Addressing the Mental Health Challenges of Post-Secondary Education Students through the Implementation of Multi-Sensory Environments

by

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Abstract

Students that are transitioning from high school to post-secondary education can experience a great amount of stress (Sheng, 2017). According to the National Institute of Mental Health, routine stress can contribute to mental health challenges such as depression or anxiety. The majority of people entering or preparing for post-secondary education, 15-24 year olds, are more likely to experience mental illness than any other age group (CAMH, 2012). Many changes occur during this period that are unfamiliar and out of their control. In response to these statistics, specifically looking at young adults 18 years of age and older, and in the interest of evolving education practices with inclusive principles, how can post-secondary institutions provide a welcoming, holistic, and supportive environment, demonstrated by physical and sensorial elements including light, material, colour, scale, and shape; for students?

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Lastly, I would like to thank my family, friends and colleagues for their amazing support and continuous encouragement.

Dedication

To my family and friends affected by mental health; I dedicate this work to you.

Table of Contents

List of Tables

List of Figures and Illustrations

Introduction

Spaces have the ability to affect our mood and transform our behaviour through a range of factors, including light, geometry, and materials (Gander, 2016). According to a professor of architecture at the Melbourne School of Design, Alan Pert (2014), "people often forget that one of architecture's primary goals is to trigger an emotion". With a lack of control in an educational setting where students can get caught feeling their daily routine is mundane and lacking engagement, a creative twist that fosters a positive sensory engagement from their environment could leave them experiencing less stress, anxiety and depression.

Studies suggest this multi-sensory interaction may allow students to regain control of their feelings and help cope with the struggle to deal with the impact of life challenges (Snoezelen Multi-Sensory Environments, 2018). Multi-sensory elements can be used to create familiar experiences through intentional space planning, recognizable smells, interactive activities, and acoustic manipulation, to name a few examples which help to create and facilitate a safe space for people. Traditionally, multi-sensory rooms have the ability to engage users, encourage communication, and even delight the user, which would be the hope for a multi-sensory post-secondary institution (Snoezelen Multi-Sensory Environments, 2018).

Mental illness affects millions of people daily and according to the Canadian Mental Health Association (2018), "suicide accounts for 24% of all deaths among 15-24 year olds", second to accidents. Women are more affected by mental illness than men and, "only 1 out of 5 children who need mental health services receives them" (CMHA, 2018). The demographic most likely to experience mental illness, 15-24 year olds, likely begin to develop serious challenges during high school (CAMH, 2012), and "34% of Ontario high-school students indicate a moderate-to-serious level of psychological distress (symptoms of anxiety and depression), while 14% indicate a serious level of psychological distress" (CAMH, 2012).

The previous statistics offer staggering numbers that typically increase once young adult's transition to post-secondary education, where suddenly there are many more aspects of life to worry about. Some of these stressors may include financial independence, meeting family expectations, living with strangers, maintaining a healthy diet and lifestyle, transportation…things that may not have affected individuals while residing with their parents or guardians. On top of these items, is the stress that post-secondary education creates: meeting deadlines, getting to class, working with others, and navigating new places to name a few. With the increase and rise of awareness of mental illness, post-secondary

institutions are struggling to ensure they are providing the support and

environment needed by students.

<center>**Literature Review**</center>

The State of Mental Health in Education

A survey conducted in 2016 by the Ontario University and College Health Association (OUCHA) gathered results from more than 25,000 students in Ontario regarding mental health. This was a follow up from a survey in 2013. When comparing the results from both years, they, "suggest rates of anxiety, depression and suicidal thoughts, as well as suicide attempts are up" (Pfeffer, 2016). There were reports such as, "overwhelming anxiety, feeling so depressed it was difficult to function, and serious consideration and attempts of suicide" (Pfeffer, 2016). According to the director of student access, wellness and development at Humber College in Toronto, this rise in mental health is a major crisis and the counsellors available are, drowning, trying to provide the support needed (Pfeffer, 2016). Long wait times are almost guaranteed, which is far from an ideal situation for students. If there were a strategy in place to provide ongoing, on-demand support for students, perhaps these staggering mental health statistics would decrease?

Factors and Causes of Mental Health Challenges

Mental health challenges may affect people at different times of their lives, and for some, they will experience these challenges early on, perhaps in high school or even as a child. In fact, "75 per cent of mental

<center>4</center>

health problems have an age of onset occurring in childhood, adolescence or young adulthood" (Canadian Alliance of Student Associations, 2018). With this being said, for others, mental health challenges may become much more apparent at the start of post-secondary education when stressors are heightened. According to the executive director at the Canadian Alliance of Student Associations, "about half of the students struggling with mental health issues will experience the onset of them during their post-secondary studies" (2018). The Mental Health Commission of Canada (MHCC) further explains that, "the highest rate of mental health problems and illnesses is among young adults ages 20 to 29, a time when young people are generally beginning post-secondary education and careers" (Canadian Alliance of Student Associations, 2018).

Students also experience mental health challenges for a number of reasons. Stressors may include: academics, finances, sleep difficulty, or major life changes to name a few (Versaevel, 2014). In addition to certain milestones being a factor in whether someone experiences mental health challenges, other demographics may play a part. According to the 2013 Canadian National College Health Assessment where over 34,000 students participated, "female students, graduate students, Caucasian students, non-international students, or students in a relationship were most likely to have elevated stress levels, as are those with a mental

health diagnosis, learning disability, disability, or chronic illness"
(Versaevel, 2014). While this information is useful, it covers quite a large
range demonstrating mental health challenges affect many types of
people.

In response to the number of people experiencing mental health
challenges during post-secondary education, it is important to recognize
and address these challenges early so one may begin to start seeking
treatment and support. Post-secondary institutions play a large role
during this process. MHCC considers post-secondary institutions, "as an
important setting for prevention and intervention, and advocates for
increased support for people with mental health problems and illnesses to
pursue education" (Canadian Alliance of Student Associations, 2018).
This will help students, "develop resiliency that will serve them well
throughout their careers and other lifelong pursuits" (CASA, 2018).

Increase in Mental Health Challenges

Within the last 5 to 10 years, post-secondary institutions have seen
a large increase in students facing mental health challenges in Canada
(Cribb, 2017). The number of students speaking out about their struggles,
in addition to offering a better understanding of their own wellbeing, may
be part of the explanation. The rise in mental health cases among student
populations is concerning for families, health professionals and schools

6

alike. A study was conducted by the American College Health Association

with 25,164 participants and the results revealed that between 2013 and

2016: "There was a 50-per-cent increase in anxiety, a 47-per-cent

increase in depression and an 86-per-cent increase in substance abuse.

Suicide attempts also rose 47 per cent during that period" (Cribb, 2017).

Additionally, "the percentage of students prescribed psychiatric medication

has risen from 9% to 24.4% in ten years, and wait times for on-campus

counselling can be up to 2 or 3 months" (Canadian Alliance of Student

Associations, 2018).

The accessibility centre at post-secondary schools is where

students register as having a psychiatric disability. In Ontario, there was a

67% increase between 2006 and 2011 for registrants (Canadian Alliance

of Student Associations, 2018). Across the country, schools are

experiencing the same concern. New Brunswick has seen a 300%

increase between 2012 and 2015 in, "the number of students seeking a

mental-health related accommodation" (Canadian Alliance of Student

Associations, 2018). At the University of Toronto, "academic

accommodations have also been rising — 143 percent since 2009" (Cribb,

2017). These numbers only reflect those that are coming forward about

their mental health and only those that are severe enough to receive

accommodation. There are still numerous students keeping their mental

health challenges to themselves and as a result lacking in support

(Canadian Alliance of Student Associations, 2018).

Awareness

The large increase in mental health may be attributed to a couple

factors, one of the most critical being awareness. Stigmatization is one of

the main reasons students remain in the dark about their mental health

challenges. Stigma is defined by the Oxford Dictionary as, "A mark of

disgrace associated with a particular circumstance, quality, or person"

(2019). There are two types of stigma, social and perceived:

> "Social stigma is characterized by prejudicial attitudes and
> discriminating behaviour directed towards individuals with
> mental health problems as a result of the psychiatric label they
> have been given. In contrast, perceived stigma or self-stigma
> is the internalizing by the mental health sufferer of their
> perceptions of discrimination, and perceived stigma can
> significantly affect feelings of shame and lead to poorer
> treatment outcomes" (Davey, 2013).

The Canadian Association of College and University Student Services and

Canadian Mental Health Association explain that "Stigma, prejudice, and

discrimination have a significant impact on mental health by impacting

one's sense of self-worth and commitment to self-care as well as making it

more difficult to reach out for help" (2013). This is why de-stigmatization is

extremely important and by talking about it more and normalizing the

conversation, the hope is that people will feel more comfortable and safe

to be themselves and seek support where needed in order to live a complete and satisfying life (Canadian Mental Health Association, 2019).

Unfortunately, media can play a large role in the stigmatization of mental health and can shape people's attitudes. Stigma is a negative stereotype and can easily lead to judgement from others. Often, there are TV shows and movies portraying those with mental health challenges or illness as dangerous, scary, or unpredictable. In less severe cases, they are portrayed as being difficult friends, anti-social, or weird. Instead of creating a negative light surrounding mental health, the media should be highlighting stories of recovery and positive news.

Much of the stigma directed at students with mental health challenges also comes from their family members, peers, and teachers (Davey, 2013). A study conducted in the US regarding adolescents and stigmatization revealed:

> "46% of these adolescents described experiencing stigmatization by family members in the form of unwarranted assumptions (e.g. the sufferer was being manipulative), distrust, avoidance, pity and gossip, 62% experienced stigma from peers which often led to friendship losses and social rejection, and 35% reported stigma perpetrated by teachers and school staff, who expressed fear, dislike, avoidance, and under-estimation of abilities" (Davey, 2013).

Ultimately, seeking help from a professional is ideal, but having your peers and family to talk to is also very helpful. By bringing awareness to this crisis, society becomes more understanding and therefore, more supportive as well. Bell Media's, Bell Let's Talk day, is an example of an

anti-stigma campaign conducted in Canada. On the day of the campaign

each year, which began in 2010, thousands of dollars are raised to

continue to reduce stigmatization, improve access to care, and support

research and workplace health (Bell Canada, 2018).

Funding

One of the main hurdles post-secondary schools must overcome in

order to accommodate and provide the services needed by students is

funding. With the huge increase in mental health awareness and

acceptance, came an even larger demand for support. Schools found

themselves needing to increase their budget for mental health services

significantly and yet there is still so far to go. A survey conducted in 2017

included 15 Canadian universities and colleges and determined that 14 of

the 15 increased their budget by an average of 35% between 2013 and

2017 (Cribb, 2017). These costs cover additional hiring of counsellors,

programs, services, and facilities. Even still though, as mentioned

previously, wait times for meeting with a counsellor are still quite high and

survey results indicate students are not receiving the support they need.

The increase in mental health is not just a problem in the province

of Ontario, it's a national crisis. With this being said, the federal

government needs to take more action by adjusting budget allocation and

increasing their funding for services (Canadian Alliance of Student

Associations, 2018). The Canadian Alliance of Student Associations also identify a crucial consideration, "it is a worthwhile investment for Canada as a whole, undoubtedly helping to offset the estimated $50 billion in annual economic costs related to mental health problems and illnesses…costing the country more than if the right services and practices were in place early" (2018).

Current Responses

There are a number of ways post-secondary institutions are making an effort to support students with mental health challenges. One of the most significant ways is counselling services. These services can range from school to school as far as counsellor qualifications, training, and availability. Counsellors may have an educational background in social work, psychology, or psychiatry. The difference in education makes a difference in support. All post-secondary schools in Ontario provide students the opportunity to schedule an appointment with a counsellor and most also have a walk-in period. The majority of schools do not have a 24/7 support service implemented by the school, but do provide external resources for telephone help lines and online tools. A few of the more popular telephone help lines include Good2Talk, LGBT Youthline, and the Canadian Mental Health Association.

In 2017, the University of Waterloo lost two members of their student community to suicide (2017). Following these events, the school created a report that outlined recommendations moving forward. One of the more significant recommendations was the increase of counsellors:

> "Within cost constraints, implement the recommended ratio of 1 counsellor/psychologist FTE for every 1,000 students (36.67 FTE), taking into account counsellor leave and other absences. Further, ensure there are additional resources to meet increased demand during peak periods (e.g. exam time)" (University of Waterloo President's Advisory Committee on Student Mental Health, 2018).

The Advisory Committee intends on following up with their movement forward.

There are also amazing online platforms available to students such as WellTrack, used by Ryerson University, York University, and University of Toronto; and Ignite which is used by Humber College (Chan, 2016). These platforms, "create modules that students can work through to monitor their levels of stress, depression, and anxiety" (Chan, 2016). Jack.org is an online peer support group as well as Big White Wall and BounceBack. Big White Wall is designed for people 16 years or older and allows users to post anonymously about their experiences and provide support to peers. There are trained 'wall guides' that monitor and moderate the content (Sasitharan, 2018). BounceBack is:

> "a referral-based online and telephone program that helps those aged 15 years and older. The program offers online videos that provide tips like how to manage moods or improve sleep and are offered in multiple languages. It is aimed to

12

help anyone dealing with low mood, stress, and worry. People can self-refer and the content is available in multiple languages" (Sasitharan, 2018).

Both Big White Wall and BounceBack are provincially funded and free to use. These types of resources, "provide another option for dealing with mental health challenges as they wait for access to health care providers", and are intended for people to be proactive and feel empowered (Sasitharan, 2018). Something online and telephone help lines offer that in-person services cannot is the ability to seek support without stigma. Additionally, the shifting landscape of info sharing is pretty critical for post-secondary institutions to recognize. Social media is a way for schools to appeal to or reach students effectively since it allows students to remain anonymous while seeking the support available.

Programs and Social Groups

In addition to online and telephone help line resources, there are a number of in person programs and social groups available to students during their post-secondary education. The following are some examples of programs at various universities in the greater Toronto area.

- Ryerson has a ThriveRU program which offers a curriculum of events and programming designed to foster a better sense of preparedness and general well-being
- UofT has wellness workshops such as meditation, coping classes and peer-sharing workshops

- Flourish program at UofT guides students through the stress and anxiety of university while teaching them how to thrive during their time at school
- UofT also has yoga and therapy dog sessions during exam time
- York University has workshops for mindfulness, meditation sessions, discussion groups, art therapy, crafting and colouring events, and a health education and promotion team of over 60 students
- Humber College has mental health awareness week with yoga, art therapy sessions, panel discussions, a 5km run, and more
- George Brown College has student workshops about nutrition, stress and much more
- Seneca College has workshops called Art with Impact as well as anxiety workshops for stress, making friends, and other aspects of school life
  (Chan, 2016)

Cambrian College has also implemented a type of art therapy available to students anytime of the day; it is called the Wellness Wall. It is a wall in the form of a colouring sheet where students can add colour or leave a positive note or statement. (Cambrian College, 2017)

These are just a few of the programs available, and many are repeated. By providing these opportunities, the school is recognizing the needs of the students and responding in a caring and supportive way. Many of the tools used are proven to reduce stress, anxiety and

depression in students, but may not be offered year round. It would be useful and relieving for students if these types of programs became standard at post-secondary institutions, that way, when a student is trying to decide what school to attend, they do not have to consider whether the school is actively able to support their mental health challenges.

Environmental

While services and programs are integral to supporting the mental health challenges of students, the physical environment in which they spend much of their time also needs to be supportive. Post-secondary institutions need to find a better balance between the two options and use them in harmony to provide ideal support. The Canadian Association of College and University Student Services and the Canadian Mental Health Association suggest, "A supportive campus climate and environment supports student engagement, which has been found to have a positive impact on both academic performance and mental health" (2013). Examples of such environments include spaces that are, "warm, welcoming and safe for students to gather, socialize, and connect" (Canadian Association of College and University Student Services & Canadian Mental Health Association, 2013). For a list of key considerations for campus community and environment, refer to Appendix 'A'.

A few specific aspects of the environment that directly influence mental health are noise, indoor air quality and light (Evans, 2004). Noise is unwanted sound that is bothersome to a listener and can promote or reduce feelings of annoyance, distress, anxiety, and in some cases, depression (Evans, 2004). Poor indoor air quality can deteriorate our wellness and therefore, our well-being. The way we feel physically can seriously affect the way we feel mentally. Light, natural or artificial, also affects the way we feel and perceive a space. Those who are exposed to low light levels, especially sunlight, may experience seasonal affective disorder. This entails symptoms of, "sadness, anxiety, irritability, loss of interest in usual activities, withdrawal from social activities, and inability to concentrate" (Evans, 2004). Large windows in the buildings we spend most of our time in can make a difference in the way we feel, but not everyone has this access, which is an important concern.

Other elements of the built environment that are able to reduce mental fatigue are views of nature because they gently engage our attention without focussing our attention and allow us to recover mentally. If natural settings are not achievable, artificial alternatives or natural elements meant for indoors would also be effective. These may include items such as, paintings of landscapes, water features, fireplaces, aquariums, and potted plants. Biophilic design is a form of design that works to, "include nature in interior or architectural design. By doing this,

16

we are unconsciously reconnecting with nature; bringing the great

outdoors in to our constructed world" (Interface Inc., 2019).

Control of our environment is another major factor contributing to

how an environment can make someone feel. The more one has control

of their environment, the better they feel. When a loss of control occurs,

helplessness may ensue. Architecture and the design of spaces can,

"support fascination, curiosity, or involuntary attention to enhance recovery

from mental fatigue and afford restoration" (Evans, 2004). Being able to

select the type of environment we are in, whether it is small, large, quiet,

intimate, exciting, or conducive to gathering, "is associated with greater

perceived control and comfort" (Evans, 2004).

Lastly, Cambrian College also has a space for students to just chill

and unwind called the Zen Den. It is located in the library and is set up

like a relaxed living room setting. It may be described as quiet, calm,

comfortable, and refreshing. The space was a collaboration between the

library and the First Generation Student Advising program with the

intention of enriching student experience. It came after feedback was

received from students about needing a space that would, "help them

relax, de-stress, and take care of themselves while they are on campus"

(Cambrian College, 2017). The den is equipped with 3 SAD lamps, a

northern nature-themed mural, a canoe book shelf with books and

magazines, an IPad, study carrels, open tables for games, bean bag chairs, 2 whiteboards, games, and puzzles.

Implementing Multi-Sensory Rooms and Environments

Multi-sensory environments provide individuals with the opportunity for stimulation or relaxation through interactive strategies (Wiglesworth & Farnworth, 2016). In the conventional health care space, multi-sensory rooms are being used to promote calming and relaxing sensations in children, individuals with dementia, people with learning disabilities, autistic individuals, trauma patients, and mental health patients (The Hospital for Sick Children, 2014). In addition to the promotion of relaxation and calmness, multi-sensory rooms can be used to increase concentration and focus, develop sense of cause and effect, and provide relief of pain (Christopher Douglas Hidden Angel Foundation, n.d.). These types of environments can appeal to the sense of touch, sound, sight, and smell through interaction and response with equipment, tools, or items. This concept was originally developed by two American psychologists in the mid 1960's and further developed by two Dutch therapists in the late 1970's (Weiss, n.d.). The Dutch therapists conducted many experiments and named their concept "Snoezelen", which is a contraction of two words meaning to seek out or explore and relax (Weiss, n.d.).

According to Brenda Weiss (n.d.), Snoezelen rooms serve a specific purpose in that they are meant to be a non-directive approach that allows free choice of interaction with stimuli needed to be active. These rooms typically involve a guide or facilitator and do not propose the need to perform or achieve. Multi-sensory environments are more controlled with a fixed amount of interaction time. For best results, all four senses should be stimulated and the experience is directed by a caregiver. Most of the time, multi-sensory rooms are adapted to the user and the stimuli can be controlled for variation (Weiss, n.d.).

Items in a multi-sensory environment can work in a way to distract users, which helps in reducing stressful feelings (CTCA, 2013). A multi-sensory environment may include furniture that allows for movement (rocking, vibrating, rolling), bubble tubes, fibre optic lighting, wall washers, tactile stimuli, music, smell or sound (The Hospital for Sick Children, 2014). A study at the University of Southampton (2014) also suggests bringing the outdoors in with water features, plants, shells, or stones. An important consideration when designing multi-sensory environments is not to create sensory overload (SEN Magazine, 2018). A way to prevent sensory overload while modestly integrating multi-sensory elements are to expand the space from a room to an overall environment or series of spaces.

Using multi-sensory rooms outside of a clinical setting is extremely new to the field. A study conducted in the UK and USA analyzed the effects of multi-sensory rooms on mental health nurses (Collier, Staal, & Homel, 2018). The nurses were often experiencing occupational stress and burnout. After using the multi-sensory rooms, the nurses were "unanimously satisfied" with their experience reporting: "a reduction in stress on the job and outside of work, an interest in continuing sessions 3 times per week or whenever they desired, enhanced job performance, more care towards patients, an improvement in interpersonal relationships, and an increase in creative, on-the-job problem solving" (Collier, Staal, & Homel, 2018). The findings indicate multi-sensory rooms may be, "effective as a relaxation therapy for non-clinical populations who experience job stress" (Collier, Staal, & Homel, 2018). Expansion beyond clinical settings is valuable to explore as it may be able to reduce stress in other areas of life in addition to the workplace.

Another study conducted in Australia at a residence for older persons with dementia was testing the resident's responses to two new areas: a Snoezelen room and a garden (Burns, Cox & Savage, 2004). The intention was to determine if these areas improved wellbeing and to what extent compared to the effects of their existing living room. Both types of spaces were used because they require very little intellectual activity since they are meant for relaxation. The Snoezelen room had the

following items: white walls, lounge furniture, a bubble tube, mirror ball, spotlight and colour wheel, fibre optic spray strands, aroma diffuser, taped music, solar projector, and liquid wheels that project images onto the white walls. The garden had: raised garden beds, plants selected for colour, texture and aroma, pathways, nooks and crannies, visiting birds, and a water feature.

The residents were quite responsive to both areas and described their time in them as, "helping them feel calmer and less stressed" (Burns, Cox & Savage, 2004). They would also leave the spaces feeling brighter and happier, which they were able to take with them after leaving the space (Burns, Cox & Savage, 2004). The staff would also use the Snoezelen room and garden, and described their experiences as, "relaxing, calming, feeling more invigorated afterwards, and better able to cope" (Burns, Cox & Savage, 2004). In this scenario, although the spaces were meant for patients to provide a relaxing atmosphere, they proved to be just as therapeutic for the staff.

Internal & External Stakeholders

Currently, the services provided to students struggling with mental illness can be counselling, hotlines, health promotion events, a medical doctor, and meditation classes. These services vary depending on the institution. Mental health and wellbeing must become more of a priority in

this setting. A potential method for addressing these issues may be through the environment as opposed to providing a service. If the design of universities was re-evaluated to provide an immersive sensorial experience, students may feel less stressed, similar to the results of the study with the mental health nurses (Collier, Staal, & Homel, 2018). In addition to students being internal stakeholders, staff, faculty, and visitors would also be directly affected by a multi-sensory post-secondary institution. Whoever interacts with the space would be able to reap the benefits.

There are other parties that would have invested interest in a multi-sensory environment, such as the institution as a whole. Schools compete with one another for enrollment and if a school can provide an environment where a student might feel fewer effects of mental illness caused by stress, it could influence students' decisions greatly. Successful education of people with mental health issues is also critical to the economy and meeting AODA objectives. When an individual experiences mental illness, there are more people than just themselves that feel the effects. Family and friends can have a large role in the life of a student with mental illness. People may be there to support their loved ones through a phone conversation about a bad day or to help them book an appointment with a therapist. Regardless of how they are involved,

family and friends could have more peace of mind knowing their loved one is attending an institution that cares and supports mental illness.

Other stakeholders that could be involved in the creation and progress of a multi-sensory environment in post-secondary institutions are associations or groups that support mental health. Some of these groups may be The Canadian Mental Health Association (CMHA), Centre for Addiction and Mental Health (CAMH), CONNECT for mental health, Family Association for Mental Health Everywhere (FAME), and The Assertive Community Treatment Team at St. Joseph's Health Centre in Toronto. Depending on the equipment and tools used to develop a multi-sensory environment, there may be potential partnerships or sponsorships with applicable companies who understand the need for this solution. While the focus of this study is for post-secondary institutions, there is the possibility for implementation in elementary and high schools as, "70% of mental health problems have their onset during childhood or adolescence" (CAMH, 2012). Designers, potentially have the ability to address mental illness sooner than later in terms of age.

Issues and Factors Relating to Mental Health Challenges and Multi-Sensory Environments

Multi-sensory post-secondary environments pose issues of practicality and acceptance. For instance, the implementation of equipment or tools to create a multi-sensory experience would need to be

23

discreet enough as to not be the centre of focus, but obvious enough for people to enjoy and use, in other words, subtle but recognizable. Another consideration for the design of such spaces would be whether to create a universal experience or an individualized experience. Variety or rotation of stimulation may be necessary to maintain people's interest.

There are a couple of concerns regarding this concept such as costs, renovation or implementation disruption, security, and maintenance or vandalism. Costs to create multi-sensory environments could be extensive depending on the partnerships forged and whether it is something that would require renovation or implementation within new construction. The framework and systems post-secondary institutions have in place could be difficult to alter. Maintenance of the pieces used to create a multi-sensory environment would need to be addressed as well. There is also concern for lack of respect or ignorance towards the installations. Great thought would need to go into determining the best locations for installations as highly frequented locations may be too overwhelming, but low frequented locations may be underutilized. The last concern would be fear of stigmatization depending on the tools used and the methods of implementation. Further exploration is necessary to provide best practices.

Drivers of Change

The internal stakeholders have the most influence on the drivers of change, specifically the demographic experiencing the effects of mental illness. With any shift in the population (rise and increased awareness of mental health in 15-24 year olds), recognizing the problem and developing a plan for action is necessary. There have been numerous mental health awareness movements emerging in the past 10 years. For example, probably the one most well-known, Bell Let's Talk Day, which encourages open conversation about Canada's mental health (Bell Canada, 2018). Bell Canada has donated millions of dollars towards mental health programs as a result. #HereForYou is another campaign that was launched by Instagram to increase awareness and, "make sure those who are struggling know that they are not alone" (Khoo, 2017). In addition to these campaigns, World Mental Health Day was first celebrated in 1992 and has increasingly become more recognized and valued (Time and Date, 2018). These movements are drivers of change that would support addressing the mental health needs of post-secondary students, especially in an immersive way that's integrated into our everyday lives.

The Gaps in Knowledge

The services provided by post-secondary institutions are helpful to students with mental illness. At the same time, there is not an ongoing or

constant response to mental illness that is readily and easily accessible. Should the school environment adopt the concept of multi-sensory environments, students may have a self-sufficient outlet for their stress, anxiety, and depression. It is important to consider the need for a creative and fun response to this issue as enhancing the overall environment will impact many. Considering the current use of multi-sensory rooms are in a clinical environment or for occupational related stress, it is unknown whether these methods would be applicable and successful in a school environment. Further investigation is needed to confirm the application.

In order to propose a method for supporting the mental health needs of students, they must first be consulted. It is important to determine what makes students feel stressed and how they currently deal with it. Investigation into the patterns of students would be useful to know what spaces at a post-secondary institution they tend to gravitate towards or what spaces are lacking life and why. The study will also be looking for reasoning behind students' choices while at school and how their choices are effected by mental health.

Post-secondary institutions have begun to create preliminary multi-sensory experiences, most often in their Student Learning Centres, which are typically a central hub of the school where students gather. Examples of such spaces can be found at Ryerson University in Toronto or Algonquin College in Ottawa. These schools appeal to the sense of smell

through coffee shops, the sense of sound with the voices of many others,

the sense of sight with grand, open spaces, and the sense of touch

through various materials and finishes. One thing that is lacking in both of

these institutions is the control of acoustics, as these spaces can be very

overwhelming and loud. A second item missing would be the

incorporation of nature. Studies have indicated the positive effects of

nature on one's health and happiness (Price-Mitchell, 2014). It would be

useful to analyze multiple existing post-secondary institutions and observe

the elements that are good, bad, or lacking.

Methodologies

Research Perspectives

This study was divided into two parts based on differing ontological perspectives. Part 1 had a positivist view as the objective was to, "determine a single truth or reality": whether the built environment affects the way people feel and their mental health (Nicoll, 2017).   Part 2 embodied a more interpretivist perspective because there is no single reality or truth in how the built environment affects people. "Reality is created by individuals within their groups", which corroborates with the belief that the environment can affect everyone differently (Nicoll, 2017).

From an epistemological perspective, "positivism can be measured with reliable and valid tools" (Creswell, 2014). Positivism allows the researcher to answer yes or no to a question. Whereas, an epistemological perspective of interpretivism suggests "reality needs to be interpreted to discover the underlying meaning of events and activities" (Creswell, 2014). Interpretivism is less straightforward and requires the researcher to explore meaning and interpret connections between results.

For Part 1, the methodology that was most appropriate was the use of surveys and experimental research. For Part 2, an ethnographic approach, grounded theory and action research worked well. The difference being, the methodologies for Part 1 were mostly quantitative

since survey questions gathered demographic information, and mostly

qualitative for Part 2 because data was gathered from expert interviews,

long answer survey questions, and site visits. After codifying the results

through categorization and classification from Part 2, they were able to be

converted into quantitative data, which can be found in the *Analysis*

section.

Research Methods

Three different methods of research were used to complete this

study: an online survey, site visits, and interviews. Ideally, a co-design,

where a diverse group of people connect to evaluate results and propose

next steps, would have been conducted to continue the iterative process

in an inclusive format. Unfortunately, limitation of time prevented this

possibility.

The survey was developed online using Google Forms and

distributed through social media. By using an online survey for data

collection, the participants were able to remain anonymous and provide

honest answers, potentially retrieve a large amount of data from large

groups of people, and produce quantitative and qualitative data. Google

Forms does not collect IP addresses, therefore the survey was non-

identifying and confidential. The survey consisted of 8 questions that were

either multiple choice, short answer, or long answer and remained open

for a period of 6 weeks. Each question had the option of selecting 'other' if none of the options applied to the participant. If the participant selected 'other' as their response, there was a space for them to explain their alternative answer if they wished to do so.

The social media platforms used to distribute the sharable link for Google Forms were Instagram, Facebook, and LinkedIn. Anyone was able to share this post through social media as well. The intention was to have a minimum of 20 survey respondents, which was achieved with a total of 37 respondents. The survey was open to any student who experiences mental health challenges or is personally connected with a student who experiences mental health challenges. The ideal participants were students between the ages of 18 and 26.

Participants were given the opportunity to withdraw from the study at any time, or request withdrawal of their data, and they could do so without any penalty or loss of benefits to which they were entitled. Those participating in the survey or phone interviews may have felt triggered (anxious, uncomfortable, depressed, etc.) by sharing their experience or thoughts. Participants were given the opportunity to withdraw from the study at any time, or request withdrawal of their data, and they could do so without any penalty or loss of benefits to which they were entitled. The participants were provided with emergency contact information for resources available to talk with a professional before beginning the

survey. The related resources specific to the institution that the participant attends were also provided where applicable. If the participant did not reside or go to school in Toronto, they were given the general contacts available by phone or email. Given the topic of the research, a less risky alternative could not be used. In order to conduct an inclusive study, collaboration with those that would benefit from the space most was necessary.

The second research method was conducting site visits. The intention was to visit four different post-secondary institutions within Ontario. The institutions were selected based on an online evaluation of their initiatives and prioritization of mental health on campus. It was also important to select a diverse group of institutions based on size, type (university versus college), and reputation.

The items that were observed at each institution were as follows: the architecture, the furniture, the greenery (if applicable), the acoustics, the smell, the materials and colour, and the light (natural and artificial). The individual in charge of the health and wellness services at each institution was contacted by email with a description of the study as well as an Informed Consent Form. Once the individual approved the request to conduct a site visit, a time and date was arranged by email.

The contact was asked to suggest locations for observation at the institution based on the areas used to support mental health. Each visit

was conducted outside of business hours to ensure anonymity was maintained and took approximately 45 minutes to 1 hour to complete. During that time, notes were taken regarding the use of the space and the tools provided. Photographs were taken to record the elements of the environment.

Site observations were useful to the study because they allow the researcher to analyze effective methods currently in practice as far as providing a supportive environment for students who experience mental health challenges. The researcher can then identify the pros and cons of existing solutions, and build on them or propose new solutions. Without knowing the existing conditions of an issue, one is not able to suggest alternatives. The data collected during site visits was qualitative, but once coded became quantitative.

The final research method was interviews. The intention was to conduct a phone interview with each professional contacted at the institutions visited. A new consent form was emailed and once returned, a date and time was organized for a phone interview. These interviews allowed the researcher to pose any questions they may have following the site visit or gain clarity in the areas that were not apparent. Permission to audio record the interviews was requested in the Consent Form.

Some institutions are addressing mental health primarily with the services they provide, and others are using the built environment. These

interviews provided the representatives for health and wellness at the institutions the opportunity to share their efforts. Following these interviews, other experts from organizations that support mental health or multi-sensory environments were contacted. An Informed Consent Form was provided as well as a description of the study. The following organizations were contacted to request an interview: The Canadian Mental Health Association, Good2Talk post-secondary student helpline, and the Council of Ontario Universities.

There were 13 interview questions for the participants from the post-secondary institutions and the interviews were approximately 45 minutes long. There were 10 questions for the Council of Ontario Universities, CMHA, and Good2Talk. These interviews were also approximately 45 minutes long. At any time, the interviewee had the option to stop the interview and have their data removed from the study.

The interviews were a combination of quantitative and qualitative data. Following the data collection period, all of the data from the interviews was coded to remove any personal identifiers. Between the representatives of the post-secondary institutions and the previous organizations listed, I anticipated approximately 7 interviews total. Unfortunately, two of the institutions as well as the Council of Ontario Universities and Good2Talk declined the request. A total of 3 interviews were conducted.

Risk

The participants for the survey created potential risk since they were between the ages of 18 and 26 and experiencing mental health challenges. It was necessary to ensure they were provided with professional resources should a participant feel triggered (anxious, uncomfortable, upset) from completing the survey. The resources provided were emergency help lines and school counselling services. It was important for the participants to know that their involvement was completely voluntary as well as anonymous and confidential. Where audio recording was captured during interviews, the data was codified and therefore removed the identifier of a person's voice.

Findings

The findings derived from the research methods indicate a strong interest in the subject area, with little to no prior engagement around the role of spaces and places in supporting challenges of mental health at the post-secondary level. The following will discuss the findings from the research methods used in the order of execution: online survey, site visits, and expert interviews.

Online Survey (Please see Appendix B for Survey Questions)

To participate in the survey, there were 3 parameters: must be between the ages of 18 and 26, attend a post-secondary institution, and experience stress and/or mental health challenges such as anxiety or depression. The survey had 37 participants between the ages of 18 and 31. The parameters for participating in the survey included having to be within the ages of 18 and 26, therefore the data collected from those outside of the age range was removed. There was a total of 5 participants between the ages of 27 and 31 leaving a remaining total of 32 participants whose data could be analyzed. If participants answered a question with multiple parts, all parts were considered and calculated individually.

35

Question 1: What is your age?

35 responses
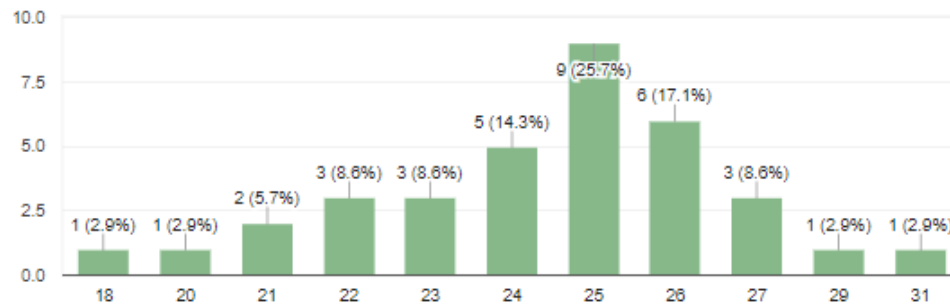
Figure 1 – Survey Question 1: What is your age?

It is important to note that two participants chose not to provide their age. The majority of the participants were between the ages of 25 and 26. This may be a result of the recruiting method, which was distribution through the researcher's social media platforms. The average age of the researcher's close community is within this range. The second largest age range was between 22 and 24 and the smallest age group was between 18 and 21. The relation between the age of the respondents and mental health may also be a factor. People in their mid 20's have more experience and have probably been in school longer than those in their early 20's, which may result in better recognition of mental health challenges and more severe mental health challenges. Respondents who were also in the higher end of the participant age range may be more comfortable with their mental health challenges and already be seeking support.

2. What is your gender?

Queer 3%

Male 19%

Female 78%

- Female ■ Male ■ Queer
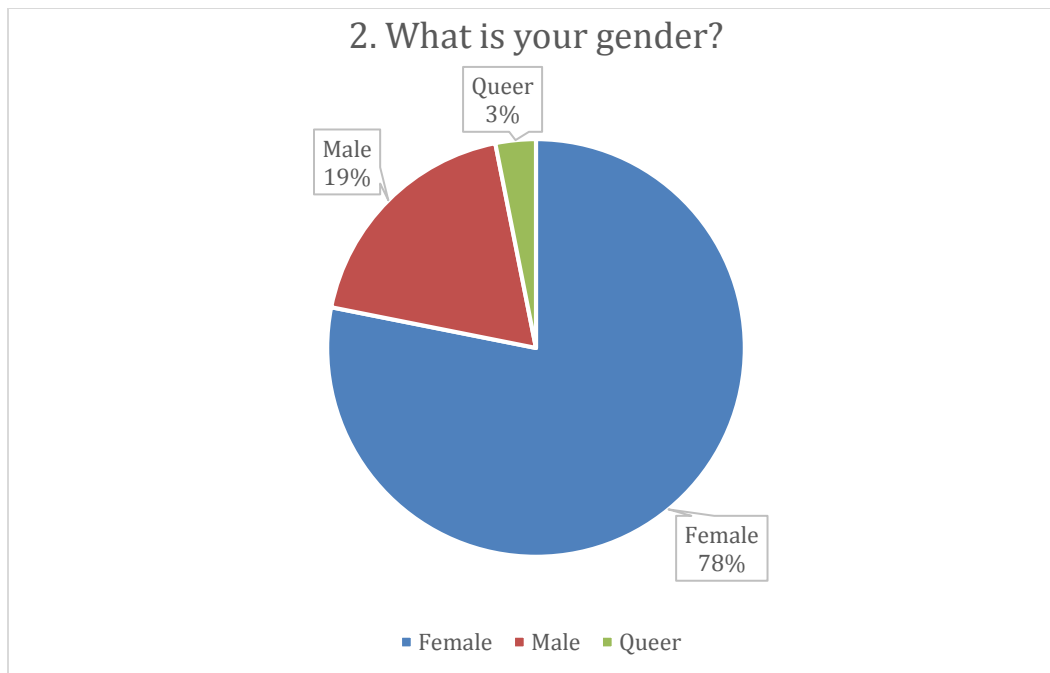
Figure 2 – Survey Question 2: What is your gender?

The survey asked participants to share their gender or how they identify. This was to see if there was a group who experienced mental health challenges more prevalently or if there was a group that was more open to talking about their mental health challenges. Research suggests females are more likely to experience mental health challenges, which the survey results would confirm (Versaevel, 2014). 78% of the respondents were female, 19% were male, and 3% were queer.

3. What helps you cope with mental health challenges at school?	Tally	Total
Exercising outside such as hiking and snowshoeing	1	1
Cannabis	111	3
A good support system (family and friends)	111111111	9
Rooms dedicated to relaxation and lounging	1	1
De-stressing methods	1	1
Silence	1	1
Exercise	1111111	7
Food	11	2
Counselling services	1111111	7
Reflection	1	1
Sleeping and rest	111111	6
School accommodations/reduced course load	11	2
Emotion regulation strategies	1	1
yoga	1111	4
Work/life balance	1	1
Meditation class	1	1
Therapy dogs	1	1
Organizing	1	1
Listening to music	1	1
Knitting	1	1

Table 1 – Survey Question 3: What helps you cope with mental health challenges at school?

The third question asked participants what coping mechanisms they use if they experience mental health challenges at school. This question was to see if students are using the existing services and programs available to them and whether external resources are also being used. There were three clear leaders as far as how students cope. The most common was having a good support system made up of family and friends. The second most common was using exercise to cope and the third most common was using counselling services at school.

4. Did you begin experiencing mental health challenges before beginning post-secondary education or after?

Before, but intensified by PSE
16%

Before
31%

After/During
53%

- Before
- After/During
- Before, but intensified by PSE
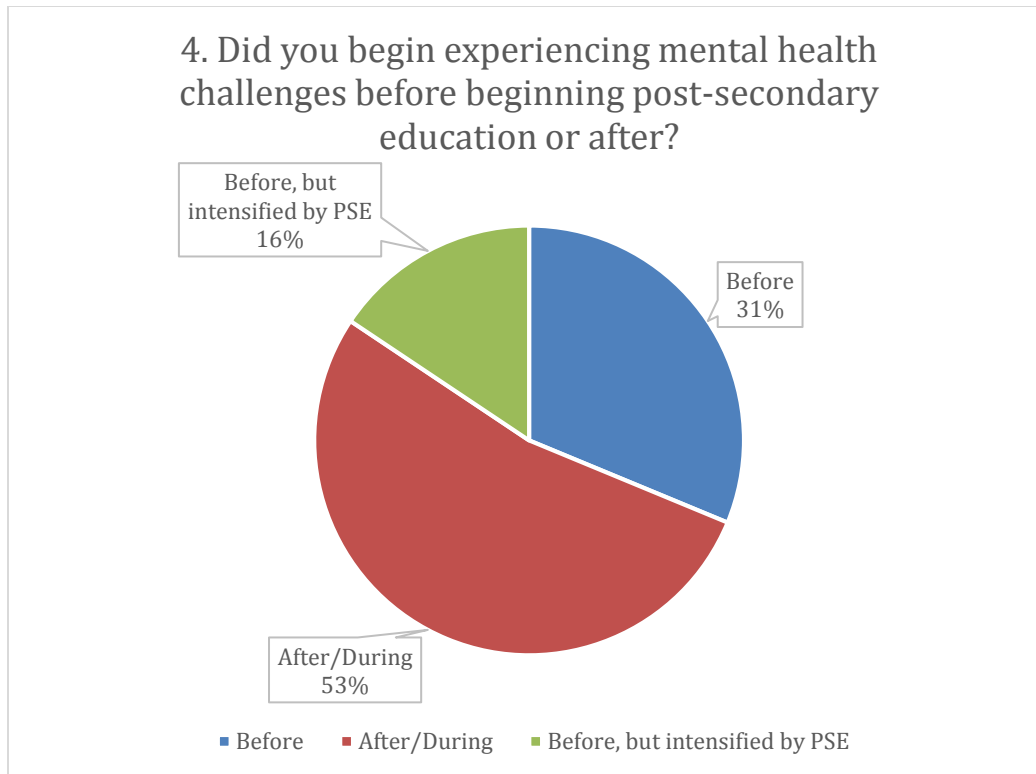
Figure 3 – Survey Question 4: Did you begin experiencing mental health challenges before beginning post-secondary education or after?

It was important to ask when participants began experiencing mental health challenges to see if the results corroborated with the literature. 53% of respondents said they began experiencing mental health challenges after beginning and during their post-secondary education. 31% began experiencing mental health challenges before going to post-secondary, and 16% experienced mental health challenges before beginning their post-secondary education (PSE), but their PSE intensified their mental health.

5. How does your post-secondary institution provide support for your mental health challenges?	Tally	Total
Counsellors	11111111111 1111111111	21
Free food/drinks	11	2
School activities	11	2
Therapy dogs	111111	6
Staff trained to recognize mental health challenges and direct students to the right place for help	1	1
Peer counselling/support	11	2
Educational resources	1	1
Promotional awareness	1111	4
Academic accommodations	11	2
Not sure	1111	4
Light therapy	1	1
Free yoga during exam season	11	2
Centre for students with disabilities	111	3
Student success counselling	111	3
Mental health first aid program	1	1
Sexual assault support services	1	1
Crisis helplines	11	2
Never utilized services	11	2

Table 2 – Survey Question 5: How does your post-secondary institution provide support for your mental health challenges?

Question 5 asked participants what support their schools provide. This was to give the researcher a better understanding of what services students recognize or use and how common they are. Four of the respondents did not know how their post-secondary institution supported their mental health challenges, which speaks to the amount of awareness or promotion their school does successfully. The most common means of support by a post-secondary institution was counselling services. The second most common was therapy dog sessions. This was an interesting piece of data because although the therapy dog sessions were recognized

by students, according to the response of question 3, only one respondent made use of therapy dog sessions. There was a tie for third most common response between students being unaware of the support available and promotional awareness. Promotional awareness refers to the schools ability and effort in bringing awareness to mental health.

6. How could your post-secondary institution improve the mental health support they provide?	Tally	Total
No improvement needed	11	2
More counsellors	11111	5
Free counselling and unlimited counselling	11	1
More help with job opportunities	1	1
Designated space for students to relax and study	11	2
Better scheduling of courses and school breaks	111	3
More accessible but discreet location for counselling services	111	3
I don't know	11	2
Better promotion of initiatives	111	3
Create a better transition from the school year to summer and after graduation; connections are lost and not sure where to turn	1	1
More help to acquire support systems within the school	1	1
Make it more clear how to get and improve the delivery of academic accommodation	1	1
More drop in group therapy	1	1
Less wait time for drop ins	1	1
More workshops	11	2
Upgrade from counsellors to psychologists or psychiatrist	11	2
Better insurance coverage	1	1
Free access to yoga and meditation	1	1
Drop in safe spaces	1	1
Therapy dogs	1	1
Addition of mental health days to sick days	1	1
Option to take all classes online	1	1
Talk to students more	1	1
Spaces that offer more privacy	1	1

Table 3 – Survey Question 6: How could your post-secondary institution improve the mental health support they provide?

Question 6 received a wide variety of responses, which is excellent for creating solutions, but difficult to create focus. Respondents felt additional counsellors was most important to improve the mental health support provided at post-secondary institutions. Three improvements tied for second most common response: better scheduling of courses and school breaks, more accessible but discreet location for counselling services, and better promotion of initiatives. Due to the numerous responses, the data was broken down into categories to understand the improvements needed more clearly. See chart below.

Category	Tally
Counselling	14
Environmental	7
Scheduling	5
I don't know/no change needed	4
Awareness	6
Programs/workshops	5

Table 4 – Survey Question 6 Categorized

The responses for question 6 indicate improvement of counselling services is most important. Following that is improving the school environment and lastly, creating better mental health awareness.
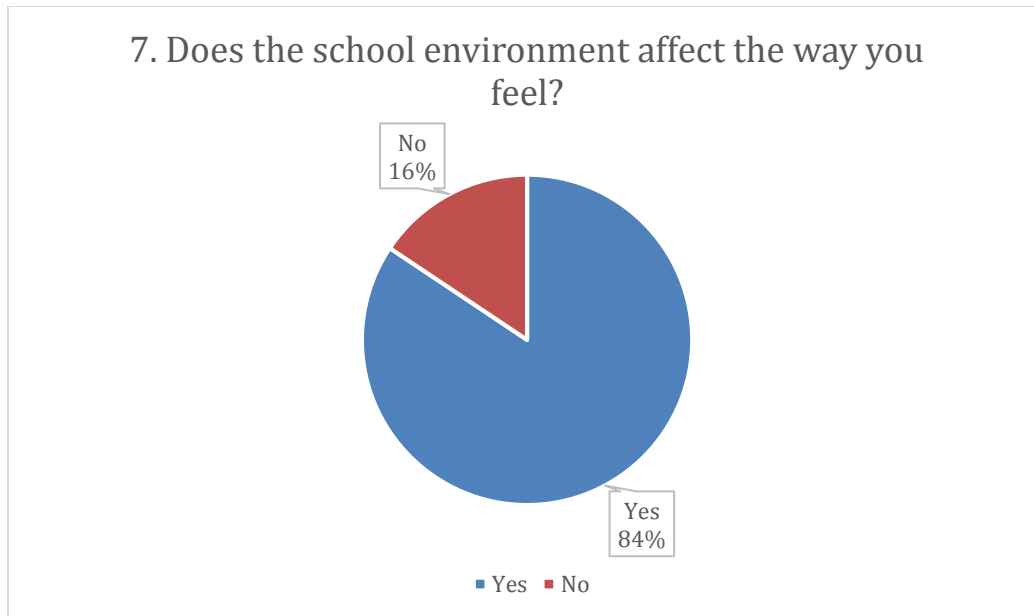
Figure 4 – Survey Question 7: Does the school environment affect the way you feel?

It was necessary to confirm whether the built environment affected students at school in order to justify the hypothesis. According to the results, 84% respondents feel the school environment affects the way they feel, which is key for responding to the problem, while 16% said it does not.

8. Name 3 key areas of interest in the school environment you would change.	Tally	Total
More natural light	1111111	7
Operable windows	11111	5
Cozy lounge spaces	111111	6
Class breaks that encourage students to stay active and healthy together	1	1
Fresh fruit and veggies on campus	11	2
Cheaper tuition	1111	4
Fewer exams and more skill based understanding that is applicable	1	1
Exam rooms, classrooms, large lecture halls	11	2
Better sense of community	111	3
Events	1	1

8. Name 3 key areas of interest in the school environment you would change.	Tally	Total
Small group rooms	1	1
Cafeteria	11	2
Library	11	2
Better acoustics	11	2
Gym	1	1
Green space on campus	1	1
More of a connection between faculty and students, get to know us	1	1
More unity between year levels	1	1
Less pressure to meet high expectations and compete with classmates	1	1
More vibrancy and colour	1	1
Colourful, bright, open, comfortable, engaging	1	1
Private spaces where students can calm down and feel safe	1111	4
More open, less crammed hallways	11	2
Faster repair of damage	1	1
Easy access to the outdoors	1	1

Table 5 – Survey Question 8: Name 3 key areas of interest in the school environment you would change.

Lastly, it was important to determine which areas students felt the environment needed the most improvement. These results will help to formulate solutions. The biggest area of interest for students is access to more natural light. The second most common area of interest is access to cozy, lounge spaces, and third is operable windows.

Site Visits

Four post-secondary institutions were visited to observe their existing environment. A group of words were formed to describe the spaces in general, then separated into categories. Certain environments were representative of some of the words while others were not. The schools have not been analyzed individually in order to maintain anonymity. The intention was to determine what areas of interest post-secondary institutions need to focus on to create a more welcoming, holistic, and inviting environment for students.

The following images provide an idea of what the counselling service environments looked like and what areas were reviewed.

Reception & Waiting Area

Post-Secondary Institution (PSI) 1

Figure 5

Figure 6

Figure 7

PSI 2

Figure 8

Figure 9

Figure 10

PSI 3

Figure 11

Figure 12

Figure 13

PSI 4

Figure 14

Figure 15

Figure 16

Counselling Office, Group Meeting Room, Special Feature

PSI 1
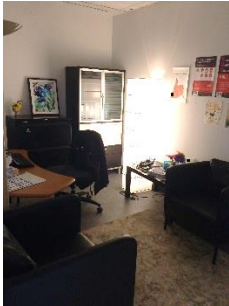
Figure 17

Figure 18

Figure 19

PSI 2

Figure 20
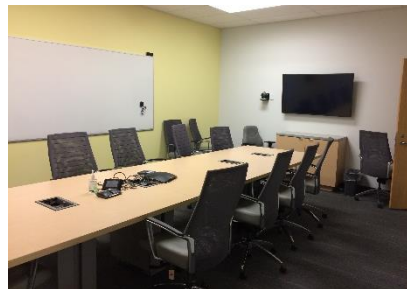
Figure 21

Figure 22

PSI 3

Figure 23

Figure 24
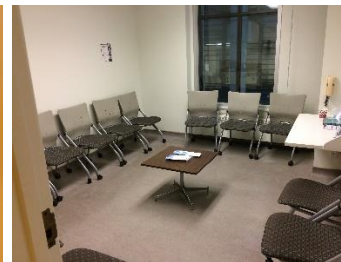
Figure 25

PSI 4
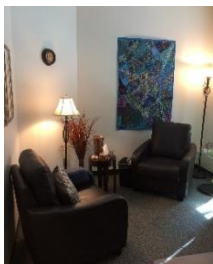
Figure 26

Figure 27

Figure 28

47

Peer Support Space at one of the Post-Secondary Institutions Visited

Figure 29

Figure 30

Figure 31

Descriptive semantics of the counselling services' environments:

- Homey
- Clean and Crisp
- Personal touches of art
- Soft seating
- Holistic
- Bright
- Uncomfortable
- Cluttered
- Clinical

- Encouraging of discussion
- Modern
- Plants
- Calming
- Colourful
- Good views
- Unwelcoming
- Dated
- Dark

- Visually lacking investment (what is perceived by students)

Organized in terms of positive versus negative semantics:

Positive	Negative
Homey	Uncomfortable
Encouraging of discussion	Unwelcoming
Clean and crisp	Cluttered
Modern	Dated
Personal touches of art	Clinical
Plants	Dark
Soft seating	Visually lacking investment
Calming	
Holistic	
Colourful	
Bright	
Good views	

Table 6 Site Visit Descriptors

Positive elements paired with a negative element:

Positive	Negative
Homey	Uncomfortable
Encouraging of discussion	Unwelcoming
Clean and crisp	Cluttered
Modern	Dated
Personal touches of art Plants Soft Seating Calming Holistic Colourful	Clinical
Bright Good views	Dark
	Visually lacking investment

Table 7 Site Visit Descriptor Pairings

Table 7 demonstrates how negative elements can be addressed with positive elements, even ones where post-secondary institutions are already excelling. The site visits support the survey findings regarding concerns for the built environment such as natural light, lounge setting, and homey feeling. It is important to show the students through the built environment that they are cared about because it could be an indication to the student's about prioritization.

Expert Interviews

The interviews revealed some key aspects about the support post-secondary institutions and public resources provide. Currently, most schools do not have a formal system for receiving feedback from students regarding mental health services provided. Schools are relying on verbal communication directly from students if they feel there is something that could use improvement. Although verbal communication is effective, students who seek support for mental health challenges may not be comfortable with this form of feedback. Anonymity is also lost in this situation. In order to create an inclusive school community, feedback and collaboration with students is required. In addition to creating an inclusive community, it also sparks pride and worth in students when they are involved in the decision making and development process. There is a lot

50

of respect and compassion shown when including end users simply by asking how to change or improve.

According to one of the school counsellors, the peak times at most counselling service centres at post-secondary institutions are November and December before the fall exam period, and January to April. These peak times cover most of the academic school year when the majority of students are attending school. One of the interviewees also felt that it would be useful to have counselling services more centrally located while still maintaining some discreetness. These services need to be easily accessed by students and not out of the way. This feedback corresponds with some of the survey feedback as well.

Continuation of anti-stigma work is needed throughout campuses. Stigmatization is one of the main reasons students do not seek support in fear of discrimination or prejudice. There were significant key words that came out of the interview process which included: supportive, non-judgmental, comfort, and prioritization of mental health and well-being.

Analysis & Discussion

Upon review of the data, there is a clear need for additional counsellors to support the challenges that individuals face when navigating the post-secondary experience. This is evident from both the interviews with experts and the feedback from the students that participated in the survey. There is also a need for access to fresh air and natural light as they were key areas of interest in the school environment participants in the survey would change. While fresh air and natural light are natural elements, access to green space ranked fairly low in the survey results. According to the World Health Organization, "having access to green spaces can reduce health inequalities, improved well-being, and aid in treatment of mental illness" (2019). Additionally, people generally feel calmer and less anxious in a natural environment (Barber, 2019).

Additionally, there is a need for creating an alternative means of support for students that makes them feel comfortable. Given the research conducted in the literature review, the requests from students, and the feedback from the site visits and interviews; this alternate means of support could manifest in a physical space for students. This may resemble:

    a. A space dedicated to students for relaxing and unwinding

    b. A space that acts as a supporting service to counselling services

c. A space that is supportive of mental health by using specific

      features that stimulate the senses, but requires little intellectual

      activity

   d. A space that is easily accessed by students, but not the main focus

   e. A space that is created by students

The data was synthesized by the researcher, who has a background in

interior design, to describe the features of a potential space, but requires

an in-depth co-design session to fully create a space reflective of student

needs. The following glossary of terms uses words to describe the space

in three different categories: type of space, the design, and things to do in

the space. The proposed space takes a holistic approach to providing

what students need.

Type of Space

For students, by students – designed, created, and implemented by the

students in collaboration with faculty, experts, and professionals; this will

allow the students to take pride in their space and really make it feel the

way they want or need it to; this is also a way to use students' strengths

and demonstrate their value

Giving back the control – allowing students to have control of their space

reduces feelings of helplessness and allows students to manipulate the

way their environment can make them feel

Community support space – the intention is to have the space represent

community, a place where people gather or escape to in support of one

another as students and human beings

Flexible and dedicated space – the space could have different areas

dedicated to specific activities while other space could be flexible

depending on activity; for example, a nook for individual studying and an

area for group discussion; it is important to separate quiet and loud areas

Variety of spaces – all within this closed community space could be large

and small areas, flexible and multi-functional areas, open and closed

areas, private and shared areas

The Journey to Wellness through Spatial Design

Local but discreet – this community space needs to be somewhere central

that is easily accessed by most students on campus; although central, the

location also needs to be discreet; it is not a space to call a lot of attention

to, come as you are and go as you please motto

Good signage – since the location is central but discreet, effective signage

is necessary, students need to be able to find the space easily

Appropriate and applicable advertising – awareness was another large

concern of students experiencing mental health challenges; it is important

to advertise the space well so that students know it is available, what it is

for, and that they can have a part in the iterative process to create the space

Welcoming entrance – the space needs to be contained for sound and security, but the entrance also needs to be able to draw people in; there needs to be some form of transparency to connect the inside from the outside as well as be inviting and intriguing to students

Stimulation of the senses – drawing from the positive benefits of Snoezelen rooms, multi-sensory elements will be incorporated into the space to stimulate the primary senses only and induce relaxation; these senses may include smell, touch, taste, see, or hear

Organized, not cluttered – a lot of visual stimulation can be overwhelming to students, especially when it is messy; it will be important for students to keep the space clean and organized for their own benefit

Intentional acoustics – since there will be areas dedicated to certain noise levels, it is important to separate them well acoustically; this may be done with partitions, acoustic panels, acoustic furniture and accessories, or white noise

Bright – one of the most important aspects of the environment for students was to have a space that is bright; first and foremost, natural light is best therefore, orientation of the space is important as is the location within a building; it would need to be on the perimeter of the building to have access to windows or on the top floor of the building to have access to

skylights; artificial lighting is also an important consideration, the intensity of the lighting will depend on what the use of the area is for as well as

Warm lighting – warm lighting instead of cool lighting creates a cozy and calming effect for people who are seeking refuge

Soothing colours – since the space is somewhere students will go to relax and unwind, it would be diligent to use soothing paint colours on the walls and throughout the furniture; there is no need to avoid colour, but bright, saturated colours such as red and yellow have a psychological effect on people that will not go well with the intended use of the space

Views of nature (natural & artificial) – nature can greatly affect the way people feel and should be incorporated into the design however possible; natural views are ideal and even access to the outdoors, but artificial views such as landscape paintings will also make a difference; bringing the outdoors in is also effective, examples include potted plants, a green wall, nature murals, natural materials, wood floors, etc.

Access to fresh air – having access to operable windows was very important to students according to the survey

Comfortable furniture & accessories – lounge furniture is critical to creating a comfortable space, this may include couches, soft seating chairs, bean bag chairs, coffee tables, rugs, chaise lounge, cushions and pillows, throws, etc.

Flexible furniture – it is also great to have flexible furniture in the space that can easily be moved around or reconfigured depending on the activity taking place; flexible furniture may include height adjustable tables and chairs, furniture on castors, lightweight, fluid, modular

Things to do in the Space

Crafts – crafts would have a dedicated area since it could involve mess during activities such as building, painting, and colouring

Books & games – these two activities could be taken anywhere in the space; a book exchange program would be great; there could be a puzzle table with different compartments for various puzzles as well as tables for playing games

'Book Buddy' program – this program could be run by students where upper years sign up to mentor or provide tips to freshmen students; the freshmen could be provided with contact information and reach out when they are in need of a suggestion regarding academics

The 'What's Up Wall' – this could be a literal wall within the space that digitally posts upcoming events, workshops, and classes

Workshops & classes – various options available to students run by professionals and students

Light therapy – a dedicated area where light therapy boxes will be

stationed for students to use while experiencing seasonal affective

disorder

Refreshment station – there will be an area where students can prepare a

coffee or tea free of charge; the station will be equipped with a small sink,

recyclable cups, and a mini-fridge

The 'Zone Out' area – the 'zone out' area will be a quiet place equipped

with sound cancelling headphones and bean bag chairs

An anonymous feedback system – a feedback system is important to

provide to students that way they can vocalize their concerns

anonymously; this could be in the form of a ballot box that is reviewed by

staff on a regular basis; brainstorm sessions could also take place in the

space

The following diagram is a representation of the types of areas within the student community space and how they can freely interact with each other. For example, the digital message board in the supportive environment quadrant can also be considered sensory stimulation. The images within the circles are conceptual and reflect the potential look and feel of the space.

Figure 32 Diagram 1

Below are larger scale concept images that represent the type of space trying to be achieved.

Figure 33 Entrance

Figure 34 Lounge Area

Figure 35 Forest Mural

Figure 36 Light Fixture

Figure 37 Light Therapy

Figure 38 Bubble Tubes

Figure 39 Beanbag Nook

Figure 40 Telephone Booth

Figure 41 Biophilic Design

Figure 42 Group Meeting Area

Figure 43 Digital Message Board   Figure 44 Whiteboard Message Wall

Once a selection of spaces or areas were determined and concept images were gathered, the next step was to think about the relationships between them. An adjacency matrix was used to communicate the type of relationships chosen: direct, convenient or indirect.

ENTRANCE

CRAFT AREA

LIBRARY

GAMES AREA

'WHAT'S UP' WALL

WORKSHOP/MEETING AREA

LIGHT THERAPY AREA

REFRESHMENT STATION

ZONE OUT AREA

FEEDBACK AREA

LOUNGE

LOCKERS

PHONE ROOMS

DIRECT ADJACENCY   ●

CONVENIENT ADJACENCY   ○
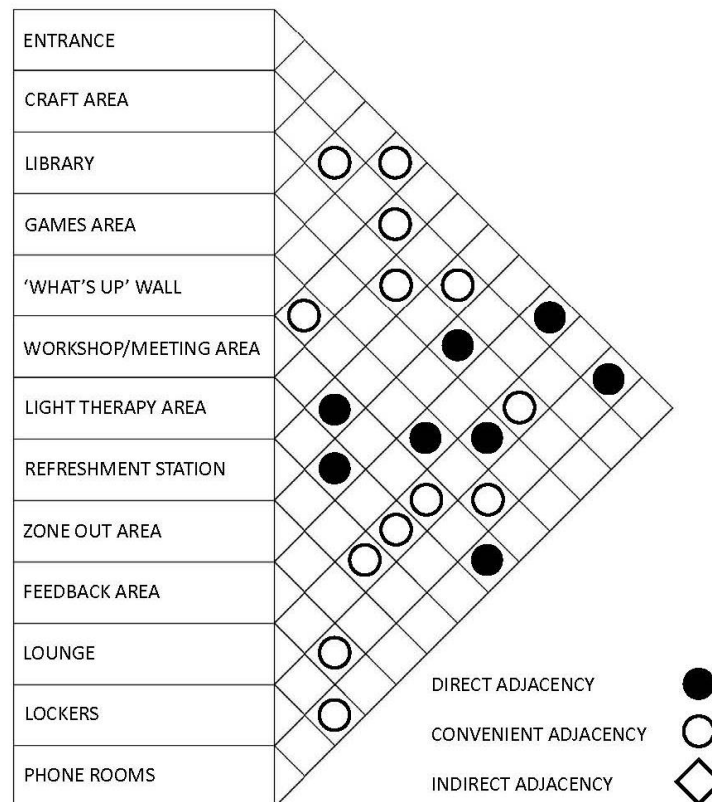
INDIRECT ADJACENCY   ◇

Figure 45 Adjacency Matrix

The adjacency matrix can then be translated into a bubble diagram to better visualize the relationships spatially. The bubble diagram naturally creates zones, which are represented by the different colours, in preparation for completing a block diagram followed by a floor plan.

Figure 46 Bubble Diagram

In summary, there are clear takeaways from this study that create opportunities for post-secondary institutions, students, and the government to improve the current mental health crisis. Schools need to be more aware of the pressures placed on students and more proactive with the services and support provided to students. The support available also needs to be marketed and advertised to students more effectively so that students recognize what is accessible while remaining comfortable and safe. Along with post-secondary institutions, the government needs to recognize and act on the mental health crisis across Canada by prioritizing mental health and therefore allotting the necessary funds.

Students need to be given the opportunity to be involved in the improvement of their own mental health challenges by continuing to develop programs and support groups. Moving forward with a "for students by students" mentality is constructive and embodies an inclusive approach. Lastly, the study revealed the role the physical environment plays in students' lives. One's surroundings have the ability to affect the way they feel and can alter one's experience significantly. Students recognize this and the need for an improved school environment that is supportive of their mental health.

Conclusion

This research study had three main goals: investigate the mental health challenges experienced by students aged 18-26, evaluate the current support available and used by those students, and propose an alternative method of addressing mental health challenges in a more holistic, welcoming and supportive manner. The study was inspired by the increase in mental health awareness and recognition that post-secondary schools are struggling to meet the needs of students.

From a literature review, grew a hypothesis that multi-sensory environments could help students experiencing stress, anxiety and depression by stimulating their primary senses without the need for intellectual functioning (Quality Palliative Care in Long Term Care Alliance, 2011). Multi-sensory environments are failure free and help people to feel relaxed and regain control of their surroundings. Furthermore, environments in general have the capacity to affect how people feel change their mood and transform their behaviour; relaxation and control being two ways. Interior designers and architects strive to evoke emotion and feeling in people who experience their spaces.

With a lack of control in institutional environments, the study revealed students need a space to relax and unwind while at school. It would be a type of space that is restorative and capable of providing support while students wait on a list to see a counsellor. The space would

act as an alternative service that offers 24/7 refuge. The single most important aspect of creating such a space is to ensure it is for students, by students; a space they feel comfortable enough in to support one another and focus on their personal mental health. They need to be involved in the movement in order to respond to the problem effectively. Continuing to raise awareness of people's mental health challenges is also critical. Numerous students still feel prejudice and discrimination based on their mental health needs and therefore, do not seek support.

Lastly, there are some key elements of the built environment that would need to be incorporated into a student community space, including greater levels of natural light, access to fresh air, and comfortable furniture within a space that has flexible as well as dedicated areas. Given the research available regarding the positive effects of natural environment or green space on mental health, this would also be a main component of the space, at least on a biophilic design level (WHO, 2019).

There were limitations involved in the study, the biggest being time. If a longer data gathering period was possible, more recruitment could have been done for the survey, more schools could have been visited, and more interviews could have been arranged. As a result, data retrieved was minimal, which could make for skewed results.

Getting access to post-secondary counselling centres was difficult and not always granted. This was understandable given the potential risk

involved with any study engaging vulnerable participants such as those facing or dealing with mental health challenges. Visiting outside of business hours was necessary to maintain anonymity with visitors to the centres. The collection of data from site visits was also limited by the location of post-secondary institutions where travel distance and cost were considerations in choosing which schools to visit.

Next Steps

Should this study continue and develop further, additional data would need to be gathered, but also a co-design approach to test the recommendations would be beneficial and help to build on the existing results. Creation of a prototype would also be critical to test the theories proposed.

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Appendix

Appendix A

<u>Key Considerations for Campus Community and Environment:</u>

- o To what degree do students perceive that the institution cares about their mental health? What actions convey this to students?
- o What is the impact of current campus learning, living and social space on student learning and well-being? To what degree do these spaces reinforce behaviors that promote or undermine learning and mental health? Is there adequate quality learning, living, and social space?
- o How does the physical design of campus (i.e. transportation, lighting, signage etc.) impact student safety?
- o How does the physical and social design of campus (e.g. buildings, pathways, social spaces and central gathering places) impact student interaction? How does it impact their access to resources and services (e.g. from learning and support to recreation and food)?
- o To what extent do students, staff, and faculty feel responsible for creating a supportive and inclusive environment for all?
- o What opportunities exist for students to have a voice in the development and roll-out of strategies to create a more supportive, inclusive campus environment as well as programs that impact their mental health?

(Canadian Association of College and University Student Services & Canadian Mental Health Association, 2013)

Appendix B

<u>Survey Questions:</u>

1.   What is your age? – short answer
2.   What is your gender? – female, male, prefer not to say, or other
3.   What helps you cope with mental health challenges at school? – long answer
4.   Did you begin experiencing mental health challenges before beginning post-secondary education or after? – short answer
5.   How does your post-secondary institution provide support for your mental health challenges? – long answer
6.   How could you post-secondary institution improve the mental health support they provide? – long answer
7.   Does the school environment affect the way you feel? – yes, no, or other
8.   Name 3 key areas of interest in the school environment you would change – long answer

Appendix C

<u>Interview Questions – Institutions:</u>

1. What is your role and what are your responsibilities at the institution?
2. What efforts is the institution making to support students with mental health?
3. Are any services offered 24/7 or on an emergency basis?
4. Are you able to test the effectiveness of your services?
5. Who decides what is offered and what is their background?
6. Is there anything else you think could be implemented to help students?
7. Do you request feedback from the students on your services?
8. Do you consult the students for recommendations? If so, please provide examples.
9. Does your institution have a safe, quiet space for students experiencing mental health? If yes, please describe.
10. Do you feel the institution's environment is supportive for students experiencing mental health? If yes, how so?

Appendix D

<u>Interview Questions – CMHA</u>

1. What is your role and what are your responsibilities within the association?

2. What services do you offer?

3. Are they offered 24/7 or on an emergency basis?

4. Have you noticed an increase or pattern in the number of students experiencing mental health?

5. Do you believe schools are offering the necessary support for students? If not, what are your suggestions?

6. Do you believe the environment can affect the mental health of the students? If yes, how?

7. What could we do to improve the school environment?

8. Multi-sensory rooms, traditionally known as Snoezelen rooms, are used to provide the user with the opportunity for stimulation or relaxation through interactive strategies. Studies suggest a multi-sensory interaction may allow students to regain control of their feelings and help cope with the struggle to deal with the impact of life challenges (Snoezelen Multi-Sensory Environments, 2018).How could we give back control of the environment to students?

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