's alpha reliability coefficients, suggesting questions with strong reliability. (Stokols, Clitheroe, & Zmuidzinis 2002). Because creativity is a controversial topic, it is more logical to study the perceived support for creativity or the individuals understanding of their ability to be creative. This can be achieved through the completion of survey questions and participant narratives.

In the study *Open Space = Open Minds?*, the researchers utilized case study research design to investigate this "new spirit" of open and pro-creative workplace design, and recommended methods for quantifying creativity (Cummings, Thanem & Värlander 2011). Case studies are particularly useful for developing hypotheses regarding organizational behaviour, especially when

exploring topics not yet dominated or explained by a well developed theory (Yin, 2003). Methods from the study conducted by Yin, are replicated and modified, so that creativity can be compared and quantified in this research.

In recent years, more rigorous research methods using experimental designs have been developed to assess creativity. For example, the Abbreviated Torrance Test for Adults, is an applicable test, which quantifies both the figural and verbal creative strengths, through responses to various creative trials of divergent thinking and problem-solving (Goff & Torrance, 2002). Outcomes of this experiment yield scores in four categories; 1) Fluency (ability to generate numerous unique responses), 2) Originality (ability to generate unusual or infrequent responses), 3) Elaboration (ability to add detail to creative responses), and 4) Flexibility (ability to respond to the same object in multiple unique ways). Although these tests are not used in this study, ideas and motives are considered during the participant interactions.

4.0 Towards a Framework for Environment & Creativity Associations

4.1 Associations Between the Designed Environment and Creativity

Analysis of previous workplace design literature provides elements to create a detailed infrastructure for comprehension of creativity in the work environment. This framework creates an understanding of the elements which generate the methods and findings of the study.

A framework is generated guide the study; to understand and appreciate how the questionnaire and the focus groups are designed to evaluate creativity, considering all of the contributing factors, including the secondary outcomes of engagement and levels of distractions [Figure 1]. This framework rationalizes that creative office design affects employees experience of creativity through three facets; social culture, tools and materials and cognitive experience. Through consideration and explanation of these three facets, the affects of the physical environment on the experience of creativity can be understood.

The following section of the research paper discusses the three facets which affect employee experiences in the workplace. First, the factors affecting social culture are explained (organizational values, social and technical rules, individual differences) following with the importance of accessible tools and materials, and finally the factors affecting cognitive experiences (previous knowledge, past experiences, and individual differences). The outcomes of these facets are then explained with a focus on two opposing outcomes; engagement/ stimulation and disengagement/distraction. In the explanation of these

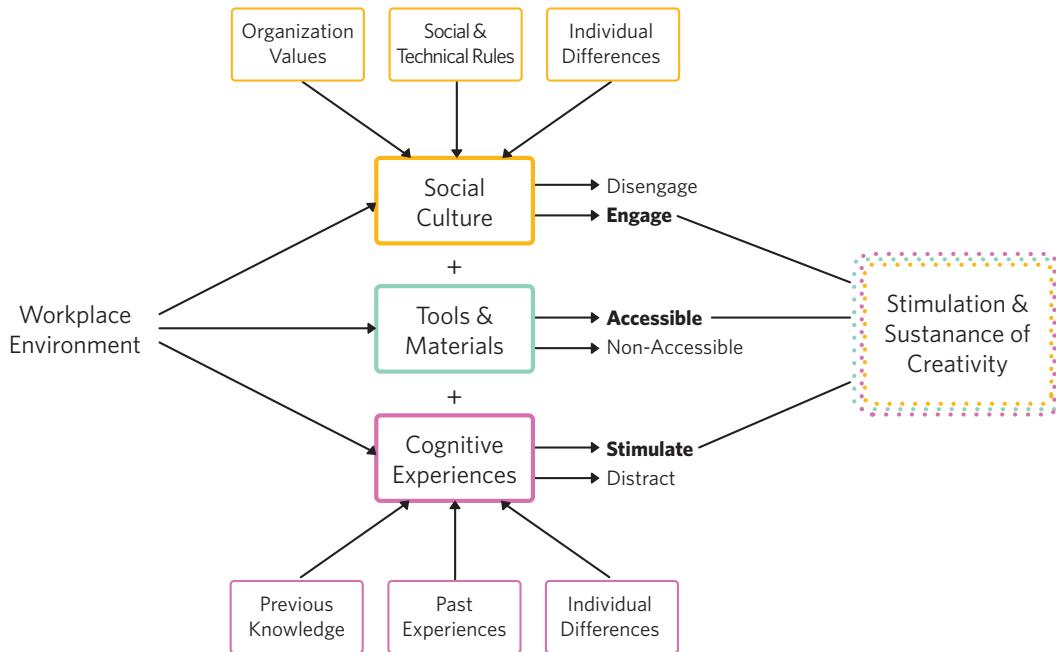


Figure 1: Framework for understanding associations between the designed environment and the resulting creative output from individuals within.

outcomes, it is discussed how employees experience of creativity is affected. Thus, a framework is conceived and connections are made; contributing factors affect the three facets, which result in outcomes, which produce some level of creativity within the workplace environment [Figure 1].

4.2 Factors Affecting Social Culture/Climate.

Social culture consists of company values, social and technical rules, and individual differences. The experience of creativity is largely dependent upon how social culture is encountered, resulting in employee engagement or disengagement.

Company values are reflected in the social culture of the organization. Frequently these values entail themes of respect, divergent thinking, passion and responsibility. For example, two of the eight official company values at Amazon are: 1) “Vocally Self Critical” and 2) “Have Backbone; Disagree and Commit” (Amazon.com Inc, 2014). Organizations utilize diverse methods to permeate these values into all aspects of the company, predominantly through the social culture. Amazon enforces these values by allowing them to influence all decision-making and the generation of feedback. In the majority of creative corporations the company values define the social culture through implementation of the organizational values, social and technical rules, and recognizing individual differences.

Leading the way in creative office design is Corus Entertainment with their new waterfront facility, Corus Quay. It is an excellent example of a company which recognizes the importance of a healthy social culture. The facility features organizational design that sets a new standard for broadcast and content operations globally. Values of Corus Entertainment include teamwork, innovation, and initiative which are reflected in the inventive space (Corus Entertainment, 2014). The 460,000 square foot office is designed as an open concept work environment to foster collaboration and innovation, complete with a 3-story slide (Corus Entertainment, 2014). It is the implementation and seamless integration of these values, which create the enjoyable social culture.

Social and technical rules also shape and define the social culture. To maintain an organized social philosophy certain rules exist, some instinctive and innate, and others learned. For example, what was once considered inefficient

personal chatter, is now becoming recognized as informal interactions. For fellow employees to purposely stop and converse with each other, they must perceive that this is socially acceptable conduct (Fayard and Weeks, 2007). These types of social and technical rules affect individuals' behaviours which can alter and shape the social culture.

Individual differences, both psychological and physical, influence the social environment. Specifically, the interaction of differing personalities, shape the communication within a workplace. An immense quantity of research exists regarding personalities within the workplace. What is imperative to recognize is that these personalities exist and work differently together. A study on team effectiveness demonstrates that "individuals training on the type of personality of team members assisted them to improve communication, trust and interdependence, essential characteristics of an effective team" (Varvel, Adams, Pridie & Ulloa, 2004). Therefore substantiating that the understanding of individual differences in personality can enhance team effectiveness and further shape the social culture. A common method for analyzing differing personalities is the *Myers Brigg Type Indicator* (MBTI). This analysis is helpful for personal recognition, as well as raising awareness in a workplace of differing personalities, and work styles (Varvel, Adams, Pridie & Ulloa, 2004).

Individual differences of mental illness and physical disability are further addressed in 4.4 Factors Affecting Cognitive Experiences.

4.3 Tools to Support Creative Behaviour

As in any workplace, there are essential tools and materials needed to accommodate the work being accomplished. Specifically in creative workplaces, the required tools and materials need to be accessible, in order to support ingenious, inspired behaviour. These tools comprise of basic supportive properties, including comfortable furniture, inclusive software, appropriate lighting, suitable technological devices, and diverse ideation tools. Tools that support seamless communication and collaboration reduce barriers, allowing creative ideas to prosper. Without these tools and materials, creative work is far more challenging to pursue and successfully achieve.

4.4 Factors Affecting Cognitive Experiences

Cognitive experience is a reflection of previous knowledge, past experiences and individual differences. The understanding of creativity is dependent upon living through cognitive encounters which are found to be either stimulating or distracting.

Responses to and interaction with any environment is subjective to the individual, resulting in differing experiences of the same space. This is largely attributed to the divergence of previous knowledge, past experiences and personal differences. Using Gibson's (1979) concept of affordances, we can begin to understand how spatial design affects a person's responses within an environment. Gibson (1979) defined this concept as the action possibilities concealed in an environment, in relation to the individual recognition and capabilities. Simply

put, affordances are cues which make certain actions available, suggesting the presentation of specific behaviours. For example, a round door knob would afford twisting, while a vertical door panel would afford pushing. "But affordances are also relational and subjective aspects of the environment — what an environment affords is different for different users" (Cummings, Thanem & Värlander 2011). Often individuals have differing responses due to their past and individual unique personalities. In addition, affordances in "certain environments and artifacts are governed by social or technical rules that must be learned by it's users" (Hutchby, 2001). For example, for employees to engage in social interaction during work hours, they must feel that it is socially acceptable to do so. Since affordances are experienced very differently by each individual, it is imperative to consider this concept when exploring how environments foster creativity. What fiercely stimulates some may fervently discourage others.

A significant consideration when designing an environment for creative individuals, is to take into account their character and individuality. This includes personality traits, and although often not considered, their mental and psychological state of mind. Recent work by Arnold Ludwig, PhD, Kay Jamison, PhD, and James Kaufman, PhD has proven that "artists tend to show higher rates of mental illness and related symptoms than the average population" (Kersting, 2003). It has been discovered that artists and creators are more likely to have Attention Deficit Disorder and Attention Deficit Hyperactivity Disorder (ADD & ADHD). A recent study determined that "adults with ADHD showed higher levels of original creative thinking ... and higher levels of real-world creative achievement, compared to adults without ADHD," an emancipatory finding (White & Shah, 2011). Recurring characteristics of both creative persons and

individuals with ADD, include relatively high divergent thinking ability and the ability to be less influenced by contextual constraints during creative activities (White & Shah). Designing for these types of individuals can pose challenges; with these divergent thinkers, the environment must be engaging without causing distractions. It is a delicate balance between generating a sense of creativity versus a disruptive commotion in the workplace.

“Some individuals appear better able than others to cope with the excessive stimulation inherent to the open-plan office environment” (Maher & Von Hippel, 2005). Personal abilities can affect the way an individual experiences an environment, both mentally/psychologically and physically. Persons with physical disabilities experience environments vastly differently, often meeting with enormous challenges. When environments are not carefully considered and designed to include these individuals’ needs, substantial frustrations may arise, be it issues regarding sight, navigation, communication and mobility. These substantial frustrations may foster negative associations with the space, yielding cognitive strain thus prohibiting a creative mind set. For example, digital signage designed to assist people navigate through an environment, could cause significant aggravation for persons with visual impairments, related to issues with contrast, size and brightness. Conversely, in a well-designed and inclusive space, positive associations are personally generated through employee comfort by finding their way.

4.5 Engagement/Stimulation and Creativity Associations

“The challenge today is not just retaining talented people, but fully engaging them, capturing their minds and hearts at each stage of their work lives” (Lockwood, 2007). Engagement is a complex concept, which is profoundly influenced by environmental factors and the workplace culture. The term engagement can be understood as the psychological states, traits and behaviours of individuals within a workplace, or the emotional and functional commitment an employee has to his or her organization.

Engagement is vital to any field of work and includes essential elements such as retaining employees, producing quality products and overall performance excellence. A recent study conducted by Dale Carnegie Training and MSW revealed that companies with engaged employees outperform those without, by up to 202% (Importance of Employee Engagement, 2012). The question that organizations need to consider is, how can the physical environment provide emotional and functional engagement to those within it?

It has been determined that levels of engagement and levels of creativity are linear associations. A group of psychologically engaged individuals is more likely to be a more inspired and productive group. In an examination of creative teams, results of cluster analysis showed that individuals perceived their tasks to require high levels of creativity and had a climate supportive of creativity, an indicator when measuring engagement (Gilson & Shalley, 2004, Thackray, 2001). A supplementary study found similar results; by providing meaningful work and an empowering social culture, the creative process of engagement

was positively influenced (Zhang & Bartol, 2010). Through an effective social culture and support of cognitive experiences, an environment fosters creativity by engaging its' individuals.

When studying engagement it is essential to consider strategies that organizations and their human resources utilize to ensure employee commitment. *Leveraging Employee Engagement for Competitive Advantage* is an extensive document outlining the trends, levers, influences and barriers of employee engagement (Lockwood, 2007). A considerable amount of attention is given to themes and tools for measuring engagement. Additionally, the *Gallup Q12 Survey*, the product of an extensive research study, provides organized insight into twelve methods to effectively measure employee engagement. Although these methods of testing are not used in the study, common concepts and themes are recognized and adapted to suit the study. Recurring themes include perceived support for employee growth opportunities and the availability of support for creative work. The desire to be essential and the freedom to generate ideas are compelling determinants for employee fulfillment and retention.

4.6 Disengagement/Distraction and Creativity Associations

It is critical to consider the effects distraction has on an individuals' creativity. Persons experiencing cognitive strain and disruptive distractions are likely to be vigilant and suspicious, thus impeding creativity and intuition (Kahneman, 2011). Earlier studies have documented environmental stress-inducing distractions of uncontrollable physical stimuli and events such as noise or prolonged exposure to crowded environments (Cohen, Evans, Stokols, & Krantz

1986; Glass & Singer 1972, Sherrod 1974). Environmental distractions directly affects an individuals perceived support for creativity and must be considered when trialling an environment. These factors can restrict experiences of creativity by interfering with concentration and heightening feelings of unpredictability, thereby creating a notion of an impotent environment.

By analyzing these core concepts, relationships can be made between perceived support for creativity, employee engagement and levels of environmental distraction. Associations between these concepts and certain environmental characteristics can suggest improvements for future creative facilitation and recommendations for future study.

5.0 Research Methodology

Research design, objectives, study sample and setting, and procedures are described in this chapter. The measurement instruments are reviewed. Finally, the procedures regarding the ethical conduct of the study, data management, and analysis are outlined.

5.1 Research Design Overview

A descriptive mixed methods study was conducted. The study explored creativity using an ethnographic scan, participant surveys and focus groups methods. The study settings included four cases: three creative organizations (i.e., Google/YouTube, Idea Couture, and Bento Miso) and one reference organization, the Digital Futures program at OCAD. The participants included employees of the creative organizations and students at OCAD.

The objectives of the study were to determine the affects of creative office design on the users within the space. What is specifically explored is how the environment fosters creativity, engages the inhabitants, and distracts from creative output.

In order to understand how to measure these study objectives, one must first analyze pre-existing studies and critique their methods. In accordance with this research two previous studies are investigated and deconstructed, with attention to the methods utilized when interpreting the findings. Because the

present study used both quantitative and qualitative methods, two high-quality studies depicting each method will be examined.

Quantitative Research Study

In the research study, *Qualities of Work Environments That Promote Perceived Support for Creativity*, researchers questioned the physical and social elements which impacted the support for creativity in the workplace (Stokols, Clitheroe, & Zmuidzinas, 2002). What is particularly intriguing about this research is the focus on the relationship between the physical environment and the social culture within a workplace, which was not evident in previous workplace studies. This relationship is examined and two hypotheses emerge; 1) that the physical and social features of work environments influence employees' job satisfaction and well-being, and 2) environmental distractions and poor social climate at work can restrict employees' experiences of creativity. The study findings supported the hypotheses to be true, indicating that both recorded levels of environmental distraction and self-reports of social climate are significantly linked to employees' perceptions of support for creativity at work.

The study involved ninety-seven participants who completed questionnaires assessing employees' perceptions of support for creativity, job satisfaction, personal stress and their ratings of physical and social features of the workplace. A group of participants within an office which underwent extensive renovations and relocations were compared to the remaining participants that experienced neither in their workplaces. The researchers organized the data, utilizing quantitative methods and advanced statistics, conveying information

through a series of tables. These tables analyzed the relevance of the questions, the major predictors and outcome variables. From these tables came emerging themes, with regards to the hypotheses. Methods used in this study have proven to be useful and adaptable for drawing themes, when conducting workplace research. These methods are modified and applied to suit this designed study, through the design of the survey.

Qualitative Research Study

In the second study, *Open Space = Open Minds? The Ambiguities of Pro-creative Office Design*, delved into the notion of fostering spontaneity, fun and creativity through office design. What is unique about this study is that the researchers suggest that creative office environments “may actually undermine the kind of creativity that it is intended to foster, producing unforeseen forms of employee creativity that normalize rather than disrupt” (Thanem, Värlander & Cummings, 2011). This investigation brought to light numerous assumptions surrounding workplace design and how they came into existence. The findings indicated that their hypothesis was accurate; that open-plan environments can foster diverse types of creativity, other than what is intended. Instead, the researchers suggest incorporating a combination of spaces that offer differing values to employees.

Unlike the previous study, this research paper utilizes qualitative methods to uncover participant narratives regarding this new spirit of workplace design. Using two offices with differing environments as case studies the researchers conduct employee interviews, and an ethnographic scan, using photographs as

documentation. The outcomes of the two case studies provide both similar and differing results creating contrast for comparison and perspective. This study concludes with a detailed discussion of understanding creative office design and organizational politics. These methods proved to be effective in attaining themes from participant narratives. This can be adapted to suit this study, through the design of the focus group discussion.

These two studies provide essential methodology knowledge when assessing the results of an experiment. By building upon and adapting these methods used in both studies, an inclusive framework is developed for organizing and attaining results [Figure1]. The methods from the previous two papers can be adjusted to suit this study, incorporating methods for an ethnographic scan, a quantitative questionnaire and qualitative focus groups.

5.2 Contextual Search and Review

Prior to the execution of the study, an extensive systematic review was conducted. This review provided a broad understanding and an indication of what is current in the field of workplace innovation. Literature, video, personal interviews, keynote speakers, and newspaper articles provided a wealth of knowledge regarding the current position of this field. From this review, trends were discovered, and knowledge gaps were brought to light.

5.3 Ethnographic & Environmental Study

An ethnographic scan of the environments was conducted. This scan consisted of the social culture and the physical environment. This provided foundational knowledge of the interior elements within the workplace that were designed to foster creativity. The ethnographic scan took place at three creative organizations (Google, Bento Miso & Idea Couture) and the reference environment (OCAD University Digital Futures learning spaces). Photographic documentation was recorded to supplement the gathered information. In depth details of this field scan is further examined in **6.0 Space Studies**.

5.4 Participant Survey

The participant survey provided additional background information on the inner workings of the office culture. For convenience and coherence purposes, the survey was designed and completed using an online platform, with three topics of focus; employee levels of creativity (60%), engagement (20%), and distraction (20%). The survey was developed by the principle investigator, Mariel Vandelloo, based on findings from the contextual review. The survey used a combination of short-answer questions and five-point Likert Scales. The study measures have been reviewed (prior to execution) by four creative professionals to elicit feedback on content and feasibility (for example, simplicity of language, ease of reading, and time allowed to complete) prior to the data collection. Based on their recommendations, changes were implemented to improve the format and readability, and the content and wording of measures developed by the investigators. The survey was designed to take no longer than ten minutes to

complete. The survey was taken by ten participants at each of the three business organizations and the reference group (forty participants in total). **Please see Appendix A: Survey Guide.**

5.5 Focus Group Discussions

The four focus groups require the participation of six individuals at each (twenty-four participants). Typically in creative team-oriented projects, the number of members ranges from five to twelve, and the number of six participants is frequent. At Amazon, Jeff Bezos “came up with the notion of the ‘two-pizza team’: If you can’t feed a team with two pizzas, it’s too large. That limits a task force to five to seven people, depending on their appetites” (Deutschman, 2004). At Google the team sizes remain small and self-directed, ranging from three to six people. Please see **Appendix B: Focus Group Discussion Guide** for details outlining the focus group approach.

These participants will have previously completed the survey portion of the study. These focus groups were informal and had questions regarding levels of creativity, engagement, and distraction. Questions included “What creative outlets do you use to complete these tasks? How do these outlets assist in fostering creativity? Do you feel your workplace environment is conducive to completing creative tasks?” The purpose of the focus group was to provide narratives to explain and build on the results found in the surveys. Each session was audio recorded with then transcribed. Each focus group discussion took no longer than half of an hour.

All data from focus groups and surveys were used in the analysis. Raw data generated from the focus groups and surveys were organized into codes based on phrases that appeared systematically or repetitively transcripts. The codes were then grouped into themes based on similar characteristics and relationships among the themes determined. Descriptive statistics were used to summarize the quantitative data. Data will be kept for the duration of the Masters program. Upon graduation (June 2014) data will be disposed of.

5.6 Ethics & Research Procedures

The research proposal was approved by the Research Ethics Board at OCAD University [2014-07]. Participant risks and confidentiality were maintained in accordance with privacy and ethics board requirements. Confidentiality was maintained with having no identifiers and ensuring individual responses were not shared with employers or OCAD, unless otherwise indicated by the participants.

Because this study involves participant responses with regards to their places of work, certain risks are viable. These risks and options have been explained to the participants and include privacy of their opinions of their workplace. In this case, they may feel some discomfort answering some of the questions. Participants have been notified that they are allowed to leave questions unanswered and forfeit the study at any time.

6.0 Space Studies

The locations of this study involved four creative spaces; one reference group in the Digital Futures learning spaces at OCAD University and three corporate offices (Google/YouTube, Bento Miso, and Idea Couture).

6.1 OCAD University Digital Futures Studio Space

6.1.1 Participants

The reference group included both first and second year students in the Digital Futures Initiative (DFI) pursuing either a Master of Design (MDes), Master of Fine Arts (MFA), or a Master of Arts (MA) at the Ontario College of Art and Design (OCAD) University. Ten students participated in interviews, while twenty-two students participated in surveys, offering their insights on the DFI learning spaces.

6.1.1 Study Setting

The reference group at OCAD University was chosen to provide a comparison between itself and the creative offices. These learning spaces are unique as the environment was not originally designed for creative output however the individuals working within the space are expected to produce imaginative work. Students addressed that the lack of attention towards the design of the environment was causing some creative production issues. Students were then involved with a small-scale redesign of the space with consideration of budget,

time and space amongst other factors. “A bunch of people sat together, like an architect and an industrial designer and started to revamp it,” one student recalled. As with any institution, a variety of limitations shape the resulting space. Funding, electrical configurations and diversity of opinions were of concern leading to various challenges. One student who oversaw this redesign commented “we had a lot of conflicting desires coming into play... the challenge was just getting consensus with people and providing what everyone needed, which is very diverse.” Several floor plans were designed and revised to fabricate the current layout [Figure 2].

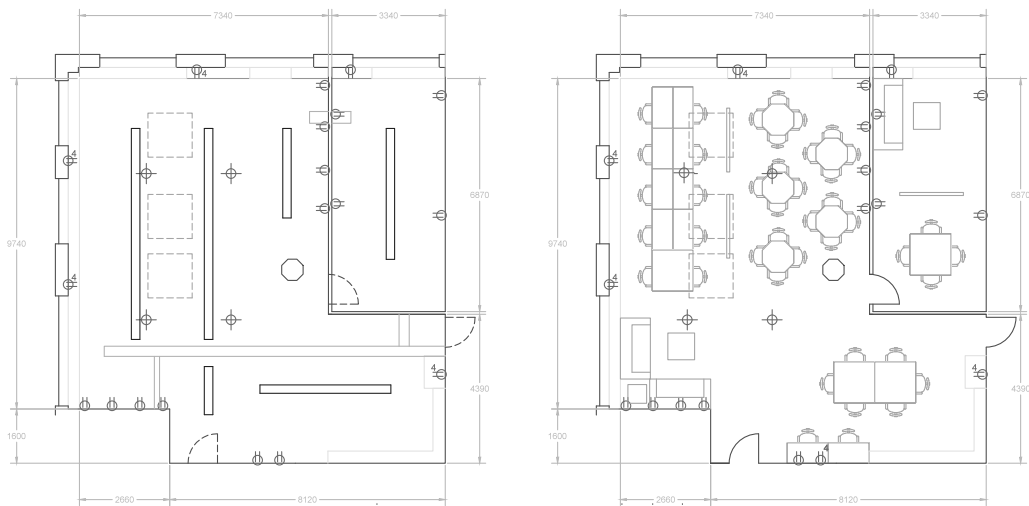


Figure 2: Ceiling and Floor plans of the redesigned student learning space.

6.1.3 Results

The intention of the redesigned working area was to encompass a delicate balance of collaboration and individual ownership of the space. Most students agreed that the area was convenient, supported collaborative work and housed ample tools and equipment to facilitate creative output.



Figure 3: Collaborative OCAD DFI learning space.

Students found the space to be opportune; “it’s central, it’s right where we go to school so it’s convenient” due to the central downtown location in the DFI Graduate Studies building. Students have classes and meeting in the same building, so this studio space is easily accessible.

The space is open with plenty of seating options and areas to congregate and brainstorm [Figure 3]. On collaboration, one student commented, “I come here because by nature I like to do a lot of things collaboratively even if it’s an individual project ... I get unexpected learning opportunities by coming here and I learn new things.” The space allowed for unexpected co-worker run-ins and conversations. When participating in group work, one student stated, “we usually sit at tables because they’re round or mostly round and so it’s conducive to conversation.” However this support for conversation can deter creative work

by producing high levels of noise and distraction.

Perhaps the most prevalent issue that existed in the space was the level of noise. "I don't spend much time here at all because I find it too noisy and too distracting...So I don't use this space at all except for group projects.... People come up and ask me stuff and I just prefer to focus when I'm working." Because the space encourages collaborative work, there are often many conversations producing high levels of noise in a contained environment. "It worked well for that, for creative problem solving, it's just not great for me when I'm trying to focus on a task and get something done." Heather Simmons suggested a solution to this; a web-based noise monitor that could be reviewed before leaving to work in the space:

If I knew for example that it was really quiet in here (the studio space) and I wanted to have a conversation with like one other person and I could check that at my house up north then I would actually come down here. But if there's a risk that it's going to be super noisy or whatnot I'd just say well let's just meet somewhere else. Let's meet at a quiet coffee shop because it's probably quieter. (2014)

There were many conversations about noise as a distraction however other types of disruptions were cited. Due to lack of space and the number of students using the space clutter started to build up [Figure 4]. One student commented on the various objects around the room and how these act as distractions, "you start thinking well this looks awesome, I'll try one of those or we should tinker with that." This reflects on the issue of deficient space.



Figure 4: An image showing clutter which was found to be distracting for some students.

A recurring concern was that there was simply not enough space for the number of students, “you know space is always an issue in that we don’t have enough of it.” (Simmons, 2014). Another student stated, “We’re just too many people with too many different needs. Right? To consolidate in one small space.” Unfortunately, this is a limitation that is problematic and challenging to work around. One student provided thoughts for a better space, if these limitations did not exist:

Another way I would go which was really helpful in my undergrad actually was our library space. So the large library space was quiet space. Everyone sat in the same area and it was quiet and they did their own individual work. But then you’d have individual study rooms where the groups would go and work. So you wouldn’t have the

competing noise of the different groups trying to talk over each other. And each of the rooms had its own smart board and stuff that they could pull up. (2014)

The space provided ample tools and equipment to facilitate creative work. These tools included white-boards, circular tables, lockers, arduino circuitry, printers and access to a small kitchen. Lockers are provided to students to store projects and materials offering convenient safekeeping [Figure 5]. A student who



Figure 5: Rows of lockers are provided for students to use.

used these lockers and appreciates the availability states, “the storage spaces are especially useful at the beginning of the semester when we have a lot of arduino projects, a lot of circuitry and a lot of wires everywhere.” Another feature of the space is the micro-kitchen that is provided [Figure 6]. One student commented, “I think a lot of people use the kitchens. It’s a nice hub in-between classes and



Figure 6: An image of the small kitchen area in the space.

breaks. A lot of people go in there and make food and tea and stuff.” The kitchen includes a microwave, sink, fridge and coffee machine. Heather Simmons, candidate in the Digital Futures Masters program, commented on some of the additional tools provided:

There’s great tools here in the sense that there’s soldering irons which we need, there’s all sorts of print formats, there’s hook-up wire and widgets that we need to create or projects... So you can actually get your hands dirty and actually work on projects that we create for class. It’s not bad in terms of tools there just needs to be more of them and probably could be replaced more frequently. (2014)

The consensus on the provided tools is that they are generally high quality, however there is not enough to accommodate all of the students and they could

be updated to facilitate improved learning [Figure 7]. “I wish that we had more equipment here, like we only have a few arduinos here available for rental and for booking out,” one student stated. Additionally, there is concern about the management of the tools and equipment. There is uncertainty with whom to speak to about the organization of the various tools. A student expressed her concern, “I think also in terms of the equipment that’s provided if they’re going to provide us with free printers, scanners and all those things, it has to be clearly indicated who’s responsible for taking care of that equipment and maintaining it so if we run out of toner we don’t run out of printers.”

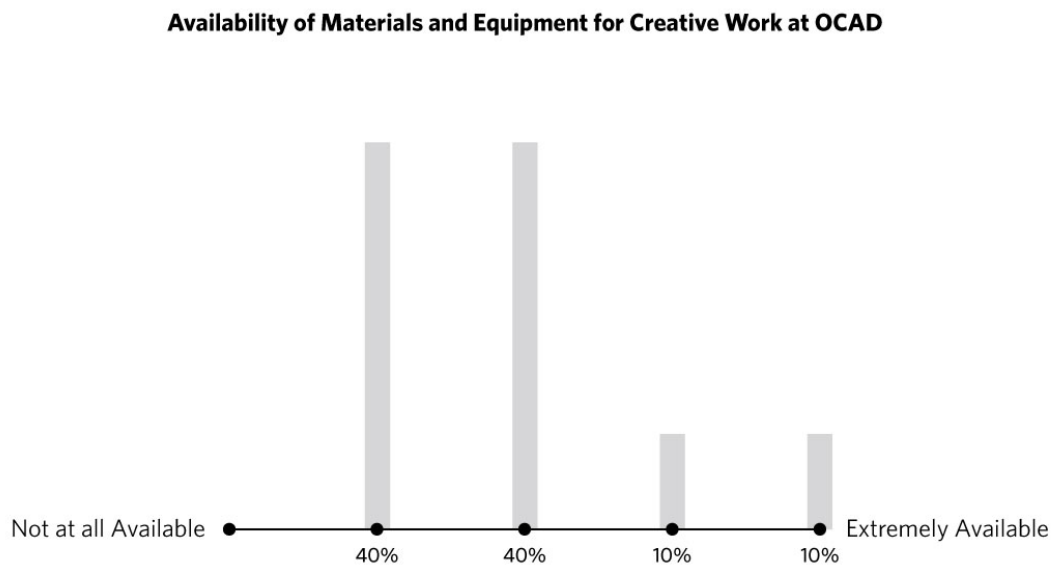


Figure 7: Results from the survey indicating that most students felt that materials and equipment were only slightly available.

The result is a vibrant space where collaborative work is encouraged [Figure 8], although nonetheless some concerns exist amongst users. One student commented, “It improved vastly compared to what it was before... but I



Figure 8: Collaborative spaces for students to interact.

don't think it addressed the core of the issue which is the (problem) between individual quiet work and the group work in the space, and that would require structural changes," a limitation beyond the control of the students. Although the space was suitable in a sense that it was convenient, supported collaborative work and housed ample tools and equipment, there were nevertheless concerns with regards to noise, space, clutter and management. Results showed that even after the redesign, the students felt the space was only slightly conducive to creative output [Figure 9].

Many of the users of the space expressed interest in the betterment of the space, and were willing to provide feedback and ideas about possible changes for the future. The conversation about how to further improve this space is a continuing ongoing effort.

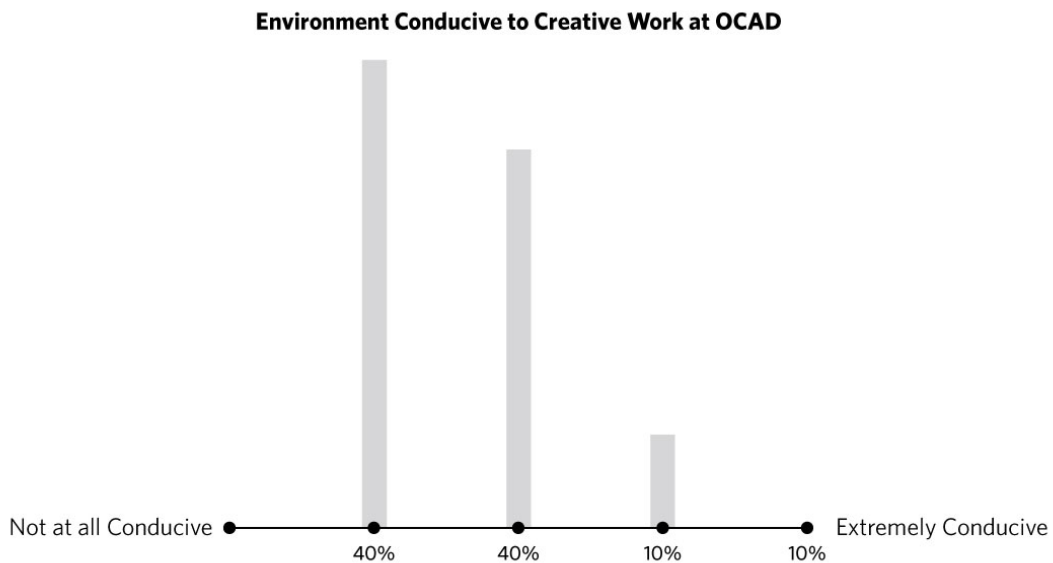


Figure 9: Survey results showing that most students perceived the environment to be only slightly conducive to creative work.

6.2 Google Office

6.2.1 Participants

The participants included employees of Google located at the Toronto location, in the financial district. This specific location is the advertising sales support center for Canada. The participants included both men and women in varying positions, at differing levels of standing within the company. The team of 'Googlers' included developers, account managers, marketing specialists, communications strategists, and support staff. The participation of the Facilities Manager, Andrea Janus was particularly active, as she is heavily involved in the design of the space and the social culture.

6.2.2 Study Setting

Located centrally in downtown Toronto, this office stretches over five floors with 89,000 square feet. The space is a creative playground, which accommodates rooftop mini-putt, music rooms [Figure 10], massage rooms, free lunches, and ping pong, all which utilize environmentally responsible materials.



Figure 10: A drum set in the music room where people can take a break from their work.

Embracing Canadian themes, the space is designed to reflect the Toronto community and to mirror the diversity of the city. Artwork from Canadian artists and designers are hung on the walls [Figure 11] and meeting rooms are named after locations around the city selected by staff, such as the Stompin' Tom Connors' room.



Figure 11: A collaborative art piece, where a local artist drew a stencil of the Toronto skyline, and visitors of the office coloured in the blanks.

Meeting rooms are themed and have interesting and abstract features, to inspire and captivate. For example, if employees need to relax or have a casual meeting, they can choose to utilize the tent room [Figure 12] or the room which accommodates a pool table [Figure 13]. Traditional meeting rooms do not exist within these walls [Figure 14]. A favourite amongst employees is the hidden room; a room that can only be accessed through a bookcase, by selecting a certain book. Behind the swinging book case is a cozy and comfortable room, perfect for a private meeting.

Food is available to bring people together through the use of one large cafeteria [Figure 15], where lunch is provided each day, and through



Figure 12: A unique space to have a meeting, or relax.



Figure 13: A meeting room with a pool table.



Figure 14: A non-traditional meeting room with an outdoor theme.



Figure 15: Seating in the cafeteria.

additional micro-kitchens on each floor [Figure 16]. This is where employees can gather to meet or enjoy complimentary breakfasts, lunches, and snacks. There is a focus on sustainability and health, thus most food offered is healthy, although there are some exceptions of candy and other treats. The food areas are designed to foster conversation and casual run-ins with individuals, by providing large communal tables.

The company values environmental responsibility and therefore practices regenerative design; the process of restoring or renewing sources of energy and materials and creating sustainable systems. The building and office space are working towards a LEED Gold certification. Many materials and furnishings are recycled matter, for example the fishing-wire carpet, reclaimed wood walls, and



Figure 16: A micro-kitchen providing healthy snacks and communal seating.

recycled car lights. Additionally, 100 per cent of the power generating the office is from clean, green sources.

6.2.3. Results

The survey revealed that although the environment is designed to inspire and foster creativity, with clever themes and unusual decor, the employees work a maximum of sixteen hours per week on creative tasks, with many reports of working less than nine. Despite not working many hours on creative tasks, the employees agreed that the environment was conducive to creative output, through availability of inspirational outlets, accessibility of tools and materials, and the opportunities to learn and grow.

It was discovered that many creative outlets exist throughout the environment, such as areas for collaboration, quiet spaces for phone calls, and spaces for ideation and brainstorming. One Googler offered their opinion on the availability of creative outlets and how these outlets aid in the completion of creative tasks:

This place has so many outlets that allow you to generate great ideas. It can be as simple as sitting with the designers and watching a video being edited, or playing arcade games in the lounge, or just picking up a Rubik's cube on the table next to you while you have a chat with your colleague. It's impossible to pinpoint the exact catalyst because doing these things comes as second nature. (2014)

The office is designed in a way to spark accidental run-ins and conversations with other colleagues, with available spaces to accommodate such activities. One employee commented on the usefulness of these encounters, "there are many creative spaces where we can go to collaborate and brain storm. These casual collision spaces allow me to learn from my colleagues outside of a meeting room." Another employee stated that "discussions with very intelligent people" is the most useful creative outlet.

What is interesting about the physical space, is that 'Googlers' were heavily involved in the design process, and encouraged to share their ideas on what they would like to see in the environment. The result is a space designed based on ideas from hundreds of staff members, from small personal touches to conveying significant Canadian influences. This inclusion creates a sense of togetherness and engagement in the social culture.

All participants reported that this environment provided excellent opportunities to learn and grow, which is associated with high levels of employee engagement (Thackray, 2001). This was attributed to abundant mentoring, leadership, extracurricular opportunities, and constantly changing projects and teams. These qualities within the culture were shown to engage employees. One Googler provided opinions on these qualities:

Even though you might have a specific role (ie. designer) you are likely also part of a multidisciplinary team. Being constantly exposed to (and working on projects with) people from different professional backgrounds allows you to grow and develop a unique skill set. (2014)

Another opportunity to learn and grow as an individual at Google, is to engage in their 'Hack Days.' Hack Days are an event in which individuals throughout the company collaborate intensively on a project, usually involving software/hardware, but can also be something completely different. These projects are completed over the span of two days, which explains the intense collaboration. The goal is to create something usable and useful for the company. One participant stated "Hack Days are a great opportunity to grow outside of your normal day to day role." Working with individuals that one might not normally work with provides opportunities to learn from each other, promoting engagement as a whole.

With an abstract and inspiring environment, distractions are sure to ensue. The most reported distraction is noise and the "limited quiet areas, such as the phone booths and break out rooms" where high noise levels can be avoided.

Other distractions include social conversations, and phones calls. Despite having accessible games and a focus on play, the gaming consoles were not found to be a distraction but rather a refreshment:

It's not really a distraction for me (games). I can step away from my desk, do something different (like play ping pong with my colleague) and then get back to work refreshed. So it's not really a distraction in the end.
(2014)

Overall, the distractions at Google are not uncommon, and most are viewed in a positive light. Through availability of creative outlets, availability of tools and materials, and opportunities to learn and grow, creativity is fostered within the culture within Google, Toronto.

6.3 Bento Miso Collaboration Space

6.3.1 Participants

Bento Miso differs from the other case studies as it does not contain people working together as an organization but rather houses individuals on a membership basis, working on personal projects. These individuals include entrepreneurs, game makers, designers, developers, artists, students, and other creative individuals. Currently there are over 160 members who utilize the space. The study included the participation of ten individuals who participated in the survey and two individuals who were interviewed. All participants are from differing backgrounds, working on various projects.

6.3.2 Study Setting

Bento Miso provides a creative space, where members can work and play as well as host events and meetings [Figure 17]. Many aspects of Bento Miso have a focus on play and gaming, such as the events that are hosted there. A



Figure 17: A collaborative space at Bento Miso.

membership includes access to the private member site and to the space. The work environment is mainly open concept with several smaller meeting rooms, equipped with electrical outlets, wi-fi, coffee, and modern, ergonomic furniture

[Figure 18]. The entire space encompasses two floors, with the upstairs utilized for an administrative office and for event space. Henry Faber, business director and co-founder of Bento Miso states “Bento Miso is the collaborative workspace we created to represent the physical extension of our values” (2013). He continues, “basically there’s one thing I personally want to contribute to, is to give a lot of these independent game developers and small studios that are looking to make a go of it to gain sustainability and thrive. I want to be able to give those tools so that we can keep getting these amazing games” (Faber, 2013).



Figure 18: Tools used for idea generation.

6.3.3 Results

After review of the survey and discussion with members, it is clear that the users enjoy the space and find it conducive to creative exploration. They also agree that many tools and materials are available to support this discovery. As is with most creative environments, social distractions are present.

Yifat Shaik, game designer, illustrator, and graphic designer offers her opinion on the space:

There's one big open space with desks and there's a smaller space with no desks...(which are used) usually if there's a project that has physical components or if you want to sit in quiet. It's a good co-working space. (2014)

Shaik went on to further explain that the environment is very professional. Everyone who uses the space is passionate about their endeavor, so it is generally a "hard-working crowd" (Shaik, 2014).

The social culture is particularly remarkable at Bento Miso. One member reflects on personal betterment from engaging socially, "It is no exaggeration to say that working at my particular co-working space has influenced my company, myself and my world views in many positive direct ways by interacting with the other members and learning more about the perspectives of a diverse set of people who happen to share some interests or a need for warmth, power and unlimited Internet." The survey supports this positive feedback in that the users believe the environment provides opportunities to learn and grow. The

social culture is “non-judgemental, with no external pressures.” It is a common practice at Bento Miso for after-work activities and events to occur, which also provides opportunities to learn and discover for those who attend [Figure 19]. The “rotating cast of coworkers, and opportunities to show personal work” adds to the already inspiring environment.



Figure 19: An event which is hosted at the adaptable space.

When asked about available tools and materials, one member recalled a particularly memorable experience with the availability of Lego®, “At my work space I had one of the other members film me over a four hour period as I assembled a Lego puzzle box of my own design that I then used to propose to my fiancée.” Additional tools utilized consist of writable cling film, white-board walls, boxes, and craft supplies. Overall, study results show that most individuals found creative outlets, such as these described, to be extremely available and valuable.

As found with the previous creative space studies, some distractions are present. It was discovered that although social distractions exist, this disruption is usually welcomed. The individuals use these social distractions to revitalize or decompress. One member recounts “It’s open concept so occasionally I get too chatty with other people but since I consistently work at over 125% capacity a few breaks is not a bad thing.” Another member agrees about the “social coworkers, although the break is usually welcome.” Where other creative workplaces view these social occurrences as impediments, at Bento Miso it is viewed as a time to recover, and engage in a social break from work.

Findings show that the environment at Bento Miso is perceived to be conducive to creative tasks and that the required tools and materials are readily available. Social distractions transpire, however these are not viewed as barriers but rather as methods to recharge and refresh.

6.4 The Office of Idea Couture

6.4.1 Participants

The study participants included individuals employed at Idea Couture in the Toronto location [Figure 20]. Participants included both men and women in varying positions, and at differing levels of standing within the company. The diverse and talented team consisted of economists, anthropologists, sociologists, brand strategists, human factors specialists, experience architects and industrial, interactive, and graphic designers. The participation of the Senior

Innovation Strategist, Maryam Nabavi was particularly active in this study, as she is profoundly involved in the ecology of the culture.



Figure 20: The entrance to the Idea Couture Toronto location.

6.4.2 Study Setting

Idea Couture is an award-winning global strategic innovation and experience design firm. The company holds presence in Toronto, San Francisco, Shanghai, London, Mexico City and Dubai. "Idea Couture partners with organizations to uncover innovative ideas that sustainably grow market share and develop competitive advantage through powerful customer experiences" (Idea Couture, 2014).

The two floors on the top of the building which include a rooftop patio, are home to the Idea Couture inhabitants which include two comical French bulldogs who entertain visitors. The building incorporates modern furnishings in an old loft-style heritage building with exposed brick and a winding staircase. The space is a reflection of the CEO's personal taste and the outcome of personal touches of the individuals who inhabit the area. The office is made up of a series of meeting rooms, micro-kitchens, decompression spaces, and open-concept workspaces. As the open-concept workplace is explored, creative installations are discovered, such as the hanging umbrellas [Figure 21] and the life-size horse lamp [Figure 22].



Figure 21: White umbrellas hang from the ceiling.



Figure 22: The reception area of Idea Couture.

Work stations are modular and flexible with individuals who add their own personal touches. The occupants have the option of standing or sitting while working, by the use of flexible boxed shelving [Figure 23]. The atmosphere is playful yet potent, exuding a committed work ethic.



Figure 23: The flexible work environment at Idea Couture.

The two kitchen areas are designed for casual encounters, where food supplies are provided. There are large communal tables for everyone to enjoy their food while conversing [Figure 24].

Decompression spaces which host video games, ping pong, and lounge areas are designed for employees to step back from projects, and restore



Figure 24: The kitchen and communal eating area.



Figure 25: A place to have a meeting over tea.

themselves [Figure 25].

There are also secluded rooms which serve various purposes. Rooms designed for exercise, brainstorming, prototyping, meetings, and play. These rooms are not typical meeting rooms, but rather rooms to stimulate curiosity, exploration, and amusement.

6.4.3 Results

The environment encourages creative output through providing ample tools and materials. For instance, a room is dedicated to prototyping projects [Figure 26] where all the necessary tools can be found, such as a life-size mannequin, 3D printer, and circuitry boards. The survey indicated that many outlets are provided and utilized, such as inspirational cards, Lego®, and other visual stimuli to encourage personal creativity [Figure 27].

At Idea Couture, making non-detrimental mistakes is encouraged, as it is considered to be a part of the creative design process. It is argued that allowing the emergence of an unselfconscious design process, produces intrinsic creativity. This particular process includes exploration and the freedom to make errors. Survey results support this openness, and showed that making minimal errors was only slightly stressful to employees, which indicates that making occasional mistakes is acceptable. According to Gary Davis, psychology expert, “innovation necessarily requires mistakes, and even failing, as Thomas Edison did quite regularly” (1990). To further support this, IBM founder Thomas J. Watson was once quoted, “The way to succeed is to double your failure rate”(1982).



Figure 26: A room with tools and equipment for prototyping.

Availability of Creative Outlets at Idea Couture

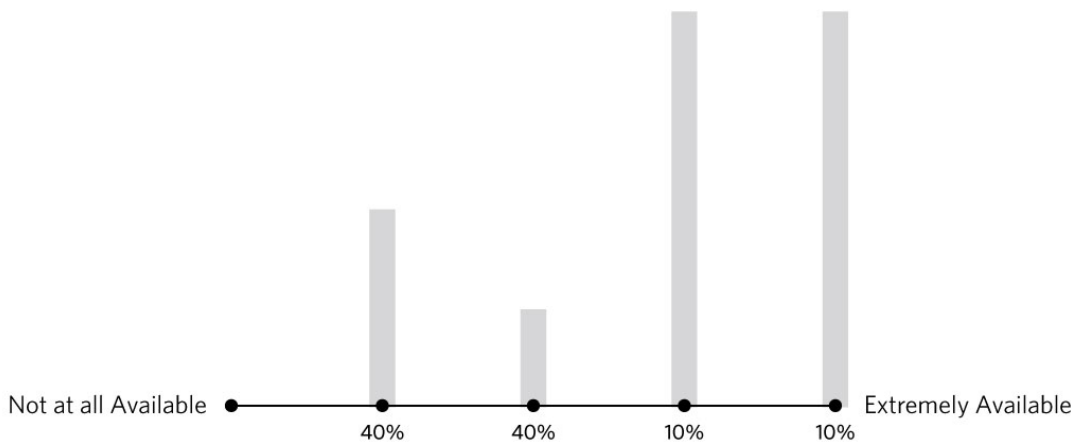


Figure 27: Survey results indicate the availability of creative outlets.

Maryam Nabavi explains the views on making mistakes and 'failing fast':

We want to fail fast because failure is definitely part of the process and no matter how much you plan you can't expect everything to go according to the plan, but you try to make the mistakes ... as many

mistakes as possible in the front (beginning) to avoid repeating the same mistakes and also to make better mistakes because there is a difference between a good mistake and a bad mistake. And it's better to get the stupid mistakes out of the way. (2014)

By 'failing fast' and getting the 'stupid mistakes out of the way' designers and strategists are able to quickly correct these mistakes, and learn from them, resulting in a higher quality end product. Nabavi provides an example of a non-detrimental mistake, "for instance if you thought that you were designing that product for the early adopters, generation X and halfway through you realize that you've made the wrong assumption, and you're able to correct that mistake. I would say that's an acceptable one" (2014). The survey results further supported this notion. It was discovered that mistakes were not detrimental at all or were only slightly detrimental to creative motivation [Figure 28].

As with any creative workplace, distractions exist. The environment is very collaborative, and socially designed to spark conversations. "If I have to write something and I don't want to talk to anyone I just have to put my head down and write. Once in a while you have the flexibility to work from home and sometimes I do that" (Nabavi, 2014). Music, conversations and dogs can prove to be distracting, which is why the office has incorporated private 'project rooms' where individuals can close the doors. "We realized that we don't have enough of them which is why we're thinking about reconfiguring the office and probably adding more office rooms or group project rooms" (Nabavi, 2014).

Positive outcomes did ensue from frequent social interactions, through

The Effect of Errors on Creative Motivation at Idea Couture

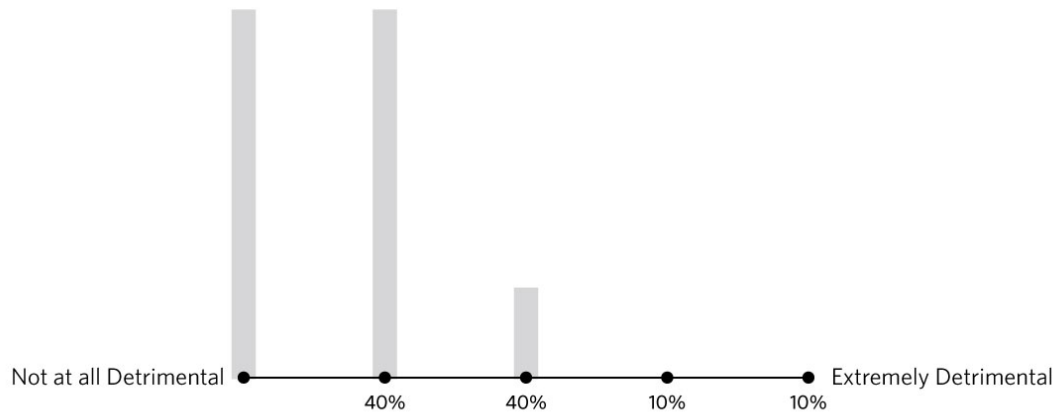


Figure 28: The survey results showing that mistakes were not detrimental or were only slightly detrimental to creative motivation.

encouraging a deeper level of thinking, and by providing divergent perspectives on various challenges. Maryam describes the constructive nature of interacting with her team, "It helped me to think more creatively, and question things, and look at things from different perspectives and to be honest a lot of it is not necessarily driven by the space it's because of the people that I work with and the different perspectives that they bring" (2014).

A particularly unique factor affecting creativity that is present at Idea Couture is how internal growth is approached. When a creative company is a new start-up, the environment is often friendly, intimate, and communal. As a company grows, this atmosphere is difficult to sustain. Maryam comments on the growth of the company:

We had to introduce some level of hierarchy, some level of structure. For instance we never would log our hours. Now we have this system to log your hours, not to track when people come in or leave but just to

know who's working on what and to be able to manage the resources. So things change. The company culture is like a living person because it grows, it changes the mood, it does all of those crazy things. Some people accept it and some people don't and that becomes the reason that they leave. We've had situations where because it felt like a start-up four years ago and now it feels like a company... And I still feel that we're doing a decent job in keeping that but there are compromises that we have to make when the company grows in size. (2014)

The social culture is an affecting aspect in employee engagement and retention at Idea Couture. How the company growth affects the social culture is another challenge to consider. At Idea Couture the atmosphere remains relaxed, fun, and expressive.

Employee involvement is encouraged in many aspects of the workplace, including the internally-developed, quarterly magazine; M/I/S/C/ [Figure 29]. It is a design, thinking and innovation magazine which reflects the blurred boundaries of business, technology, and design, which Idea Couture as a company is centrally involved with. Anything but miscellaneous, M/I/S/C/ stands for movement, intuition, structure, and complexity. Idris Mootee, CEO of Idea Couture and Editor-in-Chief of M/I/S/C/ involves the employees of Idea Couture in the writing and production of the magazine, creating a sense of community through the construction of a publication.



Figure 29: A table displays the Idea Couture's quarterly magazine.

Findings from personal interviews and survey results show that the workplace is conducive to creative work, through the accessibility of tools and materials, encouraged mistakes, and facilitation of both collaboration and secluded private work spaces. However, as with many creative workplaces, distractions and challenges do exist.

In summary, the workplace at Idea Couture is shown to be conducive to creative work, through the accessibility of tools and materials, encouraged mistakes, the facilitation of both collaboration and secluded private work spaces, and through a sense of community. Despite this as with many workplaces, distractions and challenges do exist in conjunction with the creative process.

7.0 Discussion

Through analysis of the results one can contrive a more comprehensive inclusive and innovative office culture, which in turn generates exemplary ideas, systems and products. Harnessing the roots of innovation in the workplace, leads to a significant transformation, thus creating an all-encompassing work environment, increasing employee creativity, generating engagement and decreasing levels of distraction.

7.1 Emerging Themes from Quantitative Results and Participant Narratives

Themes have emerged from the surveys and interviews, some showing similarities while others are distinctively unique. The following table illustrates a cross analysis of emerging themes from the reference group and the three office workplaces studied in the research project [Table 1].

Themes	OCAD	Google	Bento Miso	Idea Couture
Collaboration	✓	✓	✓	✓
Food to Encourage Encounters		✓		✓
Play to Encourage Curiosity		✓	✓	✓
Available Tools & Equipment	✓	✓	✓	✓
Creative Outlets for Ideation		✓		✓
Encouraged Mistakes/Failure				✓
Opportunities to Learn and Grow	✓	✓	✓	✓
Involvement as a Collective		✓	✓	✓
Sense of Community		✓	✓	
Social Distractions	✓	✓	✓	✓
Physical Distractions (Clutter)	✓			
Overall Health & Wellbeing		✓		

Table 1: Recurring themes across study sites.

Collaboration was highly valued across all of the workplaces encountered in this research project. Collaboration occurred through facilitation of open space, adequate seating, and accessibility, collaboration occurs. The findings with this study are consistent with previous research that reported that work spaces that include open-concept design are flexible and can accommodate greater numbers of employees in smaller spaces, which facilitates social interaction and communication (Zahn, 1991). These accommodations have been shown to improve job satisfaction, employee morale, information exchange and productivity, which are directly associated with how an individual experiences creativity.

The provision of food was customarily applied to prompt encounters and encourage unexpected conversations. The two sites which utilized this method provided micro-kitchens offering food, drinks and communal seating to encourage this behaviour. What was once considered inefficient and unproductive personal chatter is now accepted as informal interactions, which have the potential to create associations and inspire creative work. At Pixar, core values incorporate empowering employees through a healthy social culture and a communicative environment (Catmull, 2008). President of Walt Disney Animation Studios and Pixar Animation Studios further explains, “ most buildings are designed for some functional purpose, but ours is structured to maximize inadvertent encounters... it’s hard to describe just how valuable the resulting chance encounters are” (Catmull, 2008).

Similar to how food is used as a tool to spark discussions, games are used to encourage play, and trigger curiosity. Theoretically, play fosters the development

of cognitive processes, that are important in creative ideation. In the study, *Play and Creativity: Developmental Issues*, it was found that play has facilitates insight ability and divergent thinking (Russ, 2010). This type of divergent thinking has been recognized to foster creative thought processes. Through the stimulation of thinking processes, creativity and ideation is enhanced.

In addition to the availability of games, indispensable tools and materials are essential to accommodate creative work. Specifically in these types of workplaces, the required resources must be accessible, in order to support the foundation of inspired behaviour. These tools encompass basic supportive properties, including comfortable restful furniture, inclusive software, appropriate lighting, suitable technological devices and diverse ideation tools. Devices that support seamless communication and collaboration reduce barriers, allowing inspirational, imaginative ideas to prosper. Without these fundamental tools and materials, creative work is considerably more challenging to pursue and successfully achieve.

Creative outlets are the availability of physical spaces which serve a clear, undeniable creative goal. For example, a games room where individuals can decompress and utilize play, fosters imaginative thoughts and notions. Utilizing these outlets is an exceptional means to eliminate these creative blocks. Many resourceful outlets discussed by participants in this study are recognized methods for overcoming and conquering such obstacles. For example, a conscious change of habits, such as altering one's environment, taking time for reading or turning to others for ideas or inspiration, are methods to overcome blocks (Tharp, 2006). Creative outlets afford this behaviour and "guide the individual to make

connections, create thematic unification, and be inspired in his/her own creative work" (Ray, 2010).

There are numerous studies on the importance of encouraged failures as a part of creative processes. Paul Schoemaker, author of *Brilliant Mistakes: Finding Success on the Far Side of Failure* states that utilizing mistakes to be creative will "reveal new information or challenge our assumptions." At Pixar "post-mortems" or blunders, are often explored and embraced as a part of the culture (Catmull, 2008). It is discovered that companies that support mistakes or failure, decrease the stress of those within the workplace, which encourages the creative process.

"The challenge today is not just retaining talented people, but fully engaging them, capturing their minds and hearts at each stage of their work lives" (Lockwood, 2007). Undoubtedly, employee engagement is vitally important in supporting a healthy workplace culture. By providing meaningful work, opportunities and an empowering social culture, engagement in individuals is positively influenced (Zhang & Bartol, 2010). In this study, it was discovered that it is very challenging to experience creative ideation when an individual is not intellectually engaged. This study further supports the importance of engagement, in that all sites provided opportunities to learn and grow. Through providing these opportunities, employees become motivated and engaged in their work, having a positive effect on creative output.

One attribute of an engaged collective, is the sense of the local community. Through community engagement, new sources of inspiration and social encounters occur. At Google in Toronto, the community was involved in

several art projects throughout the office, providing opportunities for employees to connect creatively with other residents.

It is apparent that distractions and unsettling interruptions are detrimental to establishing creative work. Findings show that all sites experienced social distractions. Socially shared encounters are recurrent in artistic environments and are frequently encouraged, as they foster innovative output, however when they are unwanted, these conversations are disruptive distractions. Some found these distractions to be a hindrance, while others welcomed the conversation. It is possible that individual differences and personality types have a correlation with the experience of social distractions. The severity of distractions were unique to each individual, varying in levels of disturbance. Specific environmental prompts can “frustrate rather than facilitate human relations and make life harder for some humans” (Cummings, Thanem & Värlander 2011). These unwelcome social interactions can interrupt creative thoughts leading to undesirable cognitive strain.

In a similar way, physical distractions such as workplace untidiness and clutter can deter creative motivation. Organizational psychologist Matthew Davis reviewed more than one hundred studies regarding office environments. He discovered that open offices often foster a symbolic sense of organizational mission making employees feel like they were part of a more laid-back, innovative enterprise. However, these types of environmental structures were damaging to the workers’ attention spans, productivity, creative thinking and satisfaction (Davis, Leach & Clegg 2011). Naturally curious and inquisitive individuals can be easily distracted by their surroundings. These disruptions may be useful as

creative outlets however may have the opposite effect of deterring desirable ideation, concepts and beliefs. The findings from this research shows that all sites had social distractions however, only the reference group had physical distractions. Perhaps it is the lack of management in this environment that cultivated this clutter.

Many inspiring and efficient workplaces have a multitude of facets and meaningful goals; collaboration, chance encounters, curiosity, available tools, creative outlets, employee involvement, encouraged failure, a focus on wellbeing, a sense of community and attainable opportunities. The optimal workplace for fostering creative behaviour is an environment where all of these values can be explored, without interference from each other. "Work is invariably a combination of individual work, collaboration, coordination, creativity, and other things, all of which can take a variety of forms, sometimes in just one person in one day" (Craig, 2014). Distractions will at all times exist, however these disruptions may have a very positive constructive effect on creative productivity if they are encountered in the appropriate manner. According to the research by CannonDesign, results show that "the average employee does want fewer distractions, but they also want 35% more frequent interactions within their teams; they want more energy and buzz in the workplace than less, but they also want the flexibility to escape to a quiet place from time to time. What they definitely don't want is one space that's just open or just enclosed" (Craig, 2014). This study showed similar results; participants indicated that a space where both social collaboration and individual focus could thrive would be ideal. An area for further exploration is how chance social encounters are perceived in the workplace; as a part of the creative process, or as a distraction.

Additional office environment design structures would potentially broaden the study outcomes and strengthen the analysis. Complimentary replication of this study should be conducted in further locations among diverse populations to examine the reproducibility. The participant/office sample size was small and a larger range would intensify the approach to identifying the correlation between work surroundings and employee creativity. Consequently, questions remain regarding the best environment to create, promote and sustain the most talented designers, leading to the valuable consideration for future research.

7.2 Future Implications in Office Design & Research

This exploratory study aims to contribute to the research field of workplace innovation and encourage forward thinking with the concept of working environments, through promoting a more inclusive, inventive future. Through establishing a need for creativity in the workplace, this research contribution looks to future adaptation for virtual work environments as well as other fields of work, outside of creative industries.

It is anticipated that the designed framework may have applications which can be applied to the virtual world. Although the study of virtual work environments is outside the scope of this research project, it is known that creativity is also required in this type of online environment (Fayard & Weeks, 2011). With advancing technologies, sharing capabilities and distance interaction is becoming increasingly convenient and efficient. Increasingly, physical work environments are becoming more 'virtual'. Companies are approaching this

workforce as a progressive and competitive strategy, to “embrace and leverage the benefits of virtual teaming” to thrive in the coming decades (Bullock & Klein, 2011). The natural advancement of this research would be to apply this framework into designing virtual work environments for creative output, which can balance cohesively with the physical workplace. Significant virtual challenges exist that do not exist in the physical environment, which leads to further research and exploration. Specifically, further examination on employee engagement would be required. Future researchers and scholars could utilize this designed framework as a source to apply knowledge to the virtual work environment, with attention to the affects that this environment has on its users.

In addition to the virtual environment, it is expected that this contribution extends over a breadth of fields. Henry Porter, English author and journalist, authentically explains the potential for understanding workplace innovation, not only in creative companies, but in all aspects of work:

We could be so much more and have lives that were greatly more fulfilled if we only started to find ways of allowing people to be a little more creative in whatever they do. I am not talking about web companies and media agencies, where a creative environment is a priority, but all those humdrum offices we find ourselves in, where the power structures, politics, sexism, fear, orthodoxy, imaginary pressure and bloody stupid rules prevent us from making the most of what we are, or becoming what we could be. (2013)

Consideration of the designed framework, when designing for workplace innovation, has the potential to increase the positive mood, the creativity and

the wellbeing of the people working within the space. This study is presented as a means to contribute to the field, in the hopes that it will be of value to architects, designers, individuals who inhabit workplaces and future researchers. The aspiration of this work is to improve the quality of creative workplaces, thus improving the quality of creative work, thus improving the quality of working lives.

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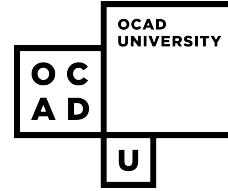
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Appendix A: Survey Guide

Date: October 3rd, 2013



Principal Investigator:
Mariel Vandeloo, Student
OCAD University
613-804-0096
Mariel.Vandeloo@gmail.com

Faculty Supervisor:
Tom Barker
Director, Graduate Program in Digital Futures
OCAD University
tbarker@faculty.ocadu.ca
416-977-6000, Ext. 2056

The Survey Questionnaire has 10 questions, which are completed according to a 5-point Likert scale, as well as short answer component. 60% of the questions are focused on the primary outcome; fostering creativity. 20% of the questions focus on the topic of employee engagement, and the remaining 20% of the questions focus on levels of distraction. The online questionnaire platform used will be Fluid Surveys; a Firewall and password protected survey platform. The questions on the survey are as follows:

Creativity

1. How much time do you spend on creative tasks (eg. brainstorming/idea generation) in a typical workweek? Scale increases in 8 hour increments.

1-8 Hours/week x x x x x 32-40 Hours/week

2. Do you feel your workplace environment is conducive to completing creative tasks?

Not at All Conducive x x x x x Very Conducive

3. Do you feel your workplace is conducive to the non-creative tasks (eg. answering e-mails) of your work?

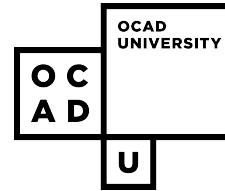
Not at All Conducive x x x x x Very Conducive

4. How detrimental are minimal errors to your creative motivation?

Not at All Detrimental x x x x x Very Detrimental

5. How available are creative outlets (eg. spaces for collaboration) to you at work?

Not At All Available x x x x x Very Available



6. Do you use creative outlets in your work environment (eg. utilizing Lego for creative exploration) to complete creative tasks? Please provide specific examples.

[short answer]

Engagement

7. How available to you are the materials and equipment to do your creative work properly?

Not at All Available × × × × × Very Available

8. Do you feel that your environment at work provides opportunities to learn and grow? Please provide specific examples.

[short answer]

Distraction

9. What level of personal stress is caused by making errors at work?

Not at All Stressful × × × × × Very Stressful

10. Do barriers exist in your workplace environment that cause you to feel distracted? Please provide specific examples.

[short answer]

References for Each Question:

1, 2, 3, 4, & 5:

Kahneman, Daniel. *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux, 2011. Print.

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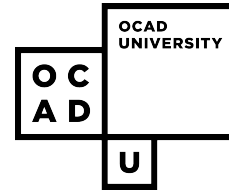
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9 & 10:

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Appendix B: Focus Group Discussion Guide

Date: October 3rd, 2013



Principal Investigator:
Mariel Vandeloo, Student
OCAD University
613-804-0096
Mariel.Vandeloo@gmail.com

Faculty Supervisor:
Tom Barker
Director, Graduate Program in Digital Futures
OCAD University
tbarker@faculty.ocadu.ca
416-977-6000, Ext. 2056

Focus group discussions are to be informal, and conducted in-person at the place of employment. Questions will be pre-tested with colleagues, prior to participant focus groups. The discussions are to be based on the following:

Creativity

What kinds of creative tasks do you spend time on? What creative outlets do you use to complete these tasks? How do these outlets assist in fostering creativity?

Do you feel your workplace environment is conducive to completing creative tasks? What are the environmental conditions like when you feel most creative at work?

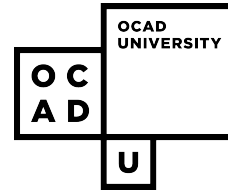
Do you feel your workplace environment is conducive to completing non-creative tasks? What are the environmental conditions like when completing non-creative tasks?

What is your perception about the consequences of making minimal errors at work? Does making errors at work cause you to feel stressed?

Engagement

How does your environment at work provide opportunities to learn and grow?

How clearly do you know your work expectations?



Distraction

What barriers in the workplace environment cause you to feel distracted, if any?

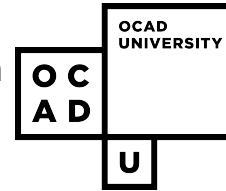
General

Are there any additional comments about how the physical environment affects your creativity at work?

Describe your ideal work environment, and why it is ideal for you or discuss improvements that could be made for a better workplace.

Appendix C: Letter of Participant Invitation/Consent Form

Date: October 3rd, 2013



Principal Investigator:
Mariel Vandello, Student
OCAD University
613-804-0096
Mariel.Vandello@gmail.com

Faculty Supervisor:
Tom Barker
Director, Graduate Program in Digital Futures
OCAD University
tbarker@faculty.ocadu.ca
416-977-6000, Ext. 2056

You are invited to participate in a study that involves research. The purpose of this study is to improve our understanding of creative work environments through analyzing the effects that creative office design has on the individuals within, with attention to levels of creativity, engagement, and distraction.

What's Involved

As a participant, you will be asked to participate in part A of the study or part A & B (outlined below).

Part A: Survey

You will be asked to respond to a short online survey regarding your experiences in your work environment: creativity, engagement, and levels of distraction. The survey should take 10-20 minutes to complete.

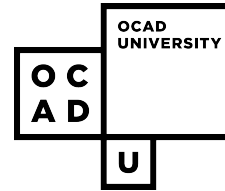
Part B: Focus Groups

After completing the survey, if you wish to be included in a group discussion, you will be asked to discuss the above topics in greater detail along with your colleagues. This discussion will likely take up to 30 minutes to complete.

Potential Benefits & Risks

Possible benefits of participation include self-analysis of work ethic, and creative drivers. On a larger scale, participating in this study would contribute to the growing field of workplace innovation research.

While I will ensure confidentiality of the information you provide as best as I can, please be aware that there is always a risk that you can be identified. While I hope you will speak openly, I am aware that you may feel uncomfortable expressing any possible negative comments about your work. If you feel answering questions about your workplace is private, you may feel some



discomfort answering some of the questions. You do not need to answer questions that you do not want to answer or that make you feel uncomfortable. Your name and information will not be included in the study unless stated in this form.

You will not be paid to participate in this study.

Confidentiality

All information you provide is considered confidential; your name will not be included or, in any other way, associated with the data collected in the study, unless selected below. While confidentiality can be maintained by the researcher, its maintenance cannot be guaranteed by the other members of the discussion group.

Visual documentation (photography) of the workplace environment will be used as supplementary information in the study.

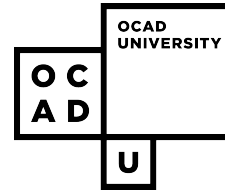
Access to the data will be restricted to the principle student investigator (Mariel Vandeloo) and the principle advisor (Tom Barker).

Voluntary Participation

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. Further, you may decide to withdraw from this study at any time, or to request withdrawal of your data (prior to data analysis), and you may do so without any penalty or loss of benefits to which you are entitled.

Publication Of Results

Results of this study may be published in a student thesis report (Major Research Project), as well as a presentation at the 2014 DEEP (Designing Enabling Economies and Policies) conference. In any publication, data will be presented in aggregate forms. Quotations from surveys or focus groups will not be attributed to you without your permission. A summary of the findings will be provided to you upon completion of the major research project (.pdf document via e-mail).



Contact Information And Ethics Clearance

If you have any questions about this study or require further information, please contact the Principal Investigator, Mariel Vandeloos, or the Faculty Supervisor, Tom Barker (where applicable) using the contact information provided above. This study has been reviewed and received ethics clearance through the Research Ethics Board at OCAD University [2014-07]. If you have any comments or concerns, please contact the Research Ethics Office through jburns@ocadu.ca.

Consent Form

I agree to participate in this study described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

- I wish to be attributed for my contribution to this research study. You may use my name alongside statements and/or quotations that you have collected from me.

- I wish to participate in Part A of the study.

- I wish to participate in Part A and Part B of the study.

Name: _____

Signature: _____

Date: _____

Thank you for your assistance in this project. Please keep a copy of this form for your records

Appendix D: REB Approval Letter



Research Ethics Board

January 31, 2014

Dear Mariel Vandeloo,

RE: OCADU 152 “An Exploration of the Effects of Pro-Creative Office Design in Creative Workplaces.”

The OCAD University Research Ethics Board has reviewed the above-named submission. The protocol and the consent form dated January 31, 2014 are approved for use for the next 12 months. If the study is expected to continue beyond the expiry date (January 30, 2015 you) are responsible for ensuring the study receives re-approval. Your final approval number is **2014-07**.

Before proceeding with your project, compliance with other required University approvals/certifications, institutional requirements, or governmental authorizations may be required. It is your responsibility to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the OCAD U REB prior to the initiation of any research.

If, during the course of the research, there are any serious adverse events, changes in the approved protocol or consent form or any new information that must be considered with respect to the study, these should be brought to the immediate attention of the Board.

The REB must also be notified of the completion or termination of this study and a final report provided before you graduate. The template is attached.

Best wishes for the successful completion of your project.

Yours sincerely,

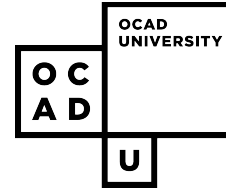
A handwritten signature in cursive script, appearing to read 'Tony Kerr'.

Tony Kerr, Chair, OCAD U Research Ethics Board

OCAD U Research Ethics Board: rm 7520c, 205 Richmond Street W, Toronto, ON M5V 1V3
416.977.6000 x474

Appendix E: Personal Communications Transcripts

Date: March 30th, 2014



Principal Investigator:
Mariel Vandelloo, Student
OCAD University
613-804-0096
Mariel.Vandelloo@gmail.com

Faculty Supervisor:
Tom Barker
Director, Graduate Program in Digital Futures
OCAD University
tbarker@faculty.ocadu.ca
416-977-6000, Ext. 2056

Participant: Audio File: 201 40327 141 226, Participant unknown
Individual Interview
Transcriptionist's Initials: TD

I: Thank you. Okay we should be able to get through this pretty quickly. There's only ten questions. So what kind of creative tasks do you spend time on in this space? And what tools or outlets do you use to complete these tasks?

R: I don't spend much time here at all because I find it too noisy and too distracting. When I (see this project)...that's not really a function I think of this space. I mean you can see it's not very crowded right now...but I like quiet when I'm working. And sometimes in here it gets too noisy and also I get too many interruptions and I can't...I can't / I like to focus on a task. So I don't use this space at all except for group projects and I'm actually about to have a group project here at 2:30.

I: Okay. Are the interruptions from other people that are around?

R: Yeah. People come up and ask me stuff and I just prefer to focus when I'm working.

I: Uh-huh. So what's your ideal workplace?

R: Quiet room, me by myself with several hours to complete whatever task I'm working on and then coming back together as a group.

I: Okay. Cool. So...you kind of answered this already...do you feel that this work place...environment is conducive to completing creative tasks?

R: It is when you have to get together as a team. Just because I mean it's / there's five or six different places for people to sit in groups and talk and there's one quieter spot in there...the... the room across the way where the two ladies are. And so it worked well for that for creative problem solving. It's just not great for me when I'm trying to focus on a task and get something done.

I: Right. Was this space redesigned recently? Do you know that?

R: I don't really know. I know it's a pretty new space.

I: Okay. Um...so are they / you mentioned already that people sometimes distract you...are there any other barriers in the workplace that make you feel like you don't want to work here?

R: Well what would be handy is one of my classmates did a project for creation and computation where / she actually did a project called HUSH which had a microphone and it measured the noise in the space and you could see it online. They did it just as a project and so they took it offline afterward but actually that would be extraordinarily useful because if I knew for example that it was really quiet in here and I wanted to have a conversation with like one other person and I could check that at my house up north then I would actually come down here. But if there's a risk that it's going to be super noisy or whatnot I'd just say well let's just meet somewhere else. Let's meet at a quiet coffee shop because it's probably quieter. You know?

I: Okay. So I guess my next question would be are there any improvements that you would make to this space?

R: You know space is always an issue in that we don't have enough of it. But...they have these little carrels over here that create kind of a little bit of a private space but maybe if there were a couple of other ways to create a private space within this...like I know at "X" they have these little pods that are basically little nooks or corners and you can pull around...basically it's a flexible barrier that basically shuts and closes that space and then when you're done you open it back up. And it's a way to create a private space in a public space and it's quieter.

I: So you mainly use this room for group projects.

R: Yeah when my classmates want to meet here / like I'm meeting with three gals in twenty minutes here...we'll meet here and it's fine. And they / my classmates seem to not be nearly as bothered by the noise as I am. So it works for that. I don't mind meeting them here. It's a place where everyone can meet, it's central, it's right where we go to school so it's convenient.

I: It's convenient.

R: Yeah.

I: So when you meet here with groups do you use any of the tools? Do you use whiteboards or...do you sit in this area? Or would you sit a table?

R: We usually sit at tables because they're round or mostly round and / so it's conducive to conversation. I don't use many tools in this room mostly because I have a lot of them at home. I have a little workshop but there's great tools here in the sense that there's soldering irons which we need, there's all sorts of print formats, there's hook-up wire and widgets that we need to create or projects. So / it doesn't have nearly as many of those as we need and that's a function of budget but you know...it's a place to start. So you can actually get your hands dirty and actually work on projects that we create for class.

I: Awesome.

R: Yeah. It's not bad in terms of tools there just needs to be more of them and probably could be replaced more frequently. I'm thinking about the soldering iron.

Participant: Audio File: 201 40327 142 443, Participant unknown
Individual Interview
Date of Transcription: March 30, 2014
Transcriptionist's Initials: TD

I: So do you guys use this space?

R(1): Yes.

R(2): No.

[Laughter] /

I: So how come you don't use the space?

R(2): I do have enough space myself.

I: It's more convenient?

R(2): Yeah it's ten minutes from here so it's like no use. But the main issue is we're too many people. We're just too many. It doesn't matter how you slice it. We're just too many people with too many different needs. Right? To consolidate in one space.

I: Okay.

R(1): So I use this space quite a bit and I think I come here because by nature I like to do a lot of things collaboratively even if it's an individual project...kind of getting (in while there are others here) but it is distracting to do work a lot of the times but I find that I get unexpected learning opportunities by coming here and I learn new things. So it's kind of a tradeoff.

I: Okay. Cool. So what kind of / when you are in this space if ever what kind of stuff do you work on while you're here?

R(1): I guess I'll answer that. I work on like a lot of project and group meetings and we end up to discuss a lot and we have a lot of our group meetings here because it's convenient to get here. I have a group right now working on the [inaudible with background noise] () it's kind of a separate group and it's just nice and central to be able to talk to everyone upstairs. If I can just hop upstairs quickly and talk to them it's nice that it's in the same building as all of the admin staff.

R(2): Group stuff.

I: Group stuff.

R(2): Whenever there is group stuff.

I: Okay. When you are in here do you use any tools in the room like white boards, or...where would you sit? Would you sit here or at a table?

R: I mainly sit at the tables and a lot of the stuff that we share is over our computers. We do

occasionally use the whiteboards but I find that I don't use it too often. The storage spaces are especially useful at the beginning of the semester when we have a lot of arduino projects, a lot of circuitry and a lot of wires everywhere. It's just a pain in the ass to carry it home every day. So that's just good in terms of even just storage space at school.

I: Okay.

R(2): Whiteboard.

I: Cool.

R(2): Quite a bit. At the tables where we can collaborate.

I: Okay. When you're working here are you typically doing...creative tasks? Like brainstorming or are you doing more...emails or writing? If that makes sense?

R(2): Creative.

I: Creative stuff?

R(1): A mixture of both for me depending on if I'm doing solo work or group work that day.

I: Okay. Um...what's your ideal workspace? Or how would you make this space better?

R(2): Well it's two very different questions.

I: True. Okay what's your ideal workspace?

R(2): A box with a door.

I: A what?

R(2): A box with a door.

I: Okay.

R(2): It depends on the task right? I mean the ideal...workspace / my ideal workspace would be...enough separate rooms for work areas for a bit of privacy where you can do work, brainstorming with people...and allowing...where you can actually...like...you know talk with people or get in consorts with other stuff. But I think what's wrong with it / like that room / half the / like that room it divided into two or three other /

I: Smaller rooms?

R(2): like little slots. Not even individual rooms necessarily. But some are like two or three people can sit by themselves and do things but it's separated from the general area...might make more sense than having one large room where you can work where in the end there's only two or three people sitting in there.

I: Okay.

R(1): Another way I would go which was really helpful in my undergrad actually was our library space. So the large library space was quiet space. Everyone sat in the same area and it was quiet and they did their own individual work. But then you'd have individual study rooms where the groups would go and work. So you wouldn't have the competing noise of the different groups trying to talk over each other. And each of the rooms had its own smart board and stuff that they could pull up.

R(2): Yeah I think that would be ideal. But the key again is that people can break up all those walls and...turn them into two or three like that. Too many people are coming in. If you have 30 students per year, every (two years) [inaudible]...so maybe if you can accommodate six so maybe have a sign at the back somewhere with you know...two hours /

I: Some sort of schedule.

R(2): some sort of schedule where you can like self-scheduling in two hour blocks for your group and have the rest be quiet space. I / if the rest would be quiet space then this would be viable as a group space where you can do individual stuff and if you can segregate out enough little boxes where they can go and like really close the door and some might be glass...you know? So that it's not all crazy. Um...that would really help.

I: Okay. You've already sort of answered this but um...what sort of distractions exist in this space? Mainly it seems like noise and space.

R(1): Noise, space, and just even having and just even having our friends here can be a distraction because it's hard not to talk to your friends. I find myself doing a lot of the headphones in.

I: Yeah.

R(2): Yeah...it's just general / it's general group work next to people trying to do individual work.

I: Yeah. So I think we're done. Are there any other comments about this workplace that you guys have?

R(2): Well the last thing () trying to create individual stations for people and a couple of common tables I really believe that they should have just made the common area sort of a quiet area...and then have rooms for groups. Even if they just / make that room over there three community tables in there. And then have three groups working loudly in parallel because they are only brainstorming and talking loudly anyway right? And then the door closes and everybody / 20 people can sit in here and actually work on their individual stuff.

I: Right.

R(1): I think also in terms of the equipment that's provided if they're going to provide us with free printers, scanners and all those things it has to be clearly indicated who's responsible for taking care of that equipment and maintaining it so if we run out of toner we don't run out of printers. And we can find and talk to someone and just overall...like who is responsible for what in the room because sometimes we don't know who to contact to take care of it.

I: It gets neglected.

R(1): Yeah.

R(2): Get rid of the kitchens. Seriously. Get rid of the kitchens.

R(1): I think a lot of people use the kitchens. It's a nice like hub in-between classes and breaks. A lot of people go in there and make food and tea and stuff.

R(2): Yeah but at least get rid of the dishes.

R(1): True. The dishes are kind of a mess.

R(2): I remember when () last year like 500 emails with someone made a mess. Who did that? It's like food and everybody...like it's a lot of like whatever. Like with the coffee maker, tea maker, and the microwave.

I: And then to have everyone bring their own.

R(2): And then to have everybody bring ().

I: So was this space redesigned recently? Do you know?

R(2): Yes last year. Last year it was redesigned. It was...hexagon...two, four, six...are they octagons? Are they hexagons? Is that what they are? They were brought in here.

R(1): Yeah. Like a student from your year.

R(2): Yeah a bunch of people sat together like an architect and an industrial designer and started to revamp it. It improved vastly compared to what it was before. More white boards, more things...but again it did not / like this thing where you can pull things down from the ceiling and retract there...but I don't think it addressed the core of the issue which is the (problem) between individual quiet work and the group work in the space. And that would require structural changes in the sense where I think walls would have...more dividers would have to be put up.

I: Okay. Great.

R(2): And I actually think / as I said if this wall would go...it would split this in three. Where the pillar is if they would just put one wall there as a kind of hallway to those boxes from the door to the boxes I think it would block a lot of the noise coming...out of that area without really closing this completely. And that could even be see-through plastic. Like a plexi-wall where you could possibly write on it with markers. Right? Like the whiteboard markers on the glass. Because then you would have a whole new surface that you could scribble on. Or get rid / well they tried / make all the walls () then you can get rid of all the white walls which we use as the (clutter room) in a sense because (clutter is used).

R(2): Just in terms of a workspace. I'm a messy person anyway so I'm used to it but...but I think to keep this space tidy and kind of focused on what you really want to do rather than seeing everybody's stuff kicking stuff. And then you start thinking well this looks awesome. I'll try one of those or we should tinker with that. So...those are the little things. And this could be / again these are things that could be easily done by putting a glass thing up here that's half height but you still have the sun, you still see out of it. But it will cover a lot of those things.

I: Yeah. Great.

R(2): But that's just me. Honestly I spend so little time here. More like in the first semester or two until I found () so I am probably the wrong person to ask. I always have opinions.

I: That's good. Thank you guys so much for your help.

R(2): You're welcome. I hope it was helpful. Maybe some insights. But a heavy-user of the space and a non-user of the space. Now you just have to pull in a "X" or somebody who's occasionally using the space. Then you have the perfect ideal for the two extremes in the middle that should figure it out. Alright.

I: Thank you guys.

Participant: Audio File: 201 40327 144032, Participant unknown
Individual Interview
Date of Transcription: April 2, 2014
Transcriptionist's Initials: TD

I: Okay do you frequently use this space...would you say?

R: No.

I: No?

R: No I have a deal with / if you know "X" /

I: Oh yeah.

R: they have...games / they have space. I have a deal with them and I work there.

I: Okay. Cool.

R: I find it's a good space.

I: Did you used to work here more?

R: Last year yeah.

I: Okay.

R: Yeah. Last year I worked here more.

I: What kinds of tasks did you do when you were here? Like was it more creative stuff or was it more... /

R: More um...like when I was here it was mostly like when we did like arduino stuff. Like stuff that needed a physical component because I needed the space with my project at that time. Now I can do it from my apartment but yeah but if I need / generally I do computer games so I just need the laptop. So yeah.

I: Okay cool. When you're here do you work more by yourself or is it more group work?

R: If I'm here it's usually more social.

I: Yeah.

R: I find it hard to work here...by yourself as a social person. Because there's always people working here and I tend to try and be social. Where if I was working like / and not necessarily even working but working at "X" because then you're working in another space...it gives you another view...everyone is social and everything but everyone has their job and everyone they're professional and you get paid. It's their job.

I: Right. They're there to work.

R: Yeah. So you can be social but you don't like...the seating here doesn't work. You know? Occasionally...in here if you have to. In here you feel like more.../

I: Yeah. Is it assigned seating there at "X"? Or do you sit wherever?

R: No. No you sit wherever. I think they're planning to do...like some dedicated spaces for people if they have like big computers and stuff like that but it's basically just like groups.

I: Okay. Cool. So do you feel like this workplace is conducive to creative tasks? Do you feel like you can be creative in this space?

R: Um...it might be too small. It's too small. And there is...I think maybe / it's also because we changed the design from last year...and this design is more open...which is fine. I just wish / it's good for group work but you see like just for people talking...it's like... /

I: Yeah it gets loud quickly.

R: Yeah. So we / generally if we want quiet we will work in that space but again it's a tiny space and it's dark. So I would say it's a bit problematic for me...as someone who has trouble concentrating. Yeah.

I: Do you / when you're here /

R: But if it's Sunday night and nobody's here it's quiet.

I: Yeah?

R: Yeah it's quiet and it's pleasant and the lights with the city.

I: It's awesome. Yeah.

R: Yeah. It's really nice. But during most of the time it's too loud and too small.

I: When you're here do you use tools in the room? Like do you use the whiteboards?

R: I don't. Not me personally just because I didn't /

I: Didn't have any reason to?

R: didn't have any reason to. There was one project which was a good project and we used the whiteboard. I used the () when I was doing arduino stuff if I need like (transformers) and stuff like that. Yeah um...I think it's a good place to work in a group.

I: Okay. So you sort of already answered this. Are there distractions? What kind of distractions?

R: For me it's noise. Just noise. Like I can't work with noise. And like yeah...I try and be social and then like...I can't concentrate. I find like at the "X" which is quiet and you know...occasionally I talk to people but I think there is better for me.

I: So how does this space compare to "X"?

R: I like "X" more just in terms of / not the actual space. I actually really like the fact that this space has a ton of light. Which is fantastic. Like this giant window...it's gorgeous at night by the way because cities are always looks better at night as a rule. It's not very nice / this I like but I think that it's too small and I think that the way it's organized because they wanted it to be both for groups and for individuals it makes it very hard for me to work here. And you also have some / I don't know if it has anything to do with...and you might know them / but we had these students at the beginning of the year...with new students...who were staying here and sleeping and making a big mess.

I: *Oh no.*

R: It made the experience of being here less pleasant.

I: *Yeah.*

R: So yeah. But I wasn't the only one who commented on that. I think for...it's hard to concentrate. If you work individually. I think if you work in a group it's better.

I: *So how does "X" work? Is it like a monthly membership?*

R: Yeah it's a monthly membership but I don't / I help them on occasion so I can stay there for free. Because they're very nice and they're quite / and "X" knows I'm poor. But there I think they have a monthly membership and I think it depends on / like they have a few types of memberships. It's a good space. It's a good co-working space.

I: *Is it mostly like solo work that you do there or do you have friends there?*

R: I have friends there but I mostly do solo work.

I: *Okay.*

R: But it's a good / sometimes there are people who work there are in a group with each other on projects. Yeah.

I: *Is it mainly like one big open space? Or are there meeting rooms?*

R: I think there's one big open space with desks and there's a smaller space with no desks... usually like if there's a project that has like physical components or if you want to sit in quiet. And there is an office and there's also upstairs they also have developed a smaller space which usually has like...big events there. They always have like events there. I mean...in terms of like... what like I like and didn't like and stuff like that with "X" I do actually really like the fact that this space has a lot of light. Yeah like but...the size, the noise, the fact that the other side is kind of just labs and...the kitchen is like...it's not...I mean I know they tried...last year but it's just not...a way to / like there's no / there should be someone / if it was seriously for / like if you're looking for a serious space...if you wanted to have coffees and stuff like that there should have been someone in charge...same with all the cabinets and keeping the place clean. Unless there is someone. You know I cleaned up a lot last year. Because I'm the class representative so we had some...I don't know / it said...he and "X" and "X" the three people designed...redesigned the space. And "X" was the cut he cut the chairs and the desks and stuff like that so he knows a lot about how they decided to organize this. And there was a lot of garbage here of like either

programs that were here before and stuff like that so I spent like a few days running around, cleaning those like and all kinds of garbage. Like...at the beginning of the year we all tried but while we started our projects...doing stuff was just impossible.

[Transcriber's note: someone outside of the interview has interrupted the recording]

R: Hello "X".

[Transcriber's note: Interruption begins at 9:39 and continues until the end of recording.]

I: I think we're done.

Participant: Audio File: 201 40327 145 754, Participant unknown
Individual Interview
Date of Transcription: April 2, 2014
Transcriptionist's Initials: TD

[Transcriber's note: the interview recording starts in the middle of the interviewee's sentence]

R: Myself, "X", "X" and "X" but sadly "X" left the program to continue with work from the "X".

I: *Oh wow.*

R: Yeah it was pretty good actually the work that he was getting ready to do for his thesis just took off and so...you know you do this work so that you can get those opportunities so why side-step for the future? And "X" was just really sharing insights so really it was just down to me. So in the summer I just cut these ridiculously shaped tables and stuff because certain () is really expensive and we had a small budget so I just made it myself.

I: *Okay.*

R: Yeah we hung one unit at a jaunty angle but it's safe. We have two more to hang but it takes a lot of time to be able to do your own concrete so if other people want to hang them they can do it.

I: *Yeah. So what were the major challenges when you were redesigning?*

R: So we / my background is in architecture so I'm used to this but I've never really engaged with teams of stakeholders before. So I worked on hospital design and they would work with the nurses to / the Heads of all the departments just to say like how do you want your hospital designed for the future? And so it was down to me to really do that with the class and we had a lot of conflicting desires coming into play. I know it's weird but four carols over there...so we used to have like double...maybe even triple that amount and they were all along the side there and cutting the space up. So I took away quite a few of them and I left four because there was still some people who wanted to work there. Really only two are ever used. There are two individuals in the class that really like that type of environment but everybody else / like this is exactly why I designed this space...what's going on right there with two different kind of groups happening. So yeah the challenge was just getting...consensus with people and providing what everyone needed which is very diverse. Right? And then...setting it up took a lot of time. I was working in "X" at the time so I would come home on the weekends and my wife was like and you're just spending time at school again. Yeah.

I: *So do you work here often?*

R: Yeah I come here most days of the week for various reasons. I'm trying to finish my thesis, meetings, I have two (internships) on the go so I'm either working in the lab across the street or working in here. Yeah there's tons of reasons...like there's equipment that I need to borrow from the school so I'm always bouncing in and out.

I: *So do you think that this room has the proper...tools and do you use a lot of the things here?*

R: I wish that we had more equipment here. Like we only have a few arduinos here available for

rental and for booking out. So "X" has machines that you can use your student card and like take it out at all hours of the day and we don't have that. So for big pieces I have to go upstairs and book it out ahead of time and I wish we had more stuff like that just hanging around. It's not / we're not in desperate straits but it could be better. In big way it could be better.

I: What about distractions? Are there /

R: Yeah well this room is loud. Um...ideally that meeting room would be cut into two so that we could have two smaller meeting rooms because it's used for private meetings. The door is open right now but sometimes there is something going on and they'll close it. There should be two of those spaces.

I: So that was a limitation when you redesigned?

R: Yeah we couldn't redo it. You'll notice there's walls / plugs in that wall. Any wall that has electrical work in it...it costs like ten times as much money to work with because you have to rewire the electricity running through it. So you couldn't do any work with it. This woman "X" she has an architectural background as well...she took it very personally that we wanted to redesign this room because she helped plan it in the first place. And she was like well this is what they asked for and I was like well this is the first time that a program was ever established. They were just shooting in the dark what they needed and now we have a better idea with how the program is run. So we couldn't physically change anything...it's expensive and you were stepping on her toes.

I: Right. Okay.

R: And actually those lockers too. They wanted to move those lockers and make that space over there more like a messy space and make the lockers over here somewhere and she wouldn't let us do that either. There was just a lot of little things that really held back the potential on how this space could be used. Yeah. And we've got way more lockers than we needed I think. That's universities for you. In one of my labs there's a whole set of lockers and not a single one is used.

I: Oh no. Okay...um...I think that's pretty much it. You've answered all my questions. Is there any other comments that you have about it that you /

R: Um...no. I like / like we have a lot of whiteboards now. Something like...but maybe too many at this point? Some of these notes have been up here for a while. So it's a work in progress. People need to...people have been given an opportunity to voice their opinions about the space but part of the challenge when I did this renovations "X" told me that there were stipulations / that getting the money was stipulated upon getting a consensus going forward that the decision that I made were good. Having any insurrection wouldn't be good. And actually these couches when we got them they weren't supposed to be white. They were supposed to be orange. The fear was that these were going to look worse after a while. And so she heard that people were upset that they were going to be white and she lost it. So the / the conversation about how to improve this space is being stifled.

I: Oh well. What can you do?

R: I can't do anything. I'm graduating and so I don't feel like I need to do anything more. I tried my best.

Participant: Audio File: 201 40328 152 946, Participant unknown
Individual Interview
Date of Transcription: April 3, 2014
Transcriptionist's Initials: TD

I: Okay so they are pretty basic questions about the space. Like I guess...do you typically do...creative work or...what kind of stuff do you do?

R: Creative is a strange name for me because I think that anything can be done creatively. There's no creative and uncreative work. But if you ask about my particular type of work I'm a strategist and I am directly involved in clients leading their projects. I'm working through /

[Transcriber's note: Someone walks by and briefly interrupts the interview]

R: working through / as you can tell there are also lots of distractions in the office. Constantly. Problem solving, leading the project, leading the work packages. The type of projects that I get involved are more design and technology related because of my background. So we have strategists in the company but each one of them / they kind of have a different interest.

I: Focus.

R: And focus.

I: Okay.

R: Based on their interest and based on their educational background. I tend to work more for "X" and her clients and I lead a team of engineers and designers.

I: Okay. Do you feel like this workplace is conducive to your being creative?

R: Totally. It's both because sometimes I feel like it helped me to think more creatively, and question things, and look at things from different perspectives and to be honest a lot of it is not necessarily driven by the space it's because of the people that I work with and the different perspectives that they bring. But sometimes I also feel like working in this industry for four years which I think is a long time brings the client disease in the company in the sense that you always get a problem which boxes you already. And beyond that you even have to box it further. So sometimes I feel like / since I left university I've lost that kind of you know...blue sky, really creative academic creativity which is a little naïve because you're not dealing with any real-world experience but it's also truly purely creative. So I think I'm more realistic and grounded which you can say designing with more restraints you can argue that it actually requires more creativity. But at the same time I'm not as good as coming up with completely new crazy ideas as I was when I was back in school.

I: Okay. Awesome. How do you guys handle making minimal mistakes? Like are mistakes encouraged or like... /

R: It depends on what you call a mistake. Like I told you prototyping is part of the culture because we want to fail fast because failure is definitely part of the process and we can't / no matter how much you plan you can't expect everything to go according to the plan but you try to make the mistakes...as many mistakes as possible in the front to avoid / first of all to avoid

repeating the same mistakes and also to make better mistakes because there is a difference between a good mistake and a bad mistake. And it's better to get the stupid mistakes out of the way /

I: Out of the quickly.

R: And ask more telling questions or...you know as an example if you get a project where the client asks you to meet three different criteria and one is about taking both visibility...like business constraints and make sure what the user wants to buy it, or use it and adopt it. And if you fail to meet any of those that's a pretty bad mistake. But for instance if you thought that you were designing that product for the early adopters, generation X and halfway through you realize that you've made the wrong assumption and you're able to correct that mistake I would say that's an acceptable one.

I: Okay. Would you say that this culture provides opportunities for people to learn and grow as like designers?

R: Yes it does but it also requires a specific personality and no one will come and tell you that you have to grow...or like nobody will school you. You have to want it and ask for it and be continuously asking for it. Like you have to. And it's both good and bad and not everybody can even fit in that culture and we have people who have not changed their position in the past three or four years and they're probably comfortable with that or they may not be...they're just shy about it. Right?

I: Right.

R: It's a combination of both but I think if you want it and ask for there's definitely opportunity.

I: Awesome. Um...so you mentioned like sometimes because the culture is so...friendly there are distractions. What would you say are the main distractions and are they detrimental to your work?

R: Sometimes they are. Especially when you have like two whiney (docs) around you. I can't work in that circumstance and that's why we have the project rooms where we can go and lock the doors. We realized that we don't have enough of them which is why we're thinking about reconfiguring the office and probably adding more um office rooms or / sorry group projects. Or sometimes I just like put my headphones on to concentrate because...yeah...once in a while you have the flexibility to work from home and sometimes I do that.

I: That's good.

R: If I have to write something and I don't want to talk to anyone I just have to put my head down and write.

I: Um...that was all of my questions unless you have any extra comments that you want to make?

R: Not really. I think one of the things that I've noticed in other cultures that has changed a lot since I first joined the company / and a lot of that was a result of growing in size...it became less of a (flag) culture and we had to introduce hierarchy...not in a crazy sense. Some level of hierarchy, some level of structure. For instance we never would log our hours. Now we have this system to log your hours just to know / not to track when people come in or leave but just to know who's working on what and to be able to manage the resources. So things change. The

company culture is like a living person because it grows, it changes the mood, it does all of those crazy things. Some people accept it and some people don't and that becomes the reason that they leave. We've had situations where people / because it felt like a start-up four years ago and now it feels like a company. To me it's like of course. Because that's the kind of culture that they want...this small intimate kind of a start-up culture. And I still feel that we're doing a decent job in keeping that but there are compromises that we have to make when the company grows in size.