Working Towards Wellbeing UBC STAFF

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Table of Contents

Executive Summary

It is now being recognized that the built environment can play a determining role in a population's lifestyle. Nowhere is this more important than the environment where people spend the majority of their lives: the work place. Over the past few decades, employers have been recognizing the importance of health and wellness for their employees. Benefits and programs have been enacted to ensure that employees are able to maintain healthy lifestyles in the physical, psychological, social and organizational realms. This report focuses on UBC's staff and synthesizes several key physical and programmatic recommendations focused on the workplace, the public realm (campus) and the surrounding community (Metro Vancouver and beyond).

In the workplace, several strategies to boost employee wellness were explored, based on relevant academic research. The necessity of open-plan office layouts has opened a dialogue on their advantages and pitfalls. When done correctly, an open office concept can provide many benefits. Here, a "palette of space" is recommended in order to accommodate various needs: private areas, project spaces, and collaboration zones. Glass portioning, personal control over the environment, and noise mitigation strategies can all improve group cohesiveness and work satisfaction. In terms of psychosocial workplace health, a programmatic approach which allows for work time flexibility is encouraged. For example, flex-time, compressed work weeks and telecommuting all increase staff retention and attraction and allow for more family time for employees. Workplace gardening is a creative opportunity to boost both the physical and mental health of employees. Currently UBC has no staff gardens and this would be an easy area for improvement. A programmatic approach to community engagement is another opportunity to boost mental health. For example, employer-sponsored volunteerism provides many benefits to employees who participate.

Another important piece in the workplace is the informal learning space. Informal learning space is spontaneous, context dependant and unbounded space where daily learning can occur. This space has several benefits which include boosting social capital and mental health for employees. The first recommendation here would be for tea-rooms as informal space. This is simply a break room which is less formal, giving control of the space over to employees to do things such as write on white boards or interact with each other throughout the work day, thus creating opportunities for informal learning. Another option for informal learning is the staircase, an often underutilized space in buildings. By improving the design of staircases, they can actually become meeting points where informal learning

can occur. Finally, the use of space syntax, which analyzes space and identifies where the most casual interactions are likely to occur, is encouraged to ensure efficient planning of a space to promote social activity and informal learning.

In terms of the public (on-campus) realm, there are numerous recommendations we propose. The sedentary nature of many of UBC's staff necessitate built environment interventions to promote physical activity. For example, a staff/faculty only gym is proposed to counteract the discomfort many may feel at the current on-campus gyms where the majority of users are students. If these gyms were free or heavily subsidized, their use would be ensured. This could be a dedicated larger gym, such as the leasable space in the Brain Center on Westbrook Mall, or it could be smaller in nature, with each department having a room devoted to weights and fitness equipment. Another recommendation is for the provisioning of a fitness trail network on campus. A fitness trail is a trail with exercise equipment incorporated into it course. Users follow the trail and stop at various stations to engage in exercise. Another strategy to get employees out walking is a cultural walk on campus. This would be a well-designed trail which incorporates way finding techniques and interesting cultural artifacts such as colored pavers or distance markers to encourage walking. Sidewalk cafes and covered areas will add value to this system. These types of trail should be accompanied by some programmatic intervention to ensure their use. This could take the form of incentives to exercise, such time spent exercising during breaks gets your name in a draw. Or, weekly fitness walks could be organized by a fitness team. These could rotate through departments and take place outside of regular break time.

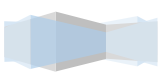
The final area we addressed is the surrounding community, where there is only one issue which we discussed: commuting. The expensive nature of Vancouver, especially close to UBC, means that most employees likely commute long distance. Long commute times are extremely detrimental to the physical and mental health of employees, for several reasons. To counteract this issue, we recommend two strategies. The first is easy, and can be implemented quickly: that is, car-pooling. Car-pooling is a social setting which counteracts the boredom of commuting alone. This strategy should be organized by human resources and heavily promoted. For example, free parking, flexible start times, or gas bonuses could be incentives used to encourage car-pooling. Another recommendation, which is more difficult to implement but extremely beneficial, is that of more on-campus, non-market staff housing. Having affordable zero-commute housing would make UBC a very attractive workplace for potential employees, and would help to retain current employees.

Introduction

Today, environmental design remains a key to building and maintaining a healthy society. At the University of British Columbia (UBC), rather than just telling people to go the gym, public health professionals and advocates must work with architects, urban designers, and planners to promote campus design trends that can contribute to wide-ranging physical activity and mental wellbeing strategies for University campus members.

A Healthy Workplace

In order to achieve optimal staff health, safety and overall wellness, the idea of a 'healthy' workplace requires definition. Any definition of a healthy workplace must incorporate the World Health Organization (WHO) standard definition of health that describes "a state of complete physical, mental and social well-being, and not merely the absence of disease" (WHO 2014). The traditional focus of occupational health and safety has been a virtually exclusive focus on the physical work environment, and mitigating the risk of chemical, physical, biological and ergonomic hazards (Burton 2010). However, the current definition has now been expanded to include lifestyle factors, psychosocial aspects (organizational health and social capital), workplace culture and a link to the surrounding community (Burton 2010). The WHO Regional Office for the Western Pacific Region defines a healthy work environment as one that "provides all members of the workforce with physical, psychological, social and organizational conditions that protect and promote health and safety" (World Health Organization, Regional Office for the Western Pacific 1999). The National Institute of Occupational Safety and Health (NIOSH) adds that a workplace must also offer employees "ready access to effective programs and services that protect their health, safety and well-being" (NIOSH 1999). Additionally, a specific definition of an emotionally healthy workplace also exists: the American Psychological Association defines five key dimensions of it including employment involvement in decision making, work life balance, employee growth and development, health and safety and employee recognition (Quick, Macik-Frey, and Cooper 2007).



These definitions are mostly concerned with primary preventive measures that prevent initial disease and illness; however, secondary and tertiary services are also offered to

employees. Clearly, as the definition of a healthy workplace evolves and becomes more holistic, so too must the strategies, programs and built environment strategies employed to improve worker health and wellbeing.

Why is this Important?

Globally, an estimated two million deaths occur each year that are attributable to work-related illnesses or injuries and occupational accidents (United Nations 2009). Additionally, data collected by the WHO and the International Labour Organization indicate that 8% of the global burden of depression is due to occupational risks (Aguilar-Madrid et al. 2003). Ensuring worker safety is not only a legal and ethical obligation of any employer, but perhaps more relevant in the developed world context, it is also of economic benefit for an employer to maintain a healthy workforce. Business and company productivity and the achieving of goals require staff that are present, productive and reliable (Burton 2010). Therefore, the individual health of the UBC Staff directly influences the ability of the individuals in performing their jobs to support Faculty and Students and in turn indirectly affects the University's effectiveness, reputation, and attainment of institutional goals. Through creating opportunities for personal development via increased physical activity and exercise we should expect growth in the response of health awareness, physical conditioning, and mental wellbeing among campus citizens. Campus design can significantly impact physical activity and health, especially through features such as land use mix, walkability, bicycling infrastructure, and parks and open space. Research also indicates that access to trails and exercise facilities at places of work, together with training on fitness equipment and other supports, results in increased physical activity among workers. Over the past decade, building owners, architects, urban designers, and planners have increasingly come to recognize the importance of creating environments that are both sustainable and accessible. A sustainable and universally accessible built environment goes hand in hand with a healthy and dynamic population. Through highlighting the synergies between active, sustainable, and universal design, we hope to further encourage all design and planning professionals to adopt the goal of increasing physical activity and health throughout their workplace and community.

UBC Staff Demographics

The University of British Columbia in Vancouver employs a diverse staff of over 9,000 people (UBC Office of Planning and Institutional Research 2014). In 2012, the size of the overall workforce at UBC increased to include 7.3% more Management & Professional staff and a 9.3% increase in student employees (UBC Human Resources 2013). Staff appointments at UBC are organized into employee groups, and then into smaller job families. The five employee groups at UBC include: Management & Professional staff, Non-Union Technicians/Research Assistants, CUPE 2950 that include library and various administrative staff, CUPE 116 a large group that include in brief tradespeople, various food services staff, labourers and technicians, and finally Executive Administrative Staff. Figure 1 depicts slightly more specific staff groups at UBC as of 2013 (UBC Office of Planning and Institutional Research 2014).

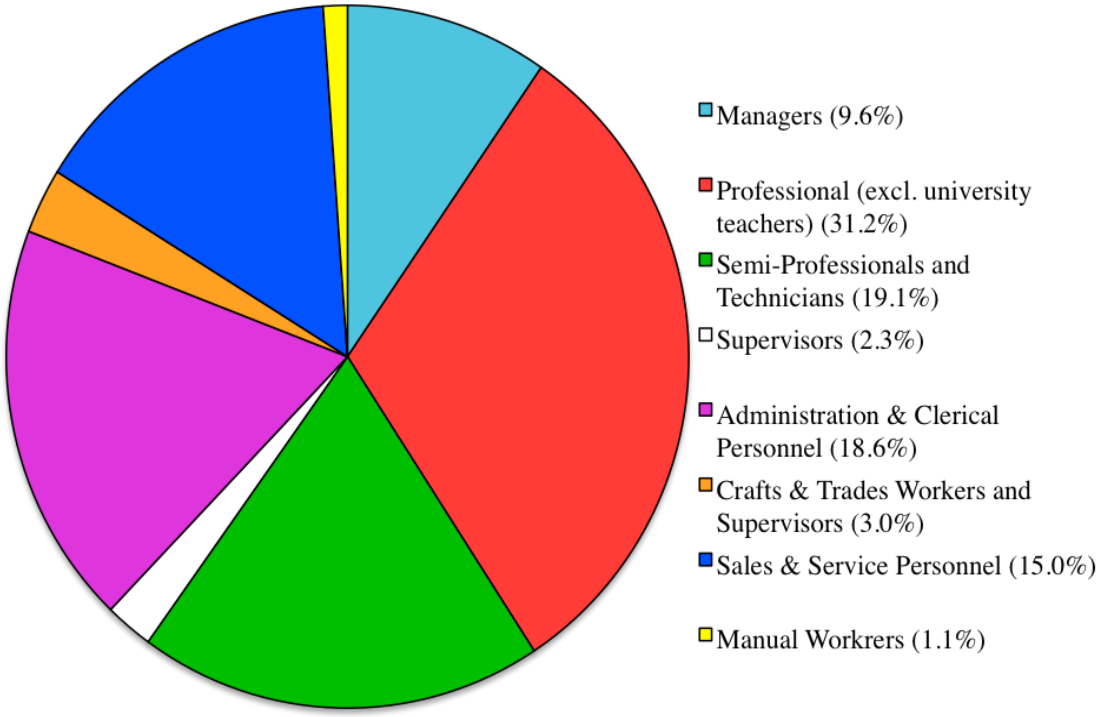


Figure 1. Staff proportion by general occupational group at the UBC Vancouver campus as of 2013. The total number of staff at UBC Vancouver totals 9, 355. Note: Any faculty who also hold administrative appointments are included in the 9.6% Manager Percentage.

Workplaces and Worksites

The workplace has a large impact on health, as the majority of employed adults spend large portions of their time at the workplace (Bauer and Hammig 2014). The "convenience, group support, existing patterns of formal and informal communication among employees in a worksite, and possible corporate behavior norms" are factors that contribute to the large potential that programmatic and built environment strategies can have on the health of staff (Conn et al. 2009) referring to (Marcus and Forsyth 1999; Shephard 1996; Pratt 2008). Additionally, staff, especially within the office setting, are generally a concentrated group of people within a small number of geographic locations that share similar goals, culture and generally purpose (Goetzel and Ozminkowski 2008).

In reference to the 2013 UBC Vancouver staff data (UBC Office of Planning and Institutional Research 2014), Figure 2 clearly depicts that the majority of staff members work within the typical office setting. The lab or office setting included the occupational group "Semi-Professionals and Technicians" and the unknown category includes "Sales and Services Professionals" who could be in offices, but are also in a variety of settings including food establishments, the bookstore, or other shops on campus. Manual Workers and Crafts and Trades Workers were included in the other category. This tendency towards office work at UBC mirrors the trend observed globally, as the proportion of the workforce engaged in office-based work continues to increase (Donald 1994; Elsbach and Pratt

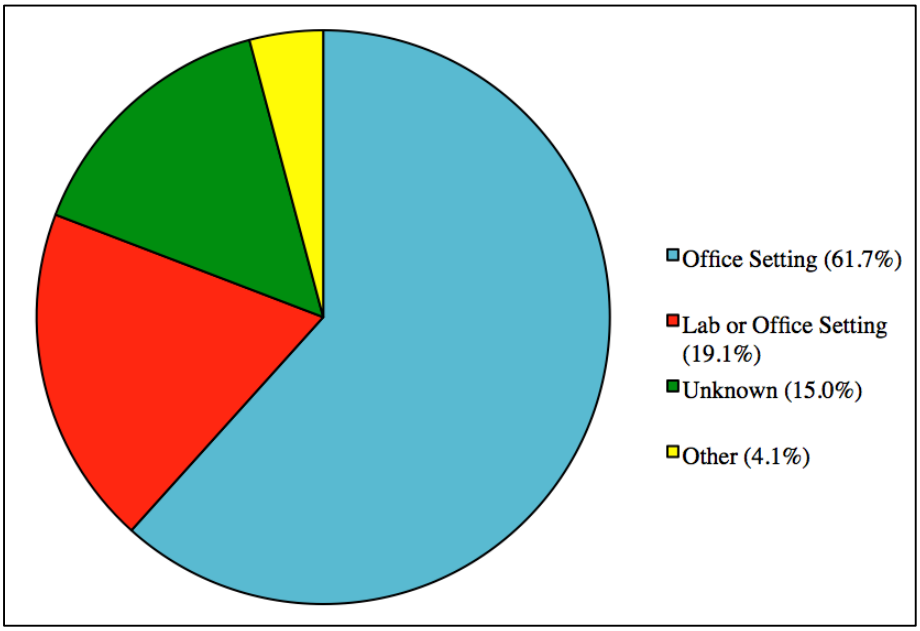


Figure 2: Work setting according to occupational group staff proportion data from 2013 (UBC Office of Planning and Institutional Research 2014).

2007). The health effects of workplaces on health as well as programmatic and built environment strategies to improve worker health will focus on the traditional office setting, as this data is most relevant for Human Resource Professionals and Managers within the UBC Vancouver context.

Impact on Health: Literature Review

Physical Health and Safety

Workplaces, and more specifically office buildings have a large impact on physical health and safety. Office design and their location within the community affect how staff get to work, what they eat while they're there and what exposures they face at work. It is clear that the workplace can, and does influence personal health choices that can act to increase the risk for acute and chronic, communicable and non-communicable diseases (Burton 2010). Of the most concern are occupational diseases and cumulative injuries, that generally have a long latency and often present over several years of exposure (Burton 2010). Indoor air quality is perhaps the most important consideration of building health, as all workers are exposed to factors that can affect occupant comfort and productivity (US Environmental Protection Agency 1997). Inadequate ventilation or poor ventilation system design when combined with indoor sources of biological or chemical contaminants or particles can cause symptoms from mild irritation to severe allergic reactions in susceptible populations (US Environmental Protection Agency 1997). Figure 3 above depicts some of the many contributors to poor indoor air quality at work (BC Comfort 2013). Additional effects of poor ventilation include feelings of fatigue and drowsiness due to high indoor carbon dioxide levels, while odors can cause headaches and occupant discomfort.

Ergonomic and space issues are an additional concern for office workers causing the prevalent *musculoskeletal disorders* (MSDs), also named repetitive strain disorders (Burton 2010). Selection, location and the use of office equipment affects work space ergonomics. Risk factors for MSDs include awkward posture and repetition as well as excessive force, and workers in office settings or in "white collar" jobs with large amounts of computer work are at particulate risk (World Health Organization 2004; Messing and Ostlin 2006; EU-OSHA 2008). It

is known that stress and other psychosocial conditions related to the organization, also increase the risk of MSDs (Kerr et al. 2001; Benach et al. 2007; Sauter and Moon 1996).

Mental Health and Social Capital

There is an increased awareness following approximately 30 years of research that various situations in the workplace can be defined as "psychosocial hazards" because they impact the psychological and social conditions of employees, thus affecting their mental health (Burton 2010). These so called, work stressors may make increase the likelihood of a mental health condition, may make an existing illness worse, or may directly contribute to mental distress including depressed mood, anxiety, demoralization or burnout (Consortium for Organizational Mental Healthcare2009). Certain job factors largely increase the risk of various mental illnesses or disorders. These include high demand and low control situations, (Karasek and Theorell 1990) overwork, poor effort-reward balance, (Siegrist 1996) poor quality leadership, inter-role conflict and harassment and bullying in the workplace (Kelloway and Day 2005). Another factor that strongly relates to mental disorder in both men and women is an imbalance between work and family life, the so-called work-life balance, (Wang et al. 2008) and has been reported to cause 12 times as much burnout and two to three times as much depression (Duxbury and Higgins 2009). This work life imbalance is especially critical for those with increased work demands and increased family commitments: the sandwich generation, those caring for children and elderly parents, are likely to experience large negative impacts (Grzywacz and Marks 2000). Health consequences of work-life conflicts include reduced life, work and marital satisfaction, (Adams, King, and King 1996; Ford, Heinen, and Langkamer 2007; Judge, Ilies, and Scott 2006) psychological stress, depression, mental disorders, and burnout as well as physical symptoms like headache, fatigue and sleep disorders (Brauchli, Bauer, and Hämmig 2011; Greenhaus and Allen 2011). The negative spillover from this imbalance can also increase the prevalence of cardiovascular disease by increasing health-related risk behaviors (Jones, Kinman, and Payne 2006).

The quality of social capital within a workplace relates directly to the over-arching idea of organizational health. The social capital of the organization helps staff trust each other, and helps to make work more meaningful, manageable and comprehensible (Badura 2006). Elements of social capital in the workplace include the "quality, quantity and scope of interpersonal relationships," shared rules, values and beliefs, and the quality of the goal-oriented leadership. All of these aspects interact and jointly influence health, as can be seen in Figure 3 adapted from (Badura et al. 2008, pg. 108).

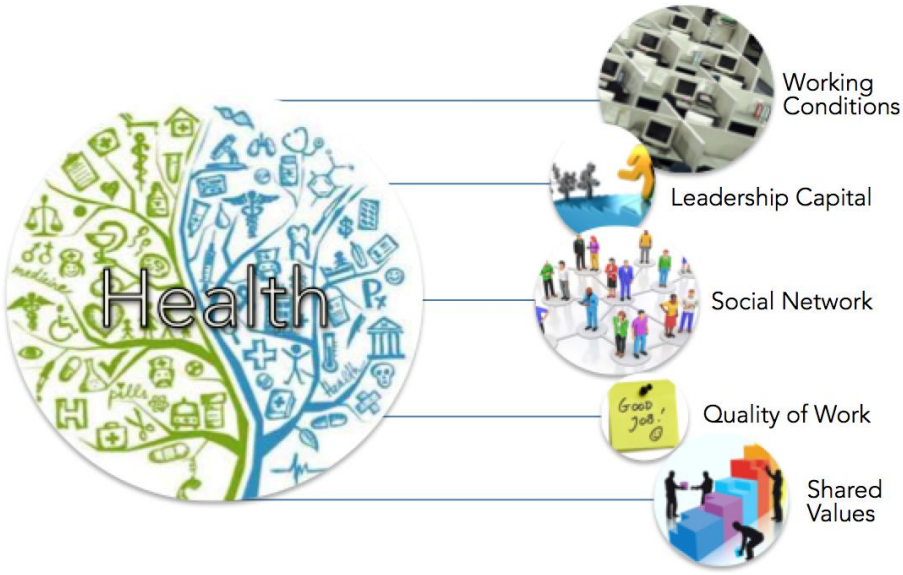


Figure 3: Relationships between social capital, quality of work, immaterial working conditions and heath. Figure adapted from Badura et al., 2008.

Strategies to Improve Health

The World Health Organization (WHO) within the *Global Framework for Healthy Workplaces* identifies four areas of influence within the workplace that effect worker health, and can be manipulated to improve worker wellbeing. These areas are depicted below in Figure 4 and include: the physical work environment, the psychosocial environment, personal health resources and workplace community

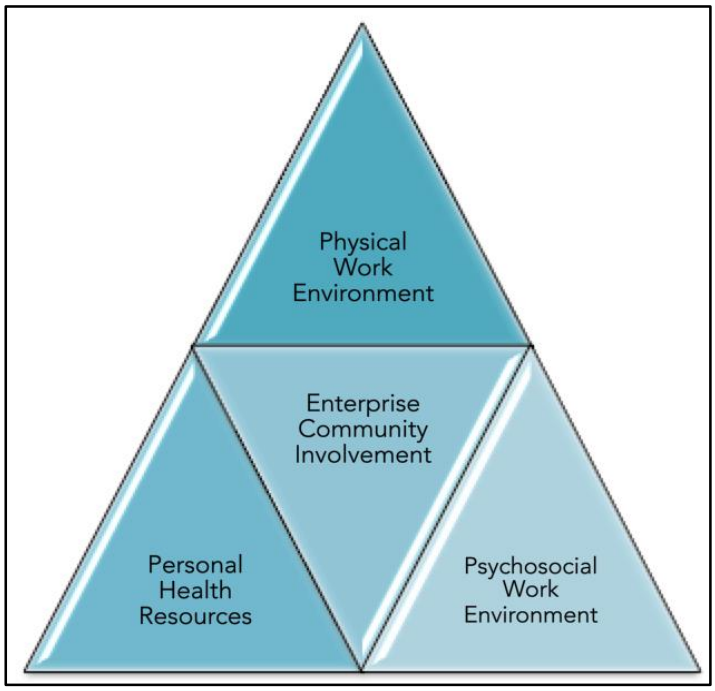


Figure 4: WHO model for healthy workplaces that includes four avenues of influence.

involvement ("Five Keys to Healthy Workplaces" 2014). The four categories of influence will guide the built environment and programmatic suggestions and interventions to improve UBC staff health.

A) Physical Work Environment: Built Environment Strategies

The majority of my recommendations for built environment strategies will fall within the realm of office design. The physical office environment including the building, lighting, furnishings, equipment and arrangement of these elements is most commonly, the second highest overhead cost after human resources (McCOY 2005). However, the office design elements and allocation of space largely remain unmanaged risks (Davis, Leach, and Clegg 2011). A current office design issue at many businesses and universities, including UBC, are the economic and space constraints that necessitate open-plan office layouts (pictured below on the right side of Figure 5) as opposed to the traditional separate office spaces (Figure 5, left side). In fact, a recent CBC broadcast states that by 2015, three quarters of North American Workplaces will have an open-office design (Cuttler 2014). The growing public awareness that offices have a major impact on overall health, and the increasing popularity of open-plan offices has recently called this perpetual debate into the media. Besides the tangible increase in workspace density and net usable space, (Hedge 1982) the removal of doors and separate offices has been assumed to facilitate communication and collaboration between co-workers. However, only limited empirical evidence supports this assertion (Kaarlela-Tuomaala et al. 2009; Smith-Jackson and Klein 2009). Additionally, open-space offices have been shown to be more disruptive environments due to loss of privacy and uncontrollable noise levels, causing perceived performance decrement (Kim and de Dear 2013). However, positive aspects of open-plan offices include increased natural light benefits, creative and flexible design possibilities and reduced electronic communication. (Mullany 2013)

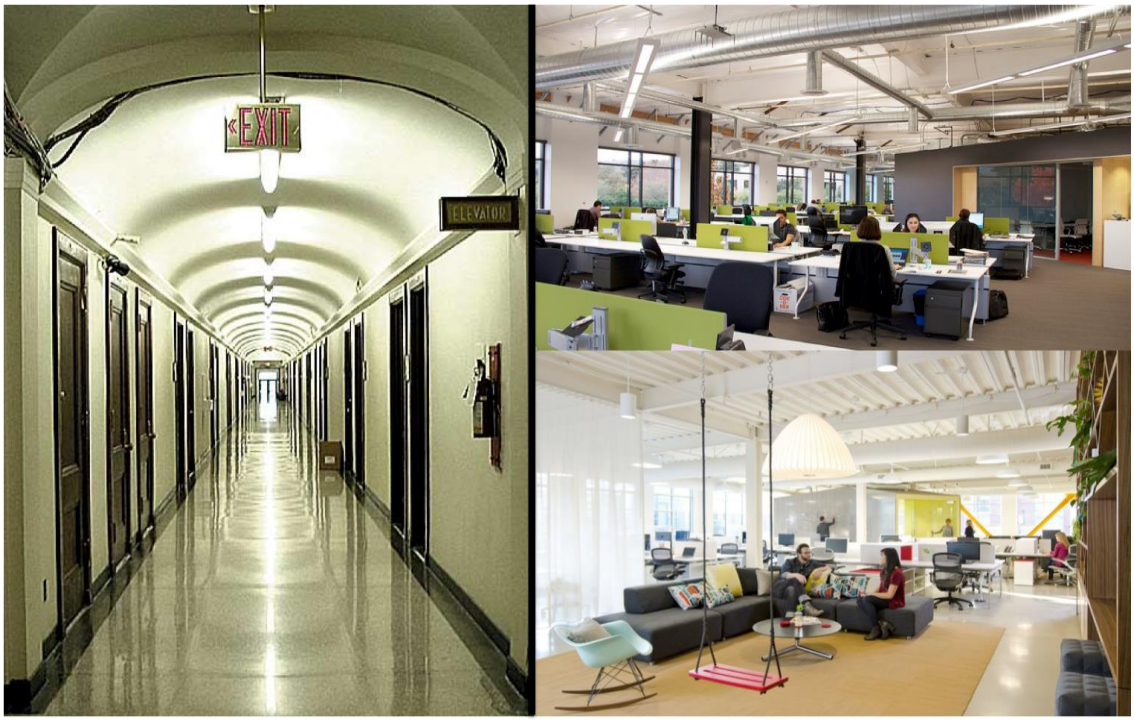


Figure 5. The natural discord between separate office and open-plan office designs.

Strategies for Positive Implementation

Strategies for improving worker satisfaction and health within the open-plan office layout are drawn mostly from online newspaper articles citing experts who have implemented and

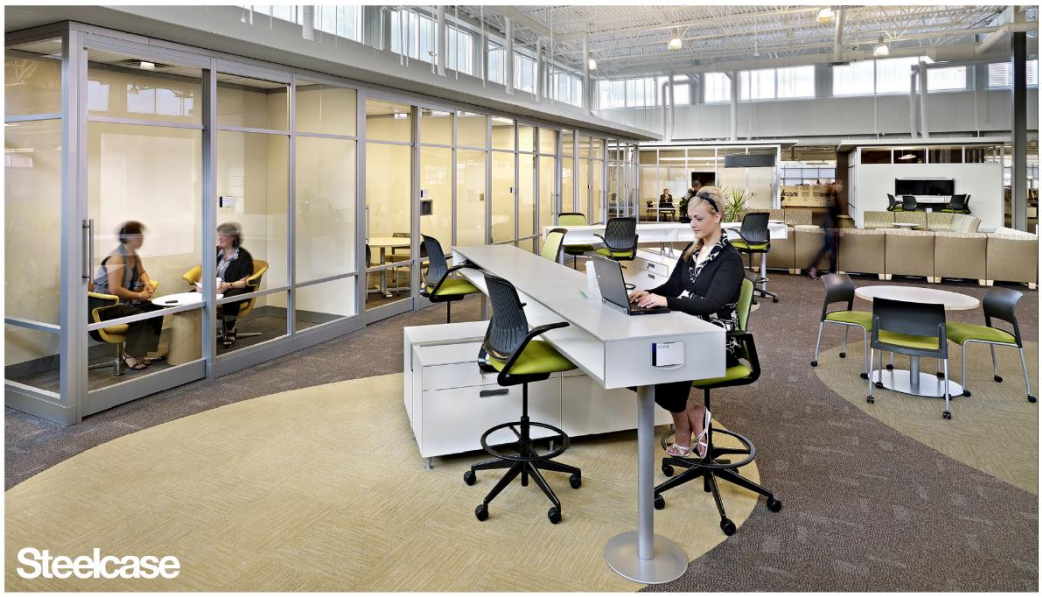


Figure 6: MacEwan University re-design of the University Service Center in Edmonton, Alberta.

improved their open-plan offices; literature has not yet assessed these strategies. The most important design aspect is the creation of units or zones within the open floor plan of an office to cater to different personalities as well as different working needs, a practice which experts at Steelcase refer to as “palette of place” (Mullany 2013). Achieving this requires built environment design elements creating private enclaves, project spaces, personal retreat areas and areas encouraging collaboration. Some examples from the Design Center at Steelcase are shown in Figure 6 and 7.

The redesigned TD Bank offices in Toronto ensured phone booths and small enclosures for private conversations were available (Young 2013). Meeting and conference rooms are still required, but the use of glass partitions and walls create an airy interior space, taking full advantage of natural light (Young 2013). Personal control over workspace, involving movable and adjustable furniture, work environment options including temperature and lighting control, and easy access to meeting places can positively influence group cohesiveness and job satisfaction (Lee and Brand 2005; Lee and Brand 2010).

Figure 7: Steelcase WorkCafe at the Grand Rapids Michigan headquarters uses a coffee shop design to encourage both collaborative and solo, focused work as well as eating and socializing (Steelcase 2014).

Strategies to mitigate noise distractions include employing physical acoustic design engineers, and considering office layout to position teams with different noise tolerance and generation levels to reduce disturbances ("Office Acoustics – Demand Better!" 2014). Additional administrative controls important to worker satisfaction in open-space offices include the implementation of an orientation process, a written code of conduct ensuring workers are respectful within their new space and the provision of phone headsets (The Globe and Mail 2013).

B) Psychosocial Work Environment: Programmatic Interventions

One of the biggest issues facing many staff members today is the issue of work-life balance. As the cost of living in Vancouver continues to rise, it is likely that both parents in a family group are employed and juggling family commitments. It is also likely that UBC staff are commuting long distances to work, taking more time away from home and personal lives. Many programmatic interventions are useful to encourage a healthy staff work-life balance that benefits not only employees, but also employers. (Bauer and Hammig 2014) These interventions fall under the broad category of workplace scheduling flexibility. (Kinman 2009) Implementing scheduling flexibility into the workplace can include offering full-time options including flextime, compressed workweeks or telework/telecommuting options and part-time options including job sharing and phased return from leave. (Kinman 2009) Employees offered high levels of flexibility were found to have higher job satisfaction, motivation and engagement and were more likely to remain with their employer. (Corporate Voices for Working Families 2011; Families and Work Institute 2008) Creative use of paid and unpaid time off, like allowing employees to bank pay to prepare for future leave improved retention and engagement. (Accenture 2008) These programs, however, require implementation in a supportive and family-friendly organizational environment that will ensure utilization of these programs. (Bauer and Hammig 2014)

C) Personal Health Resources: Programmatic Interventions

Creating a resilient and healthy workforce involves giving individuals the tools to positively influence their own health. This involves a large educational piece, as well as providing resources, programs and activities for workers to improve or maintain health.

Academic Gardens

An interesting idea for building skills and teaching staff about sustainable and healthy food resources is academic gardens. The university through the AMS Sustainability Fund will occasionally provide opportunities for temporary gardens on academic lands (UBC Sustainability nd). The Geo Garden (pictured below) was funded in late 2012, and is a garden built on the east side of the Geography building and is maintained by the Geography Students Association. Implementation of a similar garden in various staff buildings around campus either as rooftop gardens, or gardens within the common outdoor area could provide major health benefits. These gardens provide hands-on and interdisciplinary education about sustainable food systems while contributing to improved community space, staff morale and social capital. It gives staff members the ability to collaborate and work together outside of the formal office environment, and allows them to share knowledge and resources in areas of personal interest. If employers provide time during work hours to tend to these gardens, and initiatives are completely staff driven, organizational health could flourish. Additionally, the fresh produce from the garden could be used at campus food establishments that could in turn provide

discounts for staff, or the proceeds could be put towards health-related or social events. The physical and mental health benefits of being outside and in nature, being physically active and the likely improvement of diet and shopping tendencies that could result from this project make this a viable yet inexpensive option to improve many facets of staff health.

Figure 8: Installation of planter boxes in front of the Geography Building at the UBC Point Grey Campus, 2013.

Provision of Health Resources

UBC provides diverse events and initiatives as well as ongoing programs that support and encourage staff physical and mental health. These programs cater to a wide variety of interests, and are easily accessible and advertised through social media and UBC Health Contacts. A piece that could be added to current ongoing programs that has been found to be effective by the Community Guide, is *Assessment of Health Risks with Feedback* (AHRF), (Community Preventive Services Taskforce 2014). This includes providing an assessment of risk factors and health habits and future risk of disease or disability, and providing individual feedback through educational messaging or counseling describing how changing certain behaviors can improve health today, and decrease risk of poor health later in life. The AHRF strategy is often used as a gateway intervention, and can be used at UBC to direct staff attention the programs and initiatives that are already in place. This may help to increase the utilization and uptake of various ongoing and special event programs at UBC.

D) Enterprise Community Involvement: Programmatic Interventions

The workplace and surrounding community interact in both directions to influence worker health. The influence of surrounding community design on staff health will be discussed in a later section, however, the integration of the workplace into the community also have implications for staff health. Encouraging staff participation in community projects or volunteer positions in the community is one strategy to encourage social capital and positive mental health in the workplace. Employer-sponsored volunteerism achieves increased employee engagement, loyalty, commitment and pride in employment (Burton 2010), and strengthens bonds between co-workers and colleagues. Using an organization like Volunteer Match could help UBC staff groups connect with nonprofit organizations, according to their individual interests and aspirations (VolunteerMatch.org 2014). Additionally, this strategy also helps to improve or strengthen the reputation and corporate citizenship of the university in general (Industry Canada 2009).

Informal Learning

Often informal learning defined by its difference from formal learning. While formal learning is more procedural, defined by rules, and more or less generic informal learning, then, is more spontaneous, context dependent, and unbounded (Cross 2007). Informal learning, in this sense, is "predominately unstructured, experiential, and non-institutional" (Marsick and Volpe 1999, 4). Since informal learning is unplanned, it is often incidental and integrated to daily activity (Malcolm, Hodkinson and Colley 2003, Marsick and Volpe 1999). Likewise, unknowingly each moment can be an informal learning experience. However, informal learning can be intentional, and structured as well.

Factors Affecting Engagement in Informal Learning

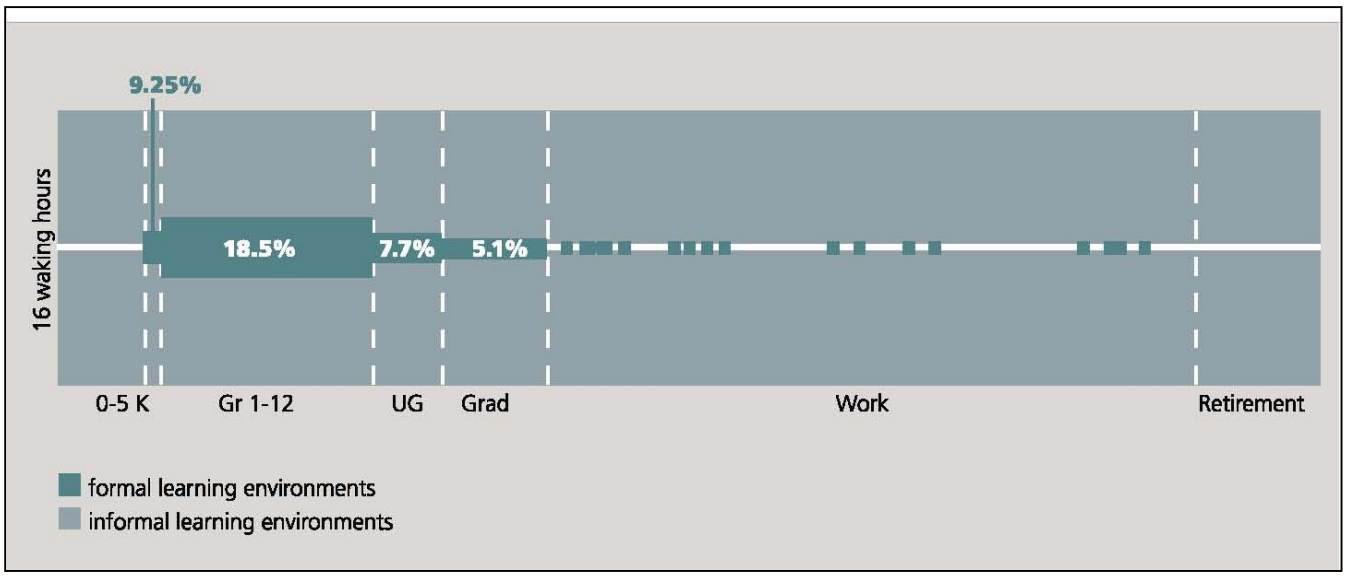


Figure 10: Lifelong and life wide learning diagram: shows the percentage of formal and informal learning over the course of life (Stevens and Bransford 2005). The horizontal axis shows the years of our life with different segments of life stages. The vertical axis is the 16 waking hours. As we can see from the figure, informal learning is prominent most of the time during work stage of life. Study has shown that informal learning such as learning by doing, learning through assessment, and learning through and error play important role is the professional development of staff at workplace (Iseminger and Donaldson 2012).

Each person is different from other. The way one person behaves, makes decisions, and communicates differs from other people (Gregorc 1982). Though the research does not show consistent results, factors such as age, educational background can influence the level of engagement in informal learning. Some studies show that less experienced young professionals are more engaged informal learning compared to experienced older professionals view informal learning to be unrelated to their work (Kremer 2005, Tikkanen 2002). However, Canadian populations seem to be anomalous Tikkanen's and Kremers' findings. A study done by Livingstone (2001) showed that older participants reported engaging in as much learning as did younger participants. Likewise, the study also showed that younger professional tended to look to others as sources of information in informal learning, whereas older learners tended to engage in more individualistic activities.

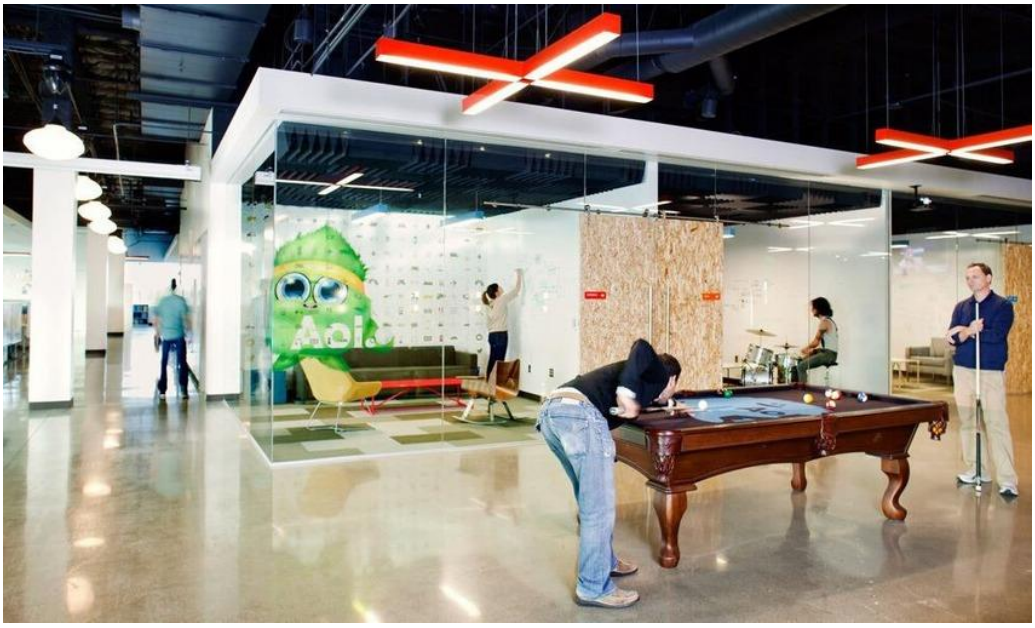


Figure 11: Various features can be used to create informal learning space.

The Nature of Informal Learning

Table 1: represents three different typologies of learning (Eraut 2000) which are elaborated below:

Table 1. Different types of informal learning			
Time of focus	Implicit Learning	Reactive Learning	Deliberative Learning
Past episode(s)	Implicit linkage of past memories with current experience	Brief near-spontaneous reflection on past episodes, events, incidents, experiences.	Discussion and review of past actions, communications, events, experiences.
Current experience	A selection from experience enters episodic memory	Noting facts, ideas, opinions, impressions; asking questions; observing effects of actions	Engagement in decision-making, problem solving, planned informal learning.
Future behavior	Unconscious expectations	Recognition of possible future learning opportunities	Planning learning opportunities; rehearsing for future events.
Source: Eraut 2000			

Implicit Learning: As defined by Reber (1996), implicit learning is `the acquisition of knowledge independently of conscious attempts to learn and in the absence of explicit knowledge about what was learned'.

Reactive Learning: Reactive learning occurs in the middle of the action, when there is little time to think.

Deliberative Learning: Deliberative learning includes both `deliberate' learning (Eraut 2000), where there is a definite learning goal and time is set aside for acquiring new knowledge, and engagement in deliberative activities such as planning and problem solving, for which there is a clear work-based goal with learning as a probable by-product.

The context in which learning occurs is always the present, but the focus of the learning can be in the past, present or future. While the planning of future learning opportunities is often informal, the opportunities themselves could be either formal or informal.

Design Intervention to Enhance Informal Learning at workplace:
Tea-Room as an Informal Learning Space

Tearooms are used extensively throughout the day. Various activities, from flurry to stillness, from none to one or ten or more persons, from a quiet conversation between one or

Figure 12: A small tearoom can be a place for informal learning.

two to 10 or more, or several conversations happening simultaneously while some wash up, make tea and toast, microwave lunch, cut the cakes, store things in the fridge, write on the white board, read a magazine or their mail, answer or make phone calls, and so on can provide ample opportunity for informal learning.

Implicit learning activities can occur in tearoom where staffs can talk about past memories, and current experience. The informal environment provides sanctuary for rearrangement of professional and personal relationship among the staffs. Deliberative learning can also occur if staffs plan to work engage in problem serving, decision making, discuss or review past activities.

Lobby as an Informal Learning Space

Lobbies which are normally used as circulation space at workplace can be a perfect breeding ground for informal learning. Casual encounters, respite from long hours of work, short chat that happen in lobbies turning such them into "socially catalytic spaces" (Oblinger 2006) for informal learning.

Figure 13: Lobby space can be used for informal interactions.

Open Plan as an Informal Learning Space

".... the late Steve Jobs, who believed in the power of space to enhance the work of groups, designed Pixar's headquarters in 1999. Jobs had the building arranged around a central atrium so that diverse staff of artists, writers, and computer scientists at Pixar would run into each other frequently. Jobs had the mailboxes placed in the lobby; he moved the meeting rooms, the cafeteria, the coffee bar, and the gift shop moved to the lobby as well. Finally, he had the only set of restrooms moved to the lobby. This design of work space promoted more interaction among employees, particularly among people who worked in different departments" (Egolf and Chester 2013, 203).

Although open space plan are becoming increasingly popular at work place due to the opportunity for increasingly intense, open and information interactions they provide, they are also nuisance for those needing distraction free work environment. Therefore, a balance between distractions free concentrated work and rich interactions should be maintained at workplace.

Figure 14: By maintaining enough distance between workspace and informal meeting space employees can focus on their work without distraction.

Some of the design guidelines suggested by Hua (2007, 158-159) are as follows:

- Provide choice by making available an effective mix of individual and shared spaces for a rich variety of activities at work with different requirement on workplace spatial environment.

- Ensure sufficient floor space dedicated to service-related places for interactions. Controlling occupancy density and be cautious not to compromise necessary individual workstation size.

- Design shared service and amenity places to become active nodes of interaction and collaboration activities. Assign dedicated space not too close to neighborhood of workstations for shared service and amenities.

- Support layout and enclosure flexibility for different levels of privacy and need of distraction-free work environment. Adopt furniture systems that allow changes by easy reconfiguration.

Stair as Informal Learning Space

Stairs are often the most unused part of buildings and are no more than structure required for emergency exit. Therefore, most of the buildings have stairs at the corner and have minimal design aesthetics. By incorporating stairs with the layout of the workspace new kinds of spaces can be generated. This could not only provide space for social interaction, but also can be a space of physical activity (Kerr, et al. 2003).

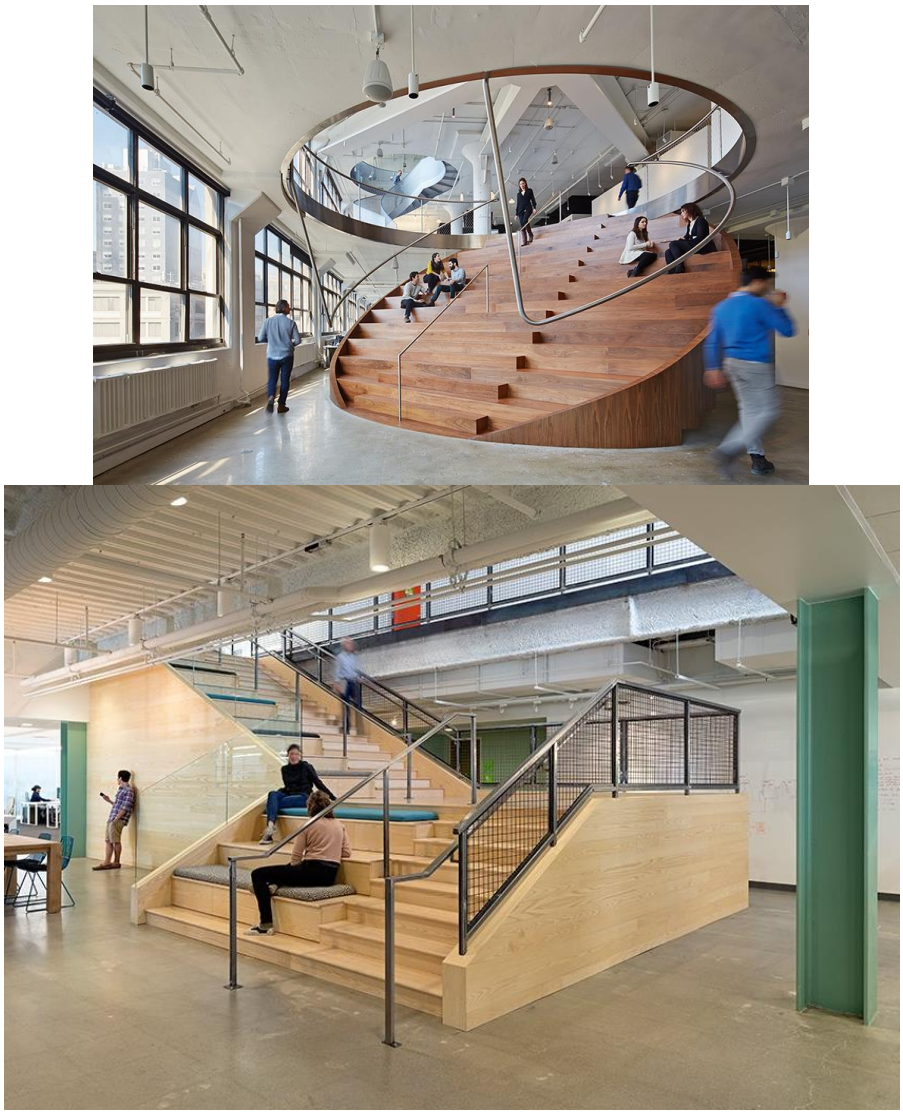


Figure 15: Stairs can be used for physical activity as well as for informal meeting.

Space Syntax to identify spaces for informal learning

Space syntax is a science-based, human-focused approach that investigates relationships between spatial layout and a range of social, economic and environmental phenomena. Using space syntax, efficient planning can be done to ensure that the spatial characteristics of workplace provide maximum opportunities for "moving encounters so essential for informal interactions."

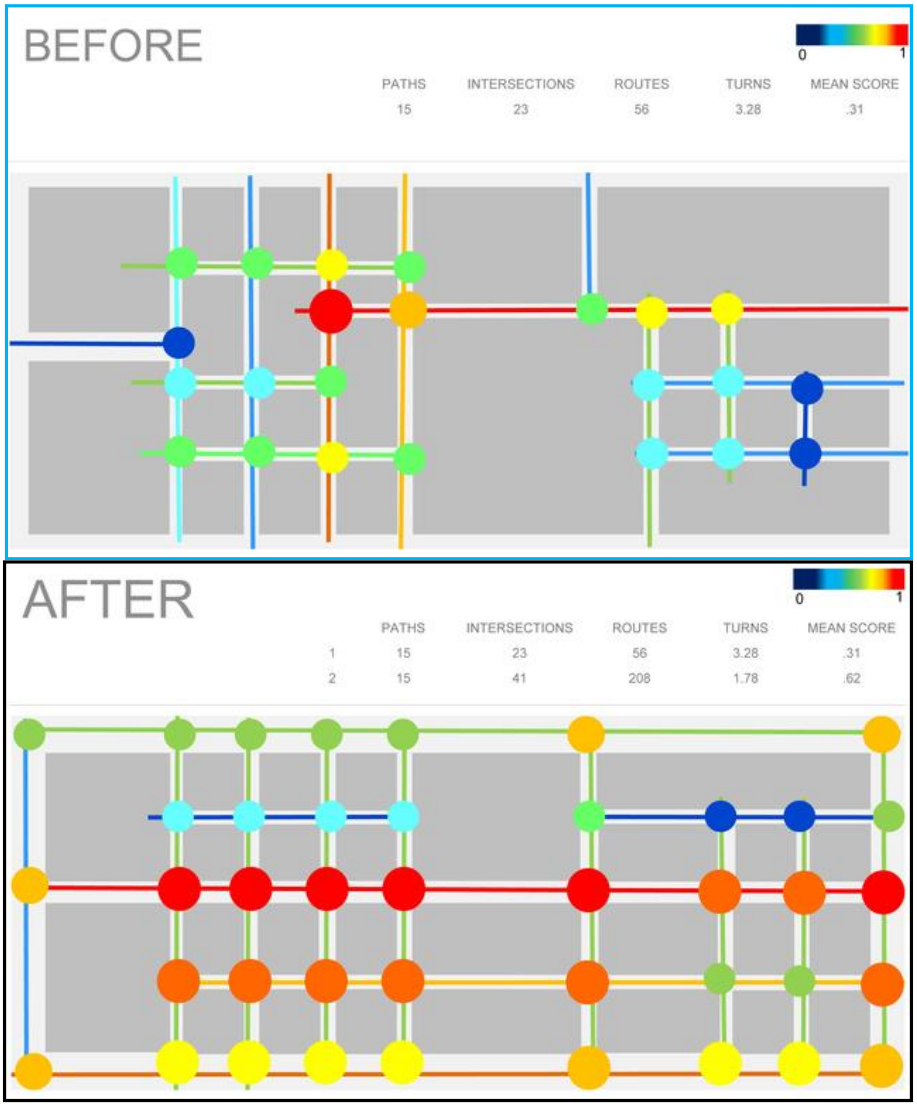


Figure 16: Using Space Syntax efficient space planning can done in workplace.

For example, using some attributes built environment such as layout; distance, and visibility predictions can be made to identify the spatial patterns of informal interactions. Figure 16 shows such analysis done to enhance the spaces for informal interaction in workplace using

Windows-based AJAX (Accessibility Analysis of Junctions and Axial Lines) software (Serrato 2014). With a diagram of a floor plan on screen, the user identifies all circulation routes by drawing lines that indicate “every place possible where people could walk”: corridors, hallways, aisles between workstations. The program then analyzes the plan and return values for every path and intersections on a scale of 0 to 1 with color range varying from blue to red. Paths and intersections with values close to 1 are more spaces with high probability of informal interactions. Using such predictive tools like Space Syntax efficient planning can be done in workplace to create better learning environment for staffs.

Public Realm-Physical Activity

The benefits of physical activity for society and individuals are well studied. The majority of UBC's staff are employed in sedentary desk jobs which makes the campus an ideal area for physical activity interventions. Sedentary lifestyles and a lack of physical activity are associated with depression (Tremblay et al.). That said, however, studies have shown that physical activity interventions in the work place are effective tools to combat depression. One study of 30 white-collar workers assigned to a two session per week fitness program in the workplace found that the intervention reduced the risk of depression (de Zeeuw et al. 2010). Musculoskeletal issues and injuries are also associated with long periods of sitting which can cause stress amongst workers (Mehrparvar et al. 2014). Research has shown that physical activity can actually mitigate musculoskeletal issues. In fact, one study found that exercise

Figure 17: Fitness trail (Fit-Trail, 2011)

taking place twice a week, for 15-minutes, resulted in statistically significant pain reduction in several areas of the body (Freitas-Swerts & Robazzi 2014). Overall, the many problems associated with sedentary time prove that UBC needs to directly intervene in the public realm on campus to boost physical activity for staff.

Recommendation:

Here, the most appropriate recommendations are physical alteration of the built environment on campus coupled with a programmatic intervention aimed at workers. Specifically, the recommendation is for the creation of a fitness trail network across campus. A fitness trail is a path which is equipped with obstacles or stations distributed along its course for exercise. In this case, a well-designed system of trails which incorporates outdoor exercise equipment at various locations. Figures 17 and 18 offer examples of a fitness trail system created by a company called Fit-Trail.

Figure 18: Fitness trail (Fit-Trail, 2011).

This system incorporates simple wooden machines on which one can perform an exercise as they follow a trail. As such, you are getting both cardio and resistance training. Figure 19 provides an overview of what a fitness trail might look like and how various different exercises are incorporated into it, from a trail in New Zealand. Another approach to fitness trails includes more of an obstacle course design, for more advanced users. Such an intervention in the built environment would also require some programmatic intervention to ensure that it gets used by staff and they receive the benefits. For example, there could be certain incentives offered to those who participate in a fitness trail over their break. Or, even better, a mandatory fitness walk could be implemented

on a few days out of the week. This could rotate through departments and be organized by a "fitness team". The event should occur outside regular break time, so as not to be dictating what people do on their breaks; and as the previous literature has shown, even a short bout of 15 minutes is enough to provide benefits. There would, of course, need to be consideration taken for differing fitness and mobility levels. The trail system should not intercede on major thoroughfares; it should be a destination in of itself and be well marked with interesting way finding techniques, exemplified in figure 20. The network should extend throughout campus to ensure that everyone has equal access. This intervention is in line with the priority area for improvement from the 2011 workplace survey of health and wellness. It differs from what UBC

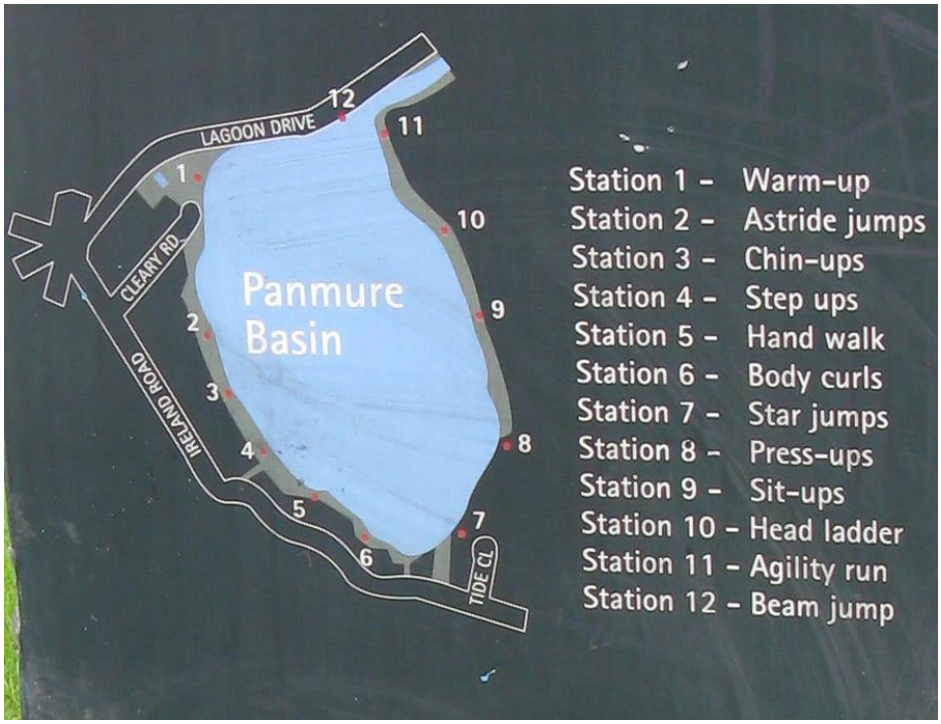


Figure 19: Panmure Basin, New Zealand (Waymarking, 2009)

currently offers in that it is a more direct approach.

Figure 20: Engaging way finding technique on the Spirit Trail, North Vancouver (Space2Place, 2009)

Another option for increasing employee participation in fitness at the public level is the provisioning of a faculty and staff only gym. The current on campus gyms, the Birdcoop and Gold's Gym, have several problems. First, the Birdcoop is constantly crowded with students. It might be uncomfortable for staff to workout with students that they might have to then see around campus or work with in some way. Also, Gold's Gym is considered to be a premium experience, and even with corporate rates still is a large expense. Many companies are already recognizing the importance that fitness plays in keeping employees healthy, happy, and productive. For example, a B.C based company called the Great Little Box Company Ltd. offers its employees free, or subsidized, membership in an onsite gym. Their gym is fully equipped and includes a punching bag to vent frustration. According to the company, employees are able to get relief from work related stress by working out at the workplace. Through this, they have more energy, lower absenteeism and are less likely to leave for another company (Christie 2012). By intervening in the public realm on campus, and creating a staff and faculty only gym, it is likely that UBC would also see similar benefits in their staff. Such an initiative would again

address the previously mentioned areas for improvement of attraction and retention of individuals as well as health and wellness. Currently, the Center for Brain Health on Westbrook mall has leasable space. This is an attractive building located in the heart of campus and would provide an excellent space for staff and faculty to work out and improve their health and wellness.

Public Realm-Cultural Activity

What makes the Cultural Trail unique is that it's not only a campus exploration trail, but synergistically a mediator to increased exercise.

Figure 21: Rodney Graham's Millennium Time Machine, UBC Point Grey Campus, Vancouver.

Programming Streetscapes

Incorporating permanent public art installations into the streetscape provides a more attractive and engaging environment. (NYCDT 2014). Campus planning should consider organizing pedestrian-oriented programs, such as cultural walks and self-guided tours, which designate colourful or programmatic cement pavers (figures 23 and

Figure 22: Hock E Aye VI Edgar Heap of Birds' Native Hosts, UBC Point Grey Campus, Vancouver.

Figure 23: Cement paver with poetic message of mental wellbeing, UBC Point Grey Campus, Vancouver.

26) to signal the route for walking and bicycling to these artistically significant sites on campus. Artistic programming can also help to increase the profile of the campus, by making the campus a more memorable and distinct, destination for campus members and the wider region. Animated streets on campus should also be accompanied by an increase in the number of

outdoor cafes to enhance street activity and people watching (Jacobs 1961). These actionable item aims to Increase the frequency and duration of recreational and task-oriented walking by providing an appealing environment and experience along designated paths of travel. Consider providing incremental distance markers so that people can judge the amount of walking they've done. Distance markers can assist people to set goals for daily walking and stair climbing, and may encourage individuals to incorporate short bouts of physical activity into daily routines. The cultural path should also provide visually appealing environments along the path of travel. These views may include natural and designed landscapes, nearby ecological services, interior views of people-oriented activities, and visually appealing interior finishes.

Figure 24: Covered patio café outside the Henry Angus Building, overlooking Martha Piper Plaza, UBC Point Grey Campus, Vancouver.

Figure 25: Granite incremental distance markers.

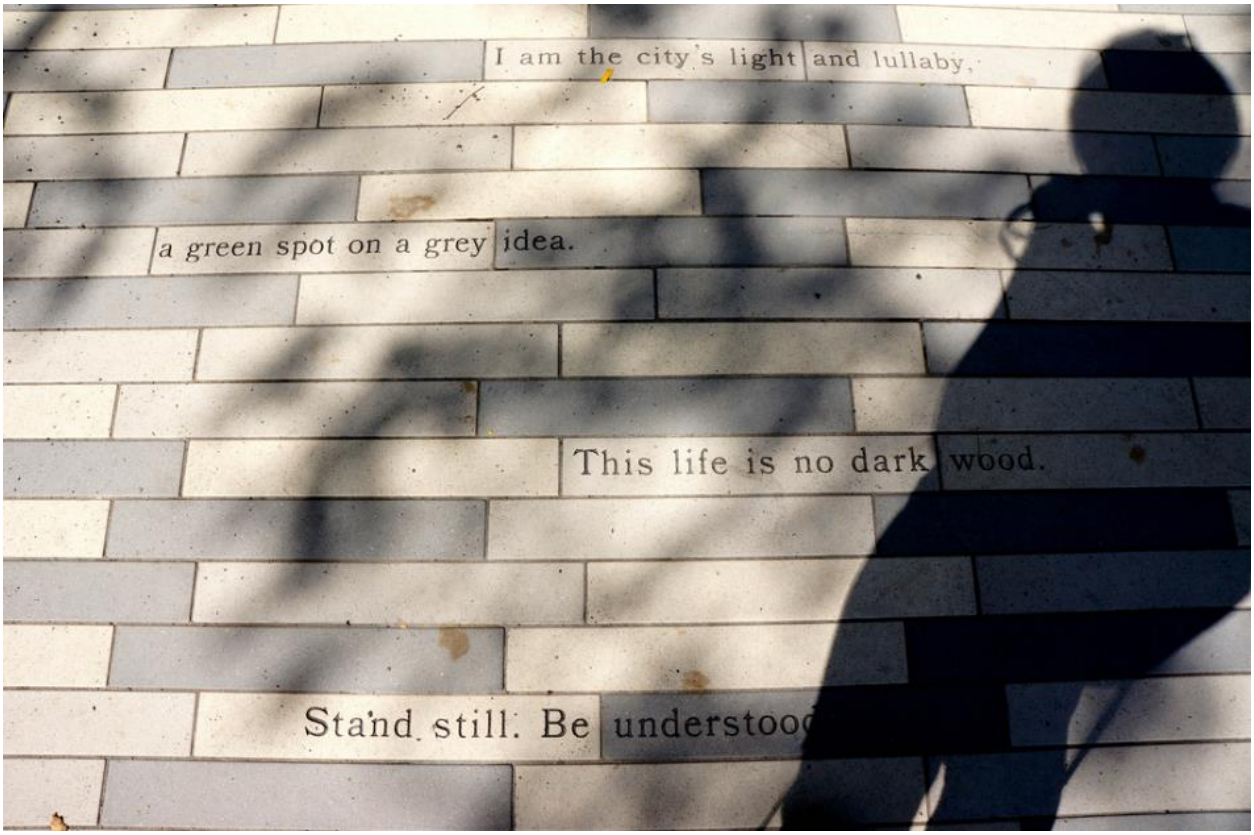


Figure 26: City paver in Philadelphia transit shelter, downtown core.

Supportive infrastructure along walking routes should also be incorporated into the comprehensive plan of a Cultural Trail. Facilities such as restrooms, drinking fountains, water refilling stations, and benches both provide reasons for taking a walk within the

Figure 27: Swing set connected to a Big Leaf Maple, overlooking The Clock Tower, UBC Point Grey Campus, Vancouver.

workplace and offer resting breaks for refreshment and reflection during the physical activity. Seating in the naturally landscaped areas can also offer sensory stimulation and break time distraction from workplace stress (Figure 27).

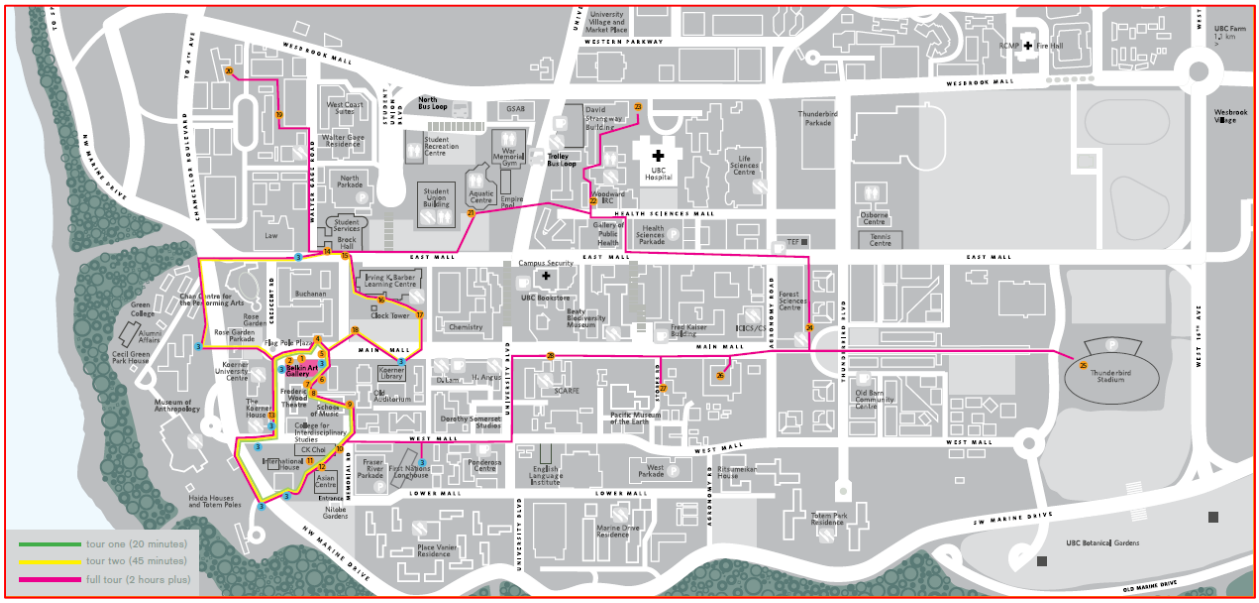


Figure 28: Map from UBC Outdoor Art tour with three self-guided tours of differing lengths of time. UBC Point Grey Campus, Vancouver.

Provide marked, measured walking paths (Figure 28) on sites as part of a Cultural Wayfinding System targeted to pedestrians and bicyclists. These Cultural Wayfinding pavers can provide distances and times to various points of interest, especially for tourists to the campus and in areas with many intersecting routes. On larger building sites such as campuses, a marked, measured path has been shown to encourage employees to exercise (Project for Public Spaces 2000).

Figure 29: architecturally designed: Tree shade bus shelter by Public + Communications Architecture, UBC Point Grey Campus, Vancouver.

It is also necessary to provide information about walking routes within and around the entire campus. Artistic treatments can be applied through the installation of information boards displaying the locations of walking paths within and outside buildings, as well as the locations of nearby amenities such as art, shopping, restaurants, grocery stores, services, entertainment, exercise facilities, and other places of interest (Figure 30). It would be also prudent to provide shelter and rain cover facilities to encourage staff exercise at lunch hours and breaks. Further incorporating of canopies and awnings into building facades can encourage walking by providing shade from the sun and shelter from inclement weather, while adding visual interest to the street (Figure 29).

Figure 30: Information board under the architecturally designed: Tree shade bus shelter by Public + Communications Architecture, UBC Point Grey Campus, Vancouver.

Surrounding community

In terms of the surrounding community, the biggest issue that connects to staff is that of commute times and how they get to work. UBC's location, and its surrounding environment, favors longer commute times for staff. For example, Figure 31 shows average property values in the surrounding census tracts. Obviously, the majority of Vancouver shows average values over $500,000. In reality, many of those closer to UBC would have averages approaching

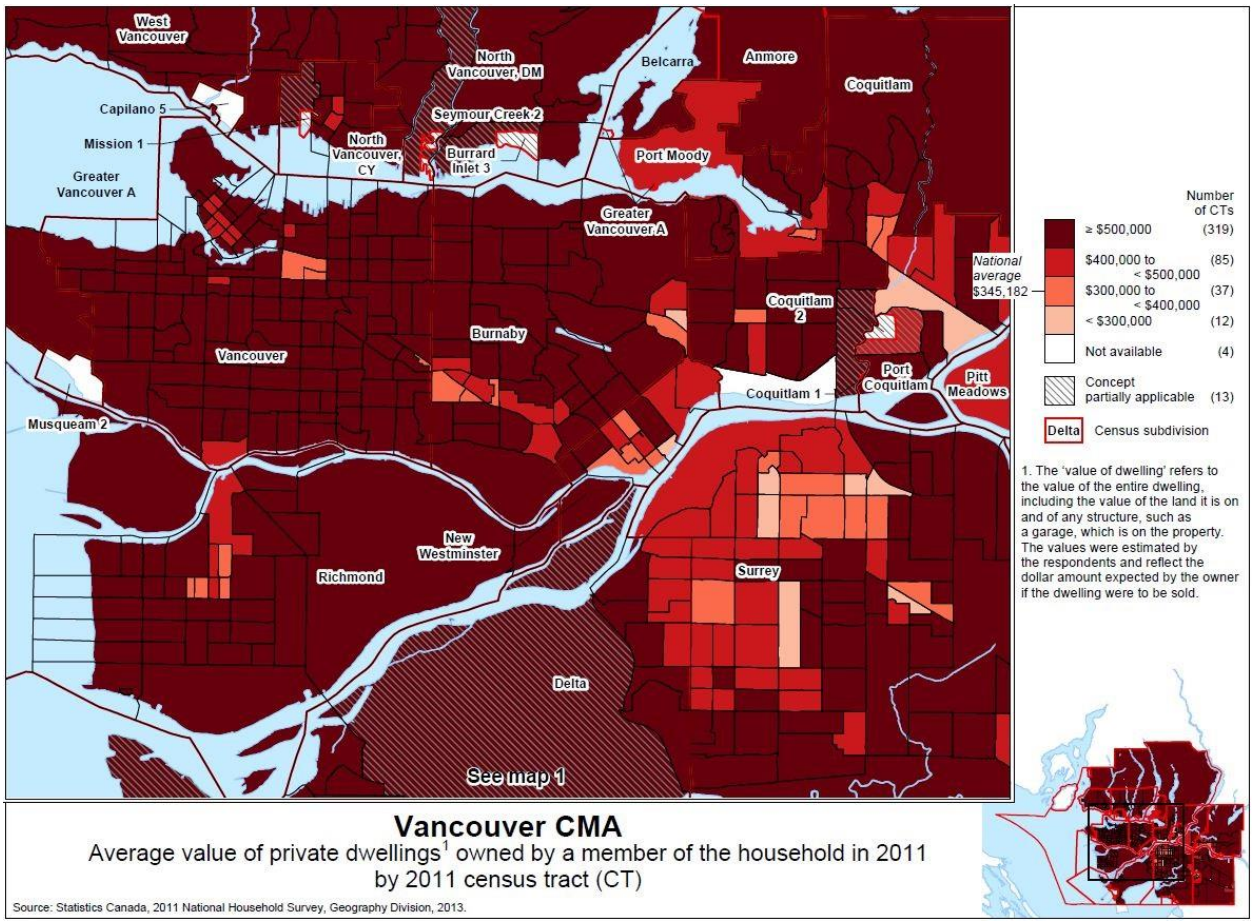


Figure 31: Average Dwelling Value (Stats Canada, 2013)

around the $1,000,000 mark. The purpose of the map is to show a general trend that properties further out, mostly in the Surrey area, are much more affordable than those closer to UBC. Unfortunately, these areas further from UBC and the downtown core tend to have longer commute times, as Figure 32 shows.

Commute times play an important role in the mental health and wellbeing of employees. UBC tends to focus mainly on what happens at the workplace, not what happens before or after. As such, commute times are largely ignored by the current initiatives at UBC. This is a problem for many reasons. Not only does commuting take time, but it also generates financial burdens and cuts into family time. A study of commuters in Germany has shown that people with longer commute times report systematically lower subjective wellbeing; in fact, a one way commute of just 22 minutes was associated with lower life satisfaction (Stutzer & Frey, 2008). Vancouver's average commute time is 28.4 minutes, one of the highest in the region (Stats Can, 2011). It is likely, then, that many of UBC's employees commute to work and that they spend a disproportionate amount of time doing so.

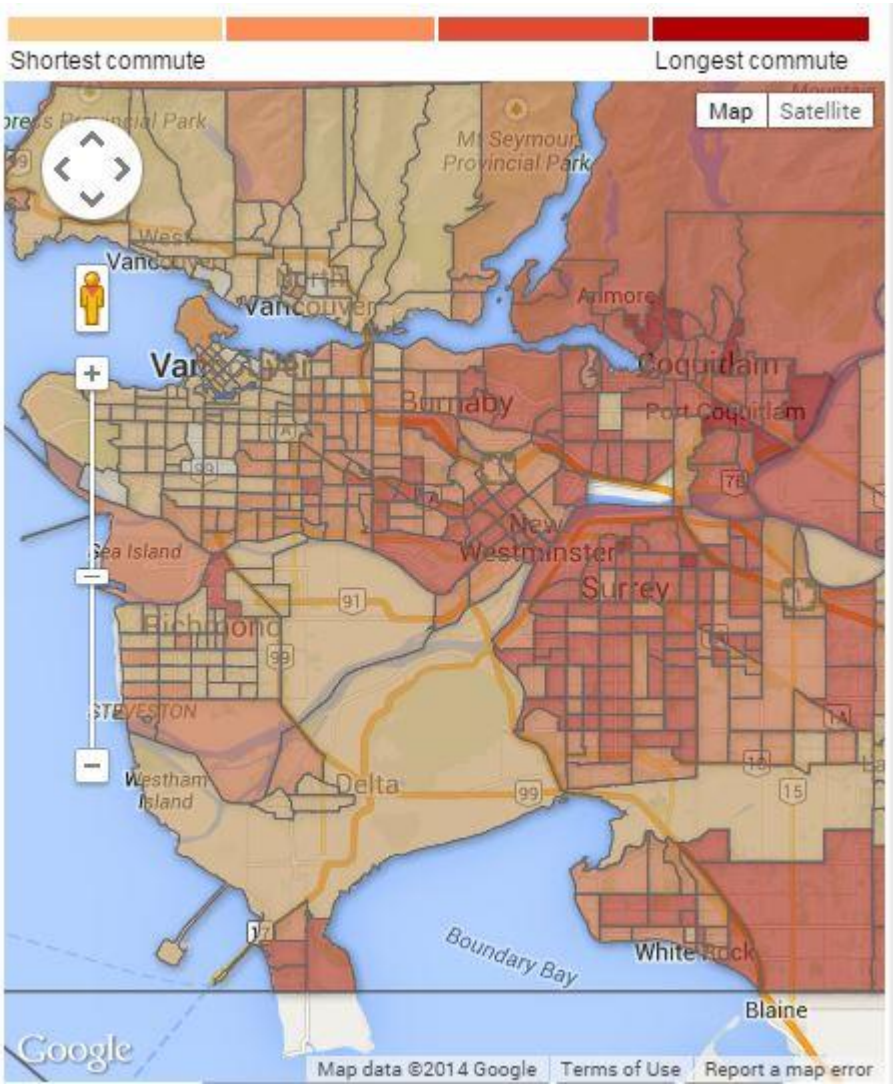


Figure 32: Commute times in Vancouver (Skelton 2013)

Recommendations

There are two main areas whereby UBC could mitigate some of the problems associated with commuting for its staff. First, the provisioning of more subsidized staff housing on campus.

Due to the previously discussed un-affordability of Vancouver, especially around UBC, there needs to be a greater focus on staff for subsidized on campus housing. Currently UBC only has 400 non-market options available for 15,171 faculty and staff. This number should be increased and it should be heavily promoted for new employees. One of the opportunities for improvement which came out of UBC's 2011 workplace survey was attraction and retention. Employees often have to balance commute times with salary when choosing where to work, and a long daily commute is often a driving force for switching jobs. Having more on campus affordable staff housing would address a big issue for potential and current employees of UBC, which would increase attraction and retention.

The second recommendation to address those who have to commute to UBC would be the creation and promotion of a car-pool program. Olsson et al. (2012) found that for longer work commutes, social activities increased positivity and counteracted stress and boredom. It is clear from figure 33, that the majority of commutes by car are done by a driver alone. There is clear opportunity here to increase the percentage of passengers in vehicles. UBC could offer incentives to divers, such as free parking and flexible start times to accommodate carpoolers. Commute stress due to boredom would be lessened by the social context of a carpool. Furthermore this would lessen the stress associated with car ownership as car poolers could contribute gas money to the driver. This program would have to be heavily promoted and facilitated by human resources.

Census metropolitan area	Car, truck or van (total)	Car, truck or van (driver)	Car, truck or van (passenger)	Public transit	Walking	Bicycle
	percentage					
Kelowna (British Columbia)	87.2	81.6	5.5	3.4	4.9	2.6
Abbotsford - Mission (British Columbia)	92.2	84.6	7.6	2.5	2.6	0.8
Vancouver (British Columbia)	70.8	65.9	4.9	19.7	6.3	1.8
Victoria (British Columbia)	70.7	65.8	4.9	11.1	10	5.9
			Source: Statistics Canada, National Household Survey, 2011.			

Figure 33: Proportion of workers commuting to work by mode type, 2011

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