MUJSP

MCMASTER UNDERGRADUATE
JOURNAL OF **SOCIAL PSYCHOLOGY**

About Us
The McMaster Undergraduate Journal of Social Psychology is a student-run organization that was founded in 2019 by Namya Tandon, a fourth-year undergraduate student in the Honours Social Psychology Program. Dr. Sarah Clancy serves as the faculty advisor for the journal. She supervises the capstone research projects that Social Psychology students complete during their final year of the program. The MUJSP aims to recognize the academic excellence of final year Social Psychology students by providing them with the opportunity to have their own work published in a journal.

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The Capstone Course and Research Opportunities: The Importance of Research at the Undergraduate Level

Dr. Sarah Clancy, PhD
Assistant Professor
Faculty Advisor, McMaster Undergraduate Journal of Social Psychology
Honours Social Psychology Program
Department of Health, Aging and Society
McMaster University

Welcome to the inaugural edition of the McMaster Undergraduate Journal of Social Psychology! The journal was created and developed by fourth year Honours Social Psychology undergraduate student, Namya Tandon, in Fall 2019. Fourth year undergraduate student, Ranuli DeSilva, serves as Assistant Editor, while Jordan Graber, who is entering her fourth year of undergraduate study in Fall 2020, is the graphic designer for the journal. In Fall 2019, Namya Tandon approached faculty and staff in the Honours Social Psychology Program to discuss the idea of launching a student journal. At that time, Namya asked if I would serve as the Faculty Advisor for the journal. During that early development stage, Namya attended workshops and information sessions with the Office of Scholarly Communication to learn all about journal design, undergraduate journal publications, and the intricacies of taking on the role of journal editor. Along with Dr. Tara Marshall, Director of the Honours Social Psychology Program, we devised a set of publication eligibility criteria to ensure the process was arms-length from any student, who past or present, who may serve as a member of the editorial board while at the same time being enrolled in the fourth year capstone course in the Honours Social Psychology Program. Namya has worked tirelessly to launch the journal, recruiting an assistant editor, Ranuli DeSilva, and a graphic designer, Jordan Graber, to bring this excellent platform for student research to fruition. The entire editorial board should be commended for their hard work and dedication on the launch of this journal. I am honoured to be the Faculty Advisor for the McMaster Undergraduate Journal of Social Psychology, working alongside such intelligent, talented, and dedicated students.

I want to provide some context on the Honours Social Psychology Program regarding the research work that is developed in the capstone course, which has the potential to be published in the McMaster Undergraduate Journal of Social Psychology. The Honours Social Psychology Program started as a new program at McMaster University in 2010. From 2010-2012, Dr. Lori Campbell and Theresa Marin oversaw the development of the Program. From 2012-July 2019, Dr. Dorothy Pawluch served as Program Director. In July 2019, Dr. Tara Marshall began her term as the current Program Director. The incredible students, Program Directors and overseers, faculty, and staff, have all contributed to the growth and development of the Program over time. I began my association with the Honours Social Psychology Program in Winter 2014. Since that time, I have taught numerous courses at the undergraduate level, including the capstone

course, SOC PSY 4ZZ6. It is the capstone course from which the research studies featured in the McMaster Undergraduate Journal of Social Psychology were developed and completed.

The capstone course in the Honours Social Psychology Program is rather unique, as many programs and departments do not have a required thesis course. Year after year, I hear a similar sentiment from students about how excited they are for a practical, experiential component to their learning experiences: the capstone course is an opportunity to put all of the learned skills and knowledge into practice, while also building on students' existing skill sets and academic experiences.

I have been fortunate to supervise over 70 research projects and over 350 students during the six years in which I have supervised and taught the capstone course, SOC PSY 4ZZ6. The capstone course is completed from September-April, with students working collaboratively in groups to develop either a quantitative (data collected via an anonymous online survey) or qualitative (data collected through in-depth interviews) project, based on a shared topic or area of interest. All projects have received ethical clearance from the McMaster University Research Ethics Board (MREB#: 0327). The projects are not without their difficulties or challenges, as for many, this is the first-time students are engaging in field work, especially a project completed in groups that spans over 8 months of their academic career. While each group is supervised and guided through the steps and stages of the research process, the process itself is one of both academic and personal self-growth and development. Students not only learn academic and research skills, but learn about their own strengths, interests, as well as how to work collaboratively in groups, develop stronger communication skills, and importantly, further refine their critical thinking and problem-solving skills. As a result, I have witnessed first-hand the hard work, dedication, learning curves, exploration, and excellence of these undergraduate students through all stages of the projects. It has been a pleasure supervising the students and seeing their projects develop over time into insightful, in-depth, and interesting social psychological studies, three of which are included in this inaugural issue of the McMaster Undergraduate Journal of Social Psychology.

The papers selected for publication in the McMaster Undergraduate Journal of Social Psychology must meet a minimum standard of excellence of a grade of 85% or higher on the final thesis paper submitted for the capstone course, as per the publication criteria developed collaboratively by Dr. Tara Marshall, Namya Tandon, and myself. The capstone course and the work published as outputs from the course highlight the importance of opportunities for undergraduate students to engage in field research with human participants. As you will discover when reading these three articles, our undergraduate students are emerging young scholars interested in exploring socially relevant and important topics impacting their fellow peers. The three studies included for publication in this edition including the following (ordered alphabetically by study title): **A First Year to Write Home About: A Quantitative Study of First Year Housing Environment and First Year University Experience** by Julia Bilanzola, Josina

Bouwman, Erika Keys, Emma Owen, Makayla Roth, and Aisha Syed; **A Qualitative Study of Self-Validation among First-Year Undergraduate Students in STEM and ARTS Programs** by Ranuli DeSilva, Tessa Hinkel, Emily Pooran, Taylor Smiley, Alysha McDonald, and Namya Tandon; and finally, **McMaster Varsity Student-Athletes Perceptions on Accessing Social Support Services** by Rose Adusei, Shanya Aguilar-Andrade, Karmen Chazi, Tiah Di Benedetto, and Elias Srouji.

The research studies in this first volume and issue of the McMaster Undergraduate Journal of Social Psychology are diverse, yet similar: each published study represents a facet of the lived experience of student life, whether it is the transition to living arrangements during one's first year of university, the identification and feelings of self-validation and worth associated with membership in one's program, or, the access to and perception of social support services on campus among varsity athletes. Each of the articles identify research-to-action initiatives based on the findings of the study. While the sample sizes are not generalizable, the research findings speak to the broader importance of including students' voices, opinions, and experiences as part of any changes, developments and/or initiatives directed towards the student population at McMaster University.   For example, campus (both on and off) housing can learn more about the experiences of first year students, as identified in Bilanzola et al.,'s (2020) study, to make changes to improve the first-year experience of incoming students and foster a positive first-year transition and experience, regardless of one's place of residence. Furthermore, faculty advisors in the 6 faculties at McMaster University, along with members of those faculty communities (students, student groups, faculty, and staff), can become informed about the degree to which students feel connected, confident, and validated to and by their programs, as well as strategies to improve the lack of connectedness or feelings of competency to make positive, effective changes, as identified in the study by DeSilva et al., (2020). Lastly, the athletic community, particularly the varsity athletic community, can hear about the limitations and perceptions among students about accessing social support resources, as investigated by Adusei et al., (2020). This information could be used to develop strategies to reduce stigma regarding seeking support services, increasing pathways to information and access to supports and services. Therefore, all three studies highlight the importance of incorporating student perceptions into program development or refinement, as well as service changes or modifications, to ensure supportive environments that foster student growth and development.

I hope you enjoy reading the interesting and socially relevant social psychological research studies of the three respective groups featured in this edition of the McMaster Undergraduate Journal of Social Psychology.   The hard work of each student group, as well as the entire editorial team of the McMaster Undergraduate Journal of Social Psychology, should be recognized and applauded. A warm congratulations to all involved in the publication of the inaugural edition of the McMaster Undergraduate Journal of Social Psychology!

Letter from the Editor

Dear MUJSP Readers,

I'm very pleased to present the inaugural issue of the McMaster Undergraduate Journal of Social Psychology. The launch of this journal is the culmination of several months of brainstorming, planning and perseverance by members of the McMaster Social Psychology community. The contents are comprised of the work of students who have achieved great academic distinction.

I conceived the idea of creating the MUJSP in my final year of the Honours Social Psychology Program. My journey began with my futile efforts in trying to get one of my own writings published, leading me to the realization that there was no suitable platform for Social Psychology students at McMaster University. Upon identifying this gap, I tried to craft an appropriate solution that could provide for others the opportunity that was missing for me. In admiration of my peers' achievements, I wanted to create an outlet for them through which they could share their original research. This was a way for me to give back to a program and community that I feel grateful to be a part of.

I was very fortunate in being able to secure the assistance of some like-minded peers and pedagogical support from faculty members for whom I have the highest respect. I would like to extend my sincere gratitude to the editorial team of the MUJSP. The Assistant Editor, Ranuli De Silva, and the Graphic Designer, Jordan Graber, should be commended for their efforts. The launch of the first issue of the MUJSP is a testament to their perseverance, dedication, and team spirit. I would also like to thank Dr. Tara Marshall, the Director of the Honours Social Psychology Program, for her ongoing support, without which the MUJSP would not have come to fruition. Likewise, I would like to thank Emma Pechmann, Dr. Erica Speakman and Dr. Kathleen Steeves for their support when I had initially approached them with the idea to start the MUJSP. In a similar manner, I'd like to express my gratitude to Olga Perkovic, the Research and Advanced Studies Librarian, and Gabriela Mircea, the Digital Repository Librarian, for providing the platform to create a Social Psychology journal at McMaster University. Finally, I would like to express my deep appreciation to Dr. Sarah Clancy, the Faculty Advisor for the MUJSP. Dr. Clancy has been absolutely invaluable in her mentorship and advice every step of the way. Not only does Dr. Clancy supervise *all* the Social Psychology capstone projects, some of which have been published in this issue, she does so keeping the interests of her students in the forefront. I'm very grateful for her guidance in navigating the field of academic publishing. Without her active encouragement and support, the MUJSP would never have been possible.

The MUJSP was developed to promote a widespread sharing of academic excellence amongst the Social Psychology community. It aims to highlight the original research conducted by final year Social Psychology students and provide them with a unique opportunity to showcase their scholarly achievements. The MUJSP recognizes the importance of research opportunities for undergraduate students and hopes to spark curiosity in prospective researchers.

The pieces you will discover within this issue are among the finest works of undergraduate students at McMaster University. They have met a standard of excellence and demonstrate the dedication and diligence of students in the Honours Social Psychology Program in conducting original research.

All of us who worked to bring this journal to you hope that you will learn from its contents and that you will find something that has practical application in your own life.

Thank you for taking the time and effort to join all of us on this road to discovery.

Sincerely,

Namya Tandon
Editor-in-Chief

A First Year to Write Home About: *A Quantitative Study of First Year Housing Environment and First Year University Experience*

Julia Bilanzola[1], Josina Bouwman[1], Erika Keys[1], Emma Owen[1], Makayla Roth[1], Aisha Syed[1]

Abstract

The purpose of this quantitative study is to explore the relationship between where a student lives during their first year of university, and their overall first year experience. To determine a positive or negative overall experience from the participants, four distinct variables were analysed. These variables include academic achievement; stress and affect; sense of belonging and involvement; and, social relationships. The theoretical framework used for this study is the social structure and personality (SSP) theory. This social psychological lens is used to analyse and interpret the findings. The data was collected by administering a McMaster University Research Ethics Board (MREB) approved semi-structured, anonymous online survey to McMaster University students (n=100). The sample consisted of 66% on-campus and 34% off-campus participants. Some of our findings suggest a connection between the housing environment and the overall university experience. Academic achievement was found to be the least impactful variable on overall experience for both on and off campus participants, and social relationships were the most significant in terms of first year experience. Overall, the majority of our participants stated that housing environment did have an influence on their first-year university experience (whether good or bad) based on the variables studied.

Introduction

Topic of Study

For many people, the transition from high school to university life is one that is filled with anxiety and change. Approaching this new stage in life can open new opportunities and experiences for the future. The first year of university can set the tone for the rest of the years that follow and there are many components that contribute to that experience. The topic of study we researched is the relationship between where a student lives and their overall university experience during their first year of university. This study focuses on McMaster University students who have completed their first year of an undergraduate degree. The three main locations that were analyzed were on-campus university residences, off-campus homes less than 8 kilometers away, and off-campus homes greater than 8 kilometers away. These variables will be classified as "housing environment categories" for the remainder of the research study. These locations will then

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[1]Undergraduate Student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada

be linked to aspects that impact the university experience which are broken down into four categories: academic achievement, stress and affect, sense of belonging and involvement, and social relationships. Our goal was to explore and understand the connection between living situations and the first year university experience of McMaster undergraduate students.

The social psychological context for the current study was to try and gain a better understanding of university culture in terms of individual and social aspects. Our goal was to try and understand how broader social structures (i.e. university and residence) impact the individual student. This topic was of interest to us because there has been an increased awareness regarding university culture and how it can impact those that are experiencing it first-hand. University is an influential stage of life for many individuals and it is important to understand the broader implications this milestone can have on a person's psychological and social experience.

Research Question

Throughout the course of our research the primary focus has been to study the relationship between where a student lives during their first year of university, and their overall first year experience. The research for this study was conducted solely at McMaster University, with the expectation that potential correlations may be applied or adapted to other post-secondary institutions in the future. Due to the nature of the research topic, only students enrolled in an undergraduate program who have completed a full first year of university have been included. To ensure this, we have only sampled responses from students in their second year of study or higher. Participants were asked a series of questions regarding where they lived in first year, as well as how certain variables of their overall experience were impacted or experienced as a result. The concept of "overall experience" remains a subjective one, understood primarily through the lived experience of the individual. Therefore, we have outlined four distinct variables to quantify the criteria we used in determining a positive or negative overall experience.

The first variable outlined in our study focuses on the academic achievement of students while in their first year. For the purposes of this research, academic achievement is not quantified by grades, but by the personal satisfaction an individual has regarding their academic career. The interest lies in whether a student feels content or disappointed in their performance on assignments, exams, and their ability to keep up with course work. By using satisfaction rather than grades, we have allowed students to be reflective and give personal insights regarding their marks. Utilizing this method has presented us with more accurate data as well as a flexible definition of academic success. This avoids any unnecessary discomfort on the part of the participant who may not be willing to share specific details regarding their marks. This also allows students to accurately have their voice heard through our research project, increasing the benefits to themselves.

The second defined variable of overall experience is that of affect and stress levels. Within this category, our study focused on topics of coping strategies and homesickness that contribute to both the positive and negative emotions experienced by first-year students. With the introduction to university life being such a significant transition, the emotional responses and stability of students play an important role. This provides a rich understanding about which aspects of housing environments have the strongest impact on participants. Affect, meaning the feelings, emotions and moods one experiences at

any given time is one of the main contributors to an individual's satisfaction with university. Being that emotional regulation is often impacted by a living environment, it was necessary that this factor be included in the research to fully understand the relationship between these two variables.

Another important variable within the research is the sense of belonging and involvement first-year students feel attributed to McMaster University. The connection an individual has to a particular campus culture is the main feature under observation within this category. Inclusion of extracurricular clubs, as well as the feeling of "belonging" within the university atmosphere had to be considered as it is a primary influence of social identity and self-esteem of participants. In regard to this factor, we were interested in understanding the correlation between the sense of belonging students who live on-campus feel, and if it drastically differs from those that live off-campus in the surrounding area.

The final variable used to determine quality of experience is that of the social relationships and ties an individual creates, maintains, and values while in their first year of university. We have hypothesized that connections individuals make with others will heavily influence social roles, norms, and sense of self. For this reason, it was critical to include these social networks when evaluating how a living environment can increase or decrease the means in which relationships are made. Determining the social ties a student has, and how those ties are changed based on where they reside helped to provide an essential understanding of the overall university experience.

The selection of this particular research question came from an early group discussion about our own personal experiences of first year. Some of us felt that first year was an amazing experience and helped to set the tone for the remainder of our university career, while others expressed how difficult and mentally straining it was. Not only was our university experience significantly different, but our housing environments at the time also varied remarkably. These dramatically different experiences brought to light the question of whether place of residence changes how one feels about their first year. We also commented on how this seems to be a question not often asked in research studies surrounding university. We believe that the focus of our study has not only provided important insights into university housing options and the impact on students but has also drawn some interesting findings for our own personal experiences as well.

Purpose of Research

The chosen phenomenon of our study was to both understand and identify whether or not where students live would affect their overall university experience in their first year. Throughout the research, we sought to distinguish the ways in which different categories of housing environments affected specific factors of the first year university experience. Based on our assumption that the choice of residence is such a critical step in a student's transition to university life, this problem of focus was both extremely relevant and insightful for future students and post-secondary institutions alike.

The purpose of this research presents post-secondary institutions (in this case, McMaster University), with the knowledge surrounding how a student's place of residence impacts their first-year experience. This study has posed significantly influential research for university administration as it has helped determine if there is a "best" place to live in the first year. With this knowledge, universities could adapt the housing opportunities

available for first-year students in hopes of providing future students the best chances for an optimal university experience. Furthermore, this research may also help new students consider alternative housing options without feeling pressured to live in a specific location. By understanding the relationship between the place where one resides and overall experience at this particular university, this research helps increase the opportunities students have to enjoy their first year and make a smooth transition.

Overview of Sections

The following research study being presented is broken down into six distinct sections. The first section contains a review of literature that has been previously written surrounding the current topic. The literature is organized based on each of the current studies variables (i.e. academic achievement, stress and affect, sense of belonging and involvement, and social relationships). Following this section is a discussion of the theoretical framework that was used for the current study. Key aspects of the social psychological theory of social structure and personality (SSP) that are related to the study will be discussed. These include the proximity, components, and psychology principles of SSP. In the section that follows, our methodological approach will be explained in detail. Aspects of this section include our research methods themselves, the research process, any ethical issues and potential challenges, as well as our data analysis and timeline used for the entirety of the research study. After the methodology section, the results of the study will be outlined through the subsequent sections split into demographics, analysis of each variable, and major correlations. Second to last, we have included a discussion section, where the results of the research study will be analyzed and interpreted through the previously mentioned theoretical framework and literature presented. In addition, there will be a discussion of the broader significance that the current research study has in this section as well. Lastly, the final section of the paper will include a general summary of the research, a discussion of limitations and significant insights the results may hold, as well as final thoughts and acknowledgments we have developed regarding the entire research study process.

Literature Review

Our study will address student housing in relation to the first-year university experience which is conceptualized by four main factors. We have chosen to study academic achievement and satisfaction, affect and stress, sense of belonging and involvement, and social relationships as the four factors that make up a university experience. Using these four guiding principles, we will be able to categorize the satisfaction of first-year students. We will specifically be looking at how where one lives affects these factors and whether or not they are correlated. To get a basis of these understandings, we will be researching the literature revolving around the university experience and how previous research has examined these four factors. We will first look at how other authors have discussed these themes, then look at the factors that affect each of our variables. According to the research, we will discuss the causality between where a student lives and the effects on our four themes. We will also explore the limitations of the existing research and provide analysis of where the current research is lacking.

College and University Housing

Some research has already been done on the different effects that housing can have on the student experience. Recent research has found that since the mid-2000s, a greater emphasis has been placed on housing for college students and how it can be improved. This is partly due to the increased enrollment rates in post-secondary education compared to previous periods of time (Moore, Carswell, Worthy & Nielsen, 2019). Moore et al. (2019), suggest that studying college housing is important because it can be an indicator of students' well-being, mental health, future household happiness, and adaptation to future living environments. Although this study was limited by low response rates, they argue that studies such as theirs are important in creating more knowledge surrounding the benefits of different kinds of housing, both for students and housing providers (Moore et al., 2019). They also suggest that student housing has benefits on the overall college experience as well as the adjustment made in transitioning to the college experience (Moore et al., 2019).

Related to this transition, existing research has looked into the effect that living independently of one's parents has on the student experience. The transition to living independently from parents is positively related to increased feelings of depression, such as homesickness, insecurity, and loneliness (De Coninck, Matthijs & Luyten, 2019). Therefore, it is important to study how different student housing options affect these students.

There are clear differences in student experience between those who live on-campus and those who live off-campus. For example, living on-campus has been found to provide higher levels of satisfaction with the college experience rather than living off-campus (Li, Sheely, & Whalen, 2005). Dining plans, leadership opportunities, and locations close to campus foster social integration as well as involvement between peers and faculty. These factors can also bring a greater sense of community and increase the chances that students will return to live on campus in following years (Li et al., 2005). Living on-campus is more often preferred by students who value support from staff and who want to make friends quickly (Wode, 2018). Living on-campus may provide students with a "typical student" status which can decrease negative effects of othering (Holdsworth, 2006). The concept of othering and its effect on first-year students will be further developed in the discussion of belongingness and involvement.

Living off-campus has its own benefits, including being more affordable for certain students (Hendrix, 2014). Some students have chosen to live off-campus in order to have more personal space and choice, to have more freedom, to make an investment, and to have more of a "homey" feeling (Hendrix, 2014; Maldonado, 2018). Living off-campus is often preferred by students who value staying at their home over school breaks, having private rooms and bathrooms, and cooking their own food (Wode, 2018).

Academic Achievement and Satisfaction

Previous studies have looked into which factors influence students' academic achievement. Academic achievement is important to the overall student experience due to its being a goal of education, but also because academic achievement is closely linked with well-being and satisfaction with life. In their study of 66 first-year university students, Wilcox and Nordstokke (2019) found that academic satisfaction, together with school

connectedness contributed to 49% of the variance in satisfaction with life. Conversely, 43% of the variance in self-reported academic achievement was due to college well-being (Wilcox & Nordstokke, 2019). Students' subjective well-being has been found to strongly predict academic performance as well as dropout rates among first-year students (De Coninck et al., 2019), indicating that if students' living arrangements influence their well-being it could in turn influence their likelihood of staying in school and doing well.

Previous studies have found mixed results on the effect living on or off-campus has on academics (Turley & Wodtke, 2010). Research has found that living on-campus can improve students' chances of staying in school and finishing their degree (Astin, 1984; Muslim, Karim & Abdullah, 2012). This relationship could be explained by the idea that the university residence forms an extension of the classroom. Living in residence could provide students with more opportunities to study together with their peers as well as students from different faculties and learn from them (Pokorny, Holley & Kane, 2017). Turley and Wodtke (2010) studied a sample of 2,100 students across 372 academic institutions and found that among students who live on-campus, there was no significant variability between different types of university residences.

However, students who live off-campus may do better than students living on-campus since they have more focus on academic achievement (Pokorny et al., 2017). Students living off-campus may not experience as much social development as those living on-campus, however, social development has been found to not be necessary for greater academic achievement (Turley & Wodtke, 2010; Pokorny et al., 2017).
Furthermore, other factors have also been found to influence academic achievement. Turley and Wodtke (2010) propose that school involvement and academic achievement are correlated, although the correlation is not perfectly clear. Findings by Astin (1984) seem to support this point, showing that students who participate in social or sporting clubs are less likely to drop out of school.

Personal differences between students also account for variance in academic achievement. Students with high academic self-efficacy have greater academic achievement due to their higher expectations and goals, as well as their tendency to see work as a challenge rather than a threat (Wilcox & Nordstokke, 2019). High academic achievement also lends itself to high satisfaction within a given program (Wilcox & Nordstokke, 2019). Individual affect and mood have also been found to influence academic achievement. Wilcox and Nordstokke (2019) found that depression and anxiety especially predict low GPA and achievement. Emotional exhaustion includes feelings of depression, as well as the feeling that one does not have any emotional resources left (Li, Han, Wang, Sun & Cheng, 2018). This exhaustion contributes to both lower satisfaction with life and academic achievement (Li et al., 2018) Similarly, the opposite is also argued to be true. Having a high self-esteem has been found to be positively related to academic achievement (Li et al., 2018).

Affect and Stress

More research has sought to understand how factors such as emotional well-being, depression, anxiety, and exhaustion affect the first-year experience. There has not been a significant amount of research done regarding differing levels of stress or affect based on living arrangements. However, the subjective well-being of students, especially during their first year has received considerable attention. Subjective well-being and life

satisfaction are two ideas often conceptualized in research as a way to study a rather abstract idea of happiness. "Subjective well-being, or happiness, is most often defined as high levels of positive affect, low levels of negative affect, and high levels of satisfaction with life" (Wilcox & Nordstokke, 2019, p.105). In opposition, stress comes from outside stimuli or circumstances combined with an individual's perceived ability to cope with them and their subsequent reactions (Ross, Niebling & Heckert, 1999).

Undergraduate students involved in an Australian study reported distress at rates almost tripled those of the general population (Stallman, 2010) and Wilcox and Nordstokke (2019) found that almost one quarter of students with one mental disorder also screened positively for another. Ross et al. (1999) suggest that this is in part due to the fact that undergraduate students face continuous evaluation. Due to the nature of the education system, students have multiple quizzes, papers, and tests they are taking and being graded. This amount of constant evaluation is atypical for the general population and could account for the higher levels of distress among students (Ross et al., 1999). Students also frequently reference interpersonal conflict, self-esteem problems, and struggles with money as causes for their distress (Ross et al., 1999). Undergraduate students face many daily hassles associated with the transition to post-secondary education which contribute to their high stress and low affect. Daily hassles are more frequently reported as reason for stress than major life events (Ross et al., 1999). "Some of these include change in sleeping and eating habits, vacations or breaks, increased workload, and new responsibilities" (Ross et al.,1999, p.105).

Some research has looked at students' stress by studying the transition to university and the effect this transition has on their emotional affect. Ross et al. (1999) found that among all students they studied, first-years scored the highest in chronic stress, showing that first-year students especially suffer. This could be due to the many changes that these students must adjust to. We assume that living on or off-campus may aid or hinder this transition in different ways, leading to higher or lower levels of stress among first-year students. One suggestion for the higher rates of stress among first-year students is that a student's attachment style will predict the way that they experience this transition (Ames et al., 2011). In a Canadian study by Ames et al. (2011) researchers found that securely attached participants experienced a much more positive transition than those with preoccupied or fearful attachment styles. Individuals with preoccupied or fearful attachment experienced greater fear of failure, anxiety, and stress (Ames et al., 2011). The study also found that these experiences could be improved with group facilitation (Ames et al., 2011), pointing to the importance of studying social relationships and belonging in our study alongside our other variables. This study provides insight into the way that first-year students experience stress in their transition to university. However, it is limited by a small sample size and lack of analysis of gender differences. Future research on attachment style and group facilitation should aim to study larger populations and the effect of gender on these findings.

There are different ways in which these high levels of stress and low affect can be helped and prevented. Various research has found that having high self-esteem helps individuals protect themselves from outside stressors. Higher self-esteem affects the individual's perception about how capable they are to control and overcome difficulties in a positive way (Li et al., 2018). Another way in which an individual's psychological state

can be improved is through social support. Having a supportive social community surrounding an individual can help them cope with stressors and feelings of depression (Li et al., 2018). We hypothesize that differing levels of social support will exist among different living arrangements, so it is important to understand how social support improves students' subjective well-being.

Belongingness and Social Integration

Throughout most of the literature on first-year university students, there appeared to be an emphasis on the importance of being part of the university culture. This could be due to a variety of factors but most of the research suggests that it is due to the correlation of social integration and dropout rates. As previously discussed, in regards to academic achievement, a longitudinal study conducted by Astin (1984) at the University of California, determined that those who integrated themselves into university culture through clubs and sports teams were less likely to drop out. The author discussed that those who felt like they were part of something more and belonged somewhere, were less likely to want to drop out of university (Astin, 1984). With this information, we can frame our understanding of the importance of a first-year student feeling as though they belong to the university culture.

Aside from housing environments, there are other factors that contribute to one's sense of belonging. While there is little research, we thought it would be important to touch on the implications of race and ethnicity when it comes to belonging and social integration as a whole. The way in which different cultures accept living situations and university expectations, both play an important role in the first-year students' sense of belonging (Pokorny et al., 2017). For students that come from a Caucasian family, it is understood to be more acceptable to live alone and be more involved with peers due to cultural understandings of university as more of an experience (Pokorny et al., 2017). Due to the previous studies on race and ethnicity, we felt it was important to include a demographic question regarding race and ethnicity in our research. While our study did not focus on how race and ethnicity affect where you live, it is important to mention as a thought for future research.

When coming to university, many students go through a transition from being a teenager to becoming the "Typical Student" (Holdsworth, 2006). For many, this move becomes a substantial part of their identity since this transition is unfamiliar, making it important for the new student to "fit in" with this new environment (Holdsworth, 2006). The "Typical Student", as conceptualized by Holdsworth, is determined to be a stereotypical university student involving stress, binge-drinking, and being in debt (Holdsworth, 2006). The way they view themselves compared to the other students allows them to take on this new identity (Holdsworth, 2006). As the new student continues to take on this identity, the more likely they are to be satisfied with their sense of belonging in the university (Holdworth, 2006). However, creating this new sense of self is not necessarily innate. The research revolving around this identity construction discovered that those who lived at home with their parents or guardians were less likely to adopt the "Typical Student" identity (Holdsworth, 2006). This is due to the constant shift from student identity, to the identity they would have had before coming to university (Pokorney et al., 2016). With this continual shift, the students that reside at home find it more difficult to maintain this identity as compared to those who live on-campus (Pokorny et al., 2017). Those who live on-

campus sustain conscious discontinuity, which means they are able to maintain their student identity due to their isolation from their former environment and full immersion into the new culture (Pokorny et al., 2017). If those that commute are living at home, they juggle their former identity and their familial ties more than those who are living in university residences (Pokorny et al., 2017).

Due to this lack of identity adaptation, those who live at home may also be subjected to othering (Holdsworth, 2016). In this context, othering is defined as a differentiation between those who live on-campus versus those who commute (Holdworth, 2006). In many cases when making judgements, there is a focus on the class that one belongs to that creates the othering. However, when coming to university, there is less of an impact of class on people's identities (Holdsworth, 2016). As a result of this, the way students differentiate themselves shifts to where they live (Holdsworth, 2016). Those who live off-campus are not involved in the residence life and are thought to not fully be part of the university experience, making them lack social integration (Holdsworth, 2016). This then makes them "othered" and not integrated into the same categories as their non-commuting peers (Holdworth, 2016). With that said, the study done by Holdsworth utilizes questions and discussions about parental socio-economic status and due to the sensitivity of this topic for some participants, this may limit the depth of the data, if some students choose to not answer fully if uncomfortable.

As mentioned previously, many students have this ideal of what the university culture will be like, thus affecting their experiences. A study done on 3 different Canadian Universities found that first-year binge drinkers perceived the university atmosphere to promote alcohol misuse before even entering university (Henderson, Thompson, Hudson, Dobson, Chen, & Stewart, 2018). In this way, student's overall perception of meeting new people and relaxing oftentimes required engagement in binge-drinking (Henderson et al., 2018). Meaning that the feeling of social belongingness was also strongly correlated with higher alcohol misuse (Henderson et al., 2018). But with this abuse of alcohol, they are also statistically more likely to have trouble with their mental health (Henderson et al., 2018).

More specifically for our research, we found that studies also show that those who live on-campus are more likely to engage in these types of binge-drinking environments than those who live off-campus, especially in comparison to those that live with their parents (Henderson et al., 2018). While the students on-campus may be in more of a social environment, this type of risky-behaviour is strongly associated with decreased reported mental health (Henderson et al., 2018). This implies that those who live on-campus will be more likely to report stronger social ties but also prove to have lowered mental health. With that said, this information is limited to self-report variables such as self-report bias which may impact the validity of the information provided.

Social Relationships

It is also imperative to look at the effect of social relations on the first-year's overall satisfaction. Throughout the literature, authors refer to social relationships as the frequent and casual interactions with others (Wilcox & Nordstokke, 2019). The frequency and quality of these social ties are correlated with how the student ranks their satisfaction with these relationships (Wilcox & Nordstokke, 2019).

Most of the research focuses on peer or classmate relationships, but there are significant findings that suggest student relationships with faculty members can determine satisfaction (Turley & Wodtke, 2010). It has been proven that students who have a strong relationship with their professors are more likely to rank higher overall satisfaction (Turley & Wodtke, 2010). They also tend to report higher levels of integration into the university compared to their classmates that may not have the same relationship (Muslim et al., 2012). Further Canadian research stated that those who lived off-campus benefitted more mentally when there was a strong perception of faculty caring for them (Henderson et al., 2018). However, this should also be considered in the gendered context due to the research stating that women are more likely to engage with faculty in comparison to men (Muslim et al., 2012). These findings illustrate that women generally want to strengthen relationships with faculty and other peers more than men (Muslim et al., 2012). Furthermore, the research states that those who identify as Caucasian are more likely to seek out these social relationships compared to racial minorities (Turley & Wodtke, 2010). The research also suggests that those who identify as a minority status are more likely to focus on their academics rather than creating relational ties (Turley & Wodtke, 2010). In our research, we did not explore the case of student-professor relationships or gendered differences, but these factors could be useful for future research on the subject.

However, an important limitation to note on this particular study done by Turley & Wodtke (2010) is the lack of distinction between those living at home with their parents versus living off-campus with friends. This could skew the data due to those who live with friends off-campus may find it easier to create relationships with peers due to already living with friends. While on the other hand, students who live with their parents may not find it as easy to build social relationships.

To further examine the correlation of housing and social ties, there must be further analysis into where the majority of these relationships are formed. The research has shown that those who joined sports or clubs ranked the quality of their social relationships higher than those who did not engage in any extracurriculars (Astin, 1984). As previously mentioned regarding our variable of belongingness, first-years who engage in these types of activities are also those who live on-campus in residences (Holdsworth, 2006). In this way, those who commute are less likely to create meaningful relationships resulting in them having a lower satisfaction rating of social relationships (Astin, 1984; Holdworth, 2006). This does not necessarily mean that the individuals' social relationships are exclusively found on these sports teams. It has been proven that the majority of students identify most of their closest friends as being from the residence they live in (Turley & Wodtke, 2010). For those who live on-campus, students consider where they live as a social setting, while those who commute will consider where they live as simply a place to reside (Turley & Wodtke, 2010).

With that said, there is conclusive Canadian research that found that those who maintain membership in a fraternity or sorority have been shown to have a lower sense of belonging (Henderson, Thompson, Hudson, Dobson, Chen, & Stewart, 2018). This could be contradictory to Turley & Wodtke's (2010) understanding of those who live on-campus believing that where they live is their main source of social interaction and thus their place of belonging. The contradiction is apparent since living in a sorority or fraternity is an extremely high level of social interaction yet, residents find that they do not belong as much as those who live simply in an on-campus residence (Henderson et al., 2018).

As a result of this, there could be further research in understanding why high levels of exposure to social settings decreases the sense of belonging for places like fraternities or sororities.

Additionally, a study done at a Canadian University discussed the perceptions of others and the strength of the effect on mental wellbeing in their first year. The study found that those who are highly impacted by their peers (conceptualized as Social Prescribed Perfectionism) would have a lower level of friendship intimacy and therefore increase mental distress throughout their first year (Mackinnon, Sherry, Pratt & Smith, 2014). When Socially Prescribed Perfectionists discussed making friendships, they were more inclined to avoid intimate friendships due to fear of not meeting perceived expectations of others (Mackinnon et al., 2014). This could indicate that the university friendships may not be solely affected by the housing situation, but more based on the impact of personal personality profiles. Those who are impacted more strongly by peers, may not feel as if they can achieve these social relationships that are expected to be made in first year which in turn could potentially affect their university experience.

It is also important to note the potential lack of validity in this study due to self-report bias. The reliance on self-report data could allow for participants to answer the questions in a way that is not accurate in hopes of making themselves sound better. The inability to fully see and understand how participants actually view themselves could potentially impact the data. With that said, it could be beneficial to our study in guiding our understanding of participants' perceptions of themselves and their personality profiles that may affect the data.

Literature Review Summary

In summary, the existing research literature has examined many of the same variables in the university experience as we have studied. Academic achievement has been found to be an important factor among students, related to well-being as well as dropout rates. However, there is little agreement as to the effects of living arrangement on academic achievement. Research also supports our idea that transitioning to university involves considerable amounts of stress and lowered affect, especially among first-year students. Literature discussing belongingness points to the importance of students becoming involved in their university culture. This involvement is important due to the way it influences academic success, creates a continuous identity, and lowers the negative effects of "othering". Social relationships have been found to be an important part of the student experience, formed and maintained in many different ways. Research has also been done on the differences between living on and off residence, and the effect of the housing environment. However, most studies have not researched the direct effects of the housing environment on these variables. Though there is significant research on each factor on its own, our research fills a gap in the literature by studying these relationships.

Theory

Social Structure and Personality

The theoretical framework our research project uses is the Social Structure and Personality Theory (SSP). Within the literature, there is no agreed-upon history of SSP, however, some scholars say it originated in the 19th century from Emile Durkheim's sociological work on the 'individual' (Rohall, Milkie, & Lucas, 2014). Other literature states

that SSP branched off of Max Weber's work on how society affects an individual's "verstehen" or empathic understanding (Rohall et al., 2014). Additionally, James House and Robert Kohn discussed SSP in their research throughout the 1980s (DeLamater & Ward, 2006). SSP is described as a framework rather than a theoretical paradigm because it is not associated with a theoretical claim (Rohall et al., 2014). SSP is a macro theory, which looks at large scale issues and large-scale groups. A macro theory is relevant to our research as we examined how the large-scale structure of student housing affects the first year university experience (DeLamater & Ward, 2006). SSP focuses on the roles people occupy and how social forces influence their individual beliefs, behaviours, and life changes (Rohall et al., 2014). The theory looks at how large social networks (i.e. family, friends and coworkers), as well as social structure, (i.e. the community one lives in), affects an individual's feelings, attitudes and beliefs (Rohall et al., 2014).

Core Concepts of SSP

The three core concepts of SSP are social structure, personality and individual, and culture. Social structure can create a predictable pattern of behaviour that an individual can express (Rubinstein, 2004). Understanding social structure is significant to our research, as it allows us to have a framework to analyze whether or not living in residence can create a profile of behaviour among first-year students within the university experience. Personality refers to an individual's attitudes, beliefs, values, etc. (House, 1981). This is an important concept to have in our research because a sense of belonging and social relationships is often correlated with an individual's personality since individuals often choose their friends based on personality (House, 1992). Where one lives impacts the different people that one is exposed to. Culture refers to the cognitive values an individual should have in a given social structure, and how those values are internalized (Rohall et al., 2014). The two social structures we researched are where one lives and university; each of these structures has its own culture. Our research is an attempt to identify if the culture of where a first-year university student lives correlates to how they internalize their university experience.

Core Principles of SSP

SSP has three core principles: the components, proximity, and psychology principles. James House's components principle links different social structures and how they affect specific behaviours. This theory encourages researchers to look at what is happening behind large social structures (House 1981). The main elements in this theory are social norms, socioeconomic status, gender, social networks, and roles (Williams & Collins, 1995). Social norms are scripts used in interactions and reflect the values of the group in which the individual belongs (Merton, 1957). The community one lives in can reflect which scripts the individual uses in their interaction and can affect their sense of belonging (House, 1981). Social networks refer to the relationships between an individual and a group (House 1992). Roles relate to the position individuals hold in society, and how that changes the way they behave (Biddle, 1986). In our research, we examined if the location students live in changes how they see their role and if that affects how they behave in university. In our study, we did not look at socioeconomic status or gender, but the correlations we found could be used for further research.

The proximity principle looks at the effects of macro structures on individuals (House, 1981). It states that individuals within a certain proximity are linked due to having the same social experiences in their life (House, 1981). The longer a person spends within these macro structures, the more influence they have on the individual (House, 1986). Two essential elements that create similar experiences within social structures are social roles and relationships (Merton, 1957). In our research, we examined the number of clubs, sports teams, etc. students are involved in, and how they affect their university experience. Our research looks at different housing and the university experience. We hypothesized that if an individual is living on-campus, they have more access to the university, which in turn will have more influence on them. We aimed to discover any correlations between the macrostructure of where one is living and the experiences with regards to our four variables.

The last principle of SSP is the psychology principle which examines the biology of one's mental state, motives, and unconscious meanings concerning social situations (McLeod & Lively, 2003). Although this is an important aspect of SSP, for the purposes of this study we focused primarily on the first two principles. Our attention was mainly on the idea that where an individual spends most of their time changes their personality. Our research was interested in the correlations between responses of people who live on-campus, and those who commute in relation to our four university experience variables.

Self-Evaluation and SSP

Another concept within SSP that we will be looking at is the idea of self-evaluation. Three components of the theory that we will be looking at are mastery, mattering, and self-esteem. Mastery is the ability to control things in an individual's environment (Gecas, 1989). Mastery can refer to academic achievement on the grounds that if an individual has mastered their environment, they will believe they can master their courses academically (Gecas, 1989). Mattering refers to how much an individual feels they matter to others (Elliot, Kao, & Grant, 2004). Our research explores a sense of belonging to see if an individual feels they matter more in a given situation, and how connected they feel to their community. We are interested in whether healthy, long lasting relationships are more likely to be formed and maintained when an individual feels they matter. Self-esteem is a positive or negative evaluation of oneself (Rosenberg, 1986). A positive evaluation of oneself is essential in lowering stress levels, making relationships, academic achievement, and belonging (Rosenberg, Schooler & Schoenbach, 1989). Our research looked at the connection between living arrangements and how one evaluates oneself in regards to an individual's first year experience.

Theory Summary

In summary, the social structure and personality theory allowed us to gain information on our variables and the university experience. The components principle examines social structures and how they relate to a specific pattern of behaviour. This principle allowed us to draw conclusions if residence created a pattern of behaviour within on or off-campus participants. The proximity principle aided our research in determining whether living in close proximity to campus correlated to any of our research variables. The psychological principle allowed us to interpret a participant's personality in relation to the overall first-year university experience and our variables of the study. In addition, we

used the self-evaluation principle of SSP; mastery was important because it allowed us to find connections between where a participant lives, if they were able to master their environment, and if that affected their first-year experience. Therefore, SSP provided significant insight on each of our variables and supported a large amount of the findings in our study.

Methodology

Research Methodology

Through our search for the relationships between where a student lives and their overall university experience in their first year, we have used a quantitative approach, via an anonymous survey to answer this research question. All the participants' thoughts, feelings, and behaviours were assigned to numbers which allowed us to apply a statistical analysis of the variables and provide us with the opportunity to use a larger sample size (Rohall, Milkie, & Lucas, 2014). Doing an anonymous survey eliminates reactive effects that are common during qualitative surveys (Bryman & Bell, 2016). A reactive effect occurs when the researcher knows they are being observed and may result in atypical behaviour, therefore, the quantitative approach in this case may eliminate this bias and demonstrate more authentic answers (Bryman & Bell, 2016).

The type of survey we have conducted is a semi-structured questionnaire. This questionnaire consisted of 29 questions which included the Likert scale, multiple choice, demographic, drop-down and open-ended questions. We used non-probability sampling, meaning that we did not pre-select those who would receive the survey. Snowball and convenience sampling has likely occurred due to the fact that the survey may have been referred to by other participants who had previously taken the survey. A convenience sample demonstrates the idea that any available person that fits in a certain population will be included in the study (Rohall et al., 2014). A snowball sample may have occurred as other individuals could have shared information about the study with peers (or others), resulting in one large social circle or peer group being represented in our study (Rohall et al., 2014).

Steps in the Research Process

Ways in which we recruited participants to partake in our survey was by hanging posters in MSU approved locations, posting on various student-run Facebook pages, and emailing student-lead groups and organizations on-campus. The McMaster communities include Learning and Fun (LAF), Community Open Circle and Communications, and Multimedia Society. These groups are ideal as they include many students from various faculties at McMaster who are gaining volunteer experience. We were aware of these communities as our group member Erika Key's is the group facilitator for some groups and has been involved with these organizations throughout her university career. We used the recruitment scripts to appropriately reach out to these organizations. With Erika Key's connection to the group we recognized this as a clear conflict of interest. To eliminate this conflict of interest and manage this potential issue we had Aisha Syed who had no prior connection to these groups, recruit these potential participants. Therefore, Erika was not part of the recruitment process for any of these groups.

The recruitment poster demonstrates that we were looking to recruit participants for our study, it included the title of our study, and informed potential participants that those

involved would remain anonymous. The poster indicated an approximate time of 15 minutes to complete as well as Erika Keys' email address as the point of contact to obtain more information. We also included that participants must be 18 years of age or older, must be a McMaster undergraduate student, and have completed a full first year of university. The tear away tab at the bottom included an email and link to our survey. Lastly, the poster clearly stated that the project received ethics clearance. Once we received the McMaster Students Union stamp of approval, the poster was displayed throughout the main buildings around McMaster University. This was to ensure the sample of participants was inclusive to all faculties and programs.

The Facebook pages we reached out to for our survey to be posted on included: Spotted at Mac, McMaster Social Sciences Class of 2020, McMaster Social Science Class of 2021, Class of 2020- McMaster University- Officially Verified, Class of 2021- McMaster University- Officially Verified, McMaster Class of 2022- McMaster University- Officially Verified, McMaster Social Science Society, McMaster's Philosophy, Politics and Law (JPPL) Society, Off Campus 2020, Off Campus 2021, McMaster Engineering Class of 2021, McMaster Life Sciences Class of 2020, McMaster Life Science Class of 2020, McMaster Humanities 2020, McMaster Humanities 2022, and Class of 2020- DeGroote School of Business. This was done by emailing the admin of the Facebook webpage using the recruitment script for the holder of participants contract information as well as our letter of information for all imperative details. This covered a wide range of the McMaster community and was efficient based on the prevalence of social media in today's society.

Our quantitative method of data collection was that of an anonymous online survey hosted on the MREB approved website, LimeSurvey. This survey took approximately 15 minutes to complete and was structured using LimeSurvey, with computer responses. The survey included a letter of information providing the participants with the necessary information outlining the nature of our survey and the possible risks associated, giving them the opportunity to make an informed decision. The survey included an ending message thanking the participants for their responses, as well as the information for the McMaster student wellness center, in the case of participant distress as a result of the risks in the survey. The survey was a semi-structured questionnaire consisting of 29 questions, making use of question types such as the Likert scale, single choice, multiple choice, demographic, and open-ended questions. Erika Keys was in charge of monitoring the survey and closing it on February 13th, 2020 at 11:59 pm or when the sample size had reached 100 participants. After we had collected all of our data, we analyzed the results and documented our findings. We used frequency tables to demonstrate demographic findings for the number of participants on- versus off-campus, gender, faculty, ethnicity, current year at McMaster, and age. These demographics and their frequencies demonstrate how our sample was represented throughout the McMaster community. Bar graphs are also used to represent our data, presenting specific variables and how they correlate to the sample of our on versus off-campus participants. At this point a poster presentation was made documenting our topic of study, key variables, methods, qualitative quotations, demographics, significance, conclusions, and acknowledgements. Lastly, all the information was completed, analyzed, and documented within this final thesis research paper.

Ethical Issues

Firstly, it is important to note that our research received ethics approval by the McMaster University Research Ethics Board (MREB). To involve human participants in our research at McMaster University it is necessary to receive this approval. We completed this by filling out the form provided by MREB. The research was approved by the McMaster Research Ethics Board (MREB#: 0327, 2012 67). One of the main ethical issues we addressed was confidentiality and the participants' knowledge on the anonymity of our online survey (DeLamater, Myers, & Collet, 2015). The letter of information that was presented before the survey started outlined to participants that all data that we would receive would be kept in a password protected file. Once the analysis of the data was completed all data was destroyed. We also included that if the participant wished to remain anonymous, they must not like or share the survey on Facebook. This further ensured participants were aware of the ways they could take the initiative to remain anonymous.

Ethically it is important that consent is freely given and cannot be coerced (Bryan & Bell, 2016). Our terms of consent were outlined in the letter of information. Due to the nature of online surveys we assumed implied consent from our participants. This was done because of the inability to ask for a written or oral consent form. Therefore, we implied that the participants read the letter of information and consequently made an informed decision that they were comfortable with the conditions and wished to proceed. The step of pressing the submit button acted as their final indication that consent had been given to us. Additionally, during the online survey after the letter of information was presented, the very first question asked if the participant consented and wished to proceed (yes or no), further ensuring all participants understood the survey and consented to the conditions.

The type of questions we used were strategic in minimizing the risk of other ethical issues. An important concern with regards to ethics is the participants well-being (Bryman & Bell, 2016). This means that one's physical, mental, emotional, spiritual, social, and economic well-being must be respected (Bryman & Bell, 2016). Any question that may be anxiety producing or 'triggering' in any way was addressed with caution. One tactic included our demographic questions. These questions further guaranteed that our participants were above the age of 18 years old. With this in mind our questionnaire included open ended questions for topics such as gender and ethnicity. This was deemed necessary as it minimized the risk of being exclusive due to the complexity of the possible answers. These questions also included a 'prefer not to answer' option ensuring the participant had the ability to omit the question if it was a sensitive topic. Throughout our survey, participants had the option to omit specific questions they did not wish to answer. Due to the nature of the online survey, participants had the opportunity to leave the website at any time before clicking 'submit' and all previously completed data would be lost. This ensured that if a participant was feeling any type of distress or discomfort, they would have the option to opt out or skip that question. The anonymity of the survey provided further protection against this risk. Once the survey was completed, and when participants clicked 'submit', there was a thank you message that included the information for the McMaster Student Wellness Centre in hopes that if any participants were left feeling socially or psychologically affected, they would have access to support systems.

Our group experienced student to student peer conflicts of interest. This occurred through Facebook groups that we used to recruit participants, and also through online communities our group members were a part of. Additionally, communities such as Learning and Fun (LAF), Community open circles and communication and multimedia societies are institutions in which there are personal connections as Erika Keys is a facilitator. These issues were minimized by the letter of information clearly outlining our names and the fact that we are involved with the project. Therefore, anyone who was uncomfortable with this fact could opt out at any point. For the communities in which Erika Keys is involved as the facilitator, she was not involved in recruiting these potential participants. Rather, we had Aisha Syed, who had no connection to these institutions, reach out to these communities.

Data Analysis

We ensured that our questionnaire was designed with the process of data analysis in mind. For example, when determining the scales and variables we considered statistical techniques that would aid in our coding process. With our questionnaire it was necessary to prepare for missing data. This could be a result of questions being missed or skipped for personal reasons. In this case, we coded the missing data with another symbol (-). This symbol was not mistaken for information regarding determined variables and was not read by the computer as anything other than missing data (Bryman & Bell, 2016).

The three main types of variables we used when looking at relationships between categories included: nominal variables, ordinal variables, and interval/ratio variables (Bryman & Bell, 2016). The nominal variables are composed of categories with no relationship to one another, other than the fact that they are different. For example, when we asked for one's ethnicity in the questionnaire, there were multiple possibilities and no other kind of comparison was possible (Bryman & Bell, 2016). Ordinal variables are different categories that can be ranked and ordered (Bryman & Bell, 2016). This was discussed in our research as greater than and less than statements made about the categories (Bryman & Bell, 2016). Lastly, interval/ratio variables are used to demonstrate a unit of measurement that exists in regards to the differences between categories. This can be made identical across the range of categories (Bryman & Bell, 2016). We studied these potential correlations by using crosstabs on the Statistical Package for Social Science (SPSS). Crosstabs were used to analyse data on SPSS, these tests demonstrated how different variables corresponded to each other. This was beneficial in helping find correlations that assisted in answering our research question.

We conducted frequency tables to provide the number and percentage of individuals who belong to each category. This was an organized way to demonstrate our data and can be created for nominal variables, ordinal variables, and interval/ratio variables (Bryman & Bell, 2016). Our qualitative data was displayed through diagrams. We used bar graphs where the height of each bar represents the frequency or percentage of participants in each category.

During our data analysis, we planned to calculate the mean to find the average of all responses for a given question (Bryman & Bell, 2016). An important issue we anticipated and accounted for are outliers, as the mean is vulnerable to these occurrences (Bryman & Bell, 2016). One way this could be done is through measuring the standard deviation. The standard deviation is a measure of the variation between our variables and the mean

(Bryman & Bell, 2016). However, due to unforeseen circumstances we were unable to collect the data to be able to complete these types of analysis. In this case, the standard deviation would have outlined any outliers in our data that may influence the mean. Bivariate analysis demonstrated whether there is a relationship between any two variables (Bryman & Bell, 2016). We did the bivariate analysis by running crosstabs between the variables and the number of on versus off-campus participants.

We planned on accounting for the significant relationships throughout our discussion. The relevant correlations that would have been done provides a representation of the risk when taking a particular sample statistic to estimate a population characteristic (Bryman & Bell, 2016). This looks at tests of significance for measures of bivariate association (Bryman & Bell, 2016). However, due to unforeseen circumstances we were not able to test for statistical significance and chose instead to focus on the relevant relationships between the variables.

Methodology Summary

Overall, our quantitative study on where a student lives, and their overall university experience was studied using a semi-structured questionnaire. We used non-probability sampling and recognized the occurrence of both snowball and convenience sampling. We discussed potential conflicts of interest and used proper ethical responses to resolve these issues. Recruitment posters and letters of information were used when attempting to recruit potential participants. This ensured that everyone was informed on the nature of our study before consenting to participate. We assumed implied consent from our participants and supplied all essential information they needed to make the decision to proceed. We were strategic in minimizing the risks of our potential participants through the design of our questionnaire. Throughout the data analysis process, variables were calculated using frequencies and crosstabs on SPSS. We constructed tables and graphs to display data in an organized manner in order to support our findings and discussion. Relevant relationships were accounted for in our discussion to help facilitate our findings. Lastly, a detailed timeline was made to demonstrate the way we planned our work as a group to successfully complete this research in a timely and efficient manner.

Results

Demographics

We asked participants to answer questions on the following demographics: residence during first year (on- vs. off-campus), gender, faculty, ethnicity, current year enrolled at McMaster University and age. The sample size of this study is 100 McMaster University students (n=100).

Residence During First Year

The majority of the participants lived on-campus for the first year (66%) while the remainder lived off-campus (34%).

Figure 1: Frequency Chart – On- vs. Off-Campus

ON- VS. OFF-CAMPUS (during first year)	FREQUENCY
On-Campus	66
Off-Campus	34
	n=100

Gender

With regards to gender the majority of the participants were female (74%), followed by male (18%) and non-binary (1%).

Figure 2: Frequency Chart – Gender

GENDER	FREQUENCY
Female	74
Male	18
Non-binary	1
No Response	7
	n=100

Faculty

The participants came from a variety of faculties throughout the McMaster community, the majority came from Social Science (34%), followed by Science (18%), Humanities (14%), Engineering (11%), Commerce (8%), Life Sciences (3%), Health Science (3%), and Kinesiology (3%).

Figure 3: Frequency Chart – Faculty

FACULTY	FREQUENCY
Social Science	34
Science	18
Humanities	14
Engineering	11
Commerce	8
Life Science	3
Health Science	3
Kinesiology	3

No Response	6
	n=100

Ethnicity

The majority of the participants identified as Caucasian (46%), followed by South Asian (12%), Mixed Race (9%), European (8%), Asian (6%), Hispanic (4%), African (4%), and Indigenous (2%).

Figure 4: Frequency Chart – Ethnicity

ETHNICITY	FREQUENCY
Caucasian	46
South Asian	12
Mixed Race	9
European	8
Asian	6
Hispanic	4
African	4
Indigenous	2
No response	9
	n=100

Current Year at McMaster

The majority of our participants were in fourth year (42%), followed by third year (35%), second year (12%), and fifth year (5%).

Figure 5: Frequency Chart – Year at McMaster

YEAR	FREQUENCY
Fifth	5
Fourth	42
Third	35
Second	12
No Response	6
	n=100

Age

The age of the participants varied from ages 19-29. The majority of participants are 21 years old (43%), followed by 20 years old (29%), 19 years old (9%), 22 years old (8%), 24 years old (2%), 27 years old (1%), and 29 years old (1%).

Figure 6: Frequency Chart – Age Frequency

AGE	FREQUENCY
19	9
20	29
21	43
22	8
24	2
27	1
29	1
No Response	7
	n=100

In-Depth Analysis of Variables

Academic Achievement

Looking at the analysis of academics, there proved to be little difference in where one lived and academic achievement. With similar answers in ability to time manage, the results were scattered. 59% of on-campus and 67% of off-campus students reported being able to effectively manage their time. Where respondents lived seemed to have no implication on their academic achievement. The responses to satisfaction of academics were split for both on and off-campus with 45% of on-campus reporting satisfaction, and 32% reporting dissatisfaction comparatively to 50% of off-campus being satisfied and 32% reporting dissatisfied.

Stress and Affect

Overall, there was little difference in answers regarding stress and affect between on and off-campus students. Both seemed to agree that there was an increase in stress with 80% on-campus and 85% off-campus reporting the level of stress increased coming into their first year. Although as expected, there was a significant difference in levels of homesickness between on-campus and off-campus students. With 56% of on-campus residents reporting that they experienced homesickness, while only 18% of off-campus residents reported similar feelings. There was a slight difference in ability to cope with 64% of on-campus and only 48% of off-campus reporting that they were able to cope with the stress that came in first year. With that said, students both off and on-campus, found that their living arrangements affected their overall stress levels.

Sense of Belonging and Involvement

When looking at sense of belonging, the majority of off-campus students reported not being involved in extracurriculars with only 26% reporting that they joined a McMaster extracurricular in their first year. Comparatively, on-campus respondents were fairly even with 55% joining and 45% not joining any extracurriculars. Living on-campus also was strongly correlated to attending Welcome Week activities with 94% of on-campus residents reporting that they engaged in at least one Welcome Week activity while only 65% of off-campus students participated. Overall, both on-campus and off-campus agreed that where they lived in first year influenced their overall sense of involvement; 82% of off-campus and 68% of on-campus agreed to the apparent influence of housing.

Social Relationships

Overall the majority of both on-campus and off-campus found that where they lived in first year affected their overall social relationships. With on-campus having an 89% agreement rate and off-campus with a 94% agreement rate. When making new relationships, there was a significant difference in how off-campus students found making new social relationships in university, 53% found that they struggled making new relationships while only 27% of on-campus students found it difficult. In regard to maintenance of past relationships throughout their first year, there was no significant difference between on and off-campus, both had 62% of participants agreeing that they kept the same relationships that they had made before coming to university. Further, relating to relationships that participants had made during their first year, off-campus participants reported having lower satisfaction for both quality and quantity of relations in comparison to on-campus participants. Only 26% of off-campus residents were satisfied with the quantity of relationships, and only 32% reported being satisfied with the quality of their relationships. Comparatively, on-campus residents were more likely to agree that they were satisfied with quality (59% agreed) and quantity (50% agreed).

Major Relationships

The following charts display the most important relationships and results of our data as related to our research question. Figures with an asterisk (*) note that the data in the chart is displayed as a percentage in order to counteract the difference in on- and off-campus participation.

Our results (Figure 7) found that more on-campus students indicated they were satisfied with their overall first year experience than off-campus students. In addition, a larger portion of off-campus students indicated that they were not satisfied with their first-year experience. These findings suggest that overall, living on residence provides students with a better first year experience than living off-campus.

These findings (Figure 8) break down the university experience into our four variables and display the degree to which participants felt that their living arrangement influenced each variable. Most participants agreed that their living arrangement influenced all four of our main variables in the university experience. Regardless of being on- or off-campus, participants indicated that social relationships were the most influenced by their housing environment, while stress and affect proved to be the least influenced.

Figure 9, 10, and 11 display themes cited by participants in their qualitative answers to the question, "Overall, do you feel your living arrangement affected your overall first year

Figure 7: Overall Satisfaction with First Year Experience*
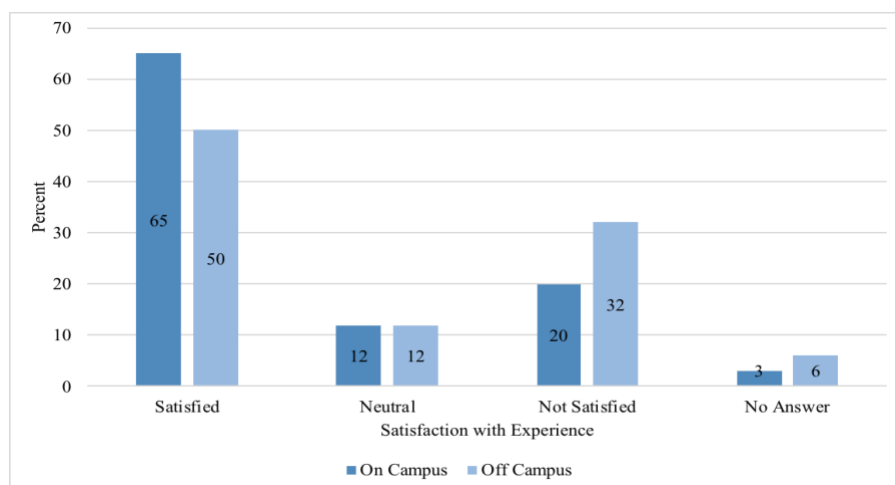
Figure 8: Overall Influence of Housing Environment on University Experience*
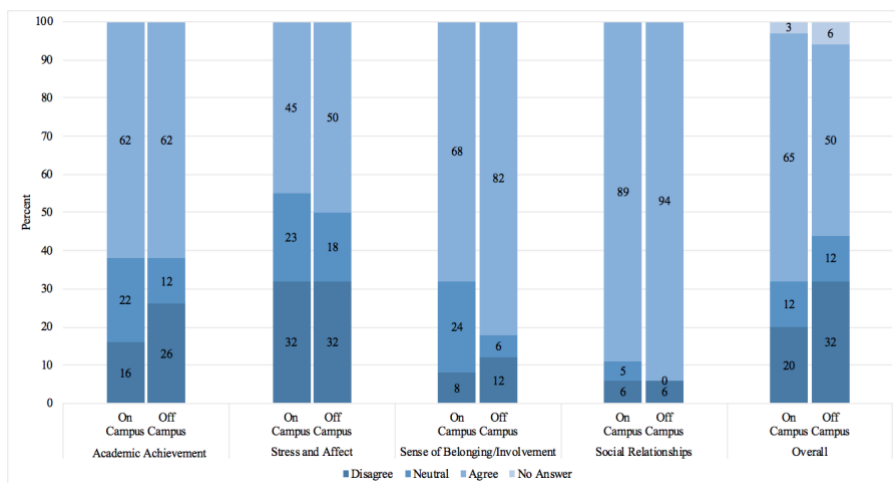
experience? Briefly explain in one or two sentences why or why not." These answers were in participants' own words and then coded by emerging themes across all participants. Figure 3 and 4 show which themes were most and least common for both on- and off-campus participants and Figure 5 compares the rates between both categories.

    This figure (Figure 9) shows the results from participants who answered this question on the survey and lived on-campus (n=44). The most common factor discussed by participants living on-campus in terms of the effect on their university experience, was the quality of their friendships. Both good and bad friendships were cited by 33 (77%) of on-campus participants as the most important factor in how their living arrangement affected their experience, with most of them being positive or good relationships. This seems to suggest that living on-campus can lead to greater opportunities for strong friendships. Only 1 on-campus participant included having no support, indicating that living on-campus could provide greater support to students, but further research should be done to specifically examine that possibility.

    This figure (Figure 10) shows the results from participants who answered this question

Figure 9: Experiences of Students Living On-Campus
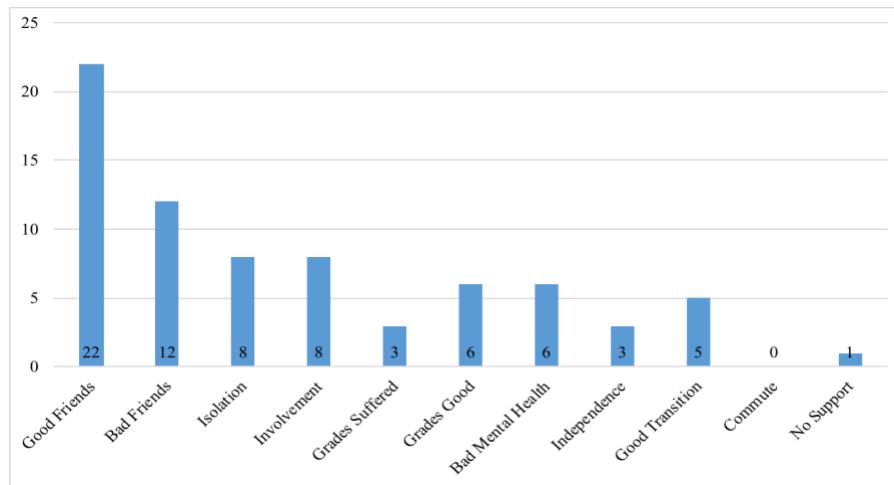
Figure 10: Experiences of Students Living Off-Campus
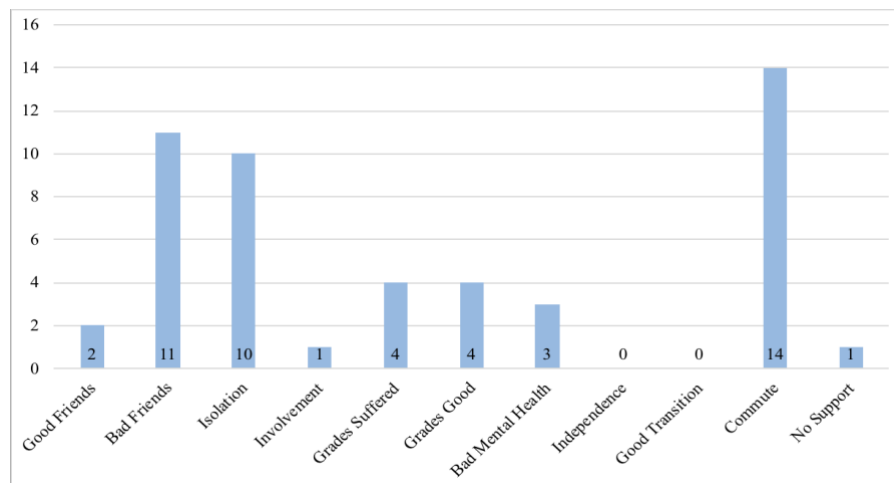
on the survey and lived off-campus (n=25). The most common factor discussed by 14 (56%) participants living off-campus in terms of the effect on their university experience, was their commute to school. This is a natural outcome since it is likely to assume that students not living at the school will have to commute. Most comments regarding the commute were negative (i.e. it took too much time, contributed to a lack of involvement) but some included positive benefits to commuting such as making friends with other commuters. Twelve off-campus participants also discussed social relationships as influenced by their living arrangements (48%) although most relationships discussed by off-campus participants were negative or bad. Interestingly only 1 off-campus participant discussed feeling ill-supported, the same as those living on-campus. This suggests that off-campus participants still have avenues of support outside of campus. Finally, a significant number of off-campus participants discussed feelings of isolation due to their living arrangement; 10 participants or 40%, approximately double the rates of isolation among on-campus participants. This finding supports our original hypothesis that living on-campus would provide a greater sense of community and belonging than living off-

Figure 11: Comparing On- and Off-Campus Qualitative Themes*
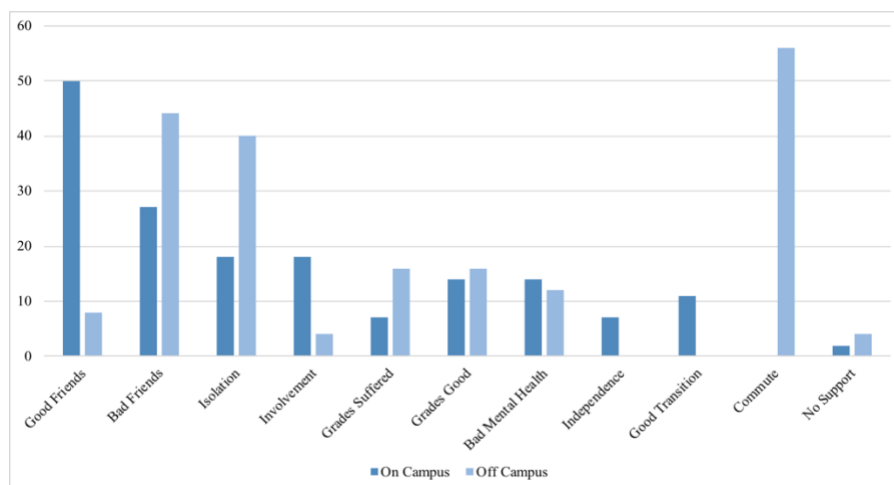
campus.

This figure (Figure 11) compares on- and off-campus qualitative results using the same data as Figure 3 and 4, however these data have been converted to percentages to account for the difference in participants for each category. When compared this way we can see the different ways in which on and off-campus participants described their university experience as affected by their living environment. On-campus participants were more likely to describe good friends, involvement, independence, and good transition as part of their university experience and living environment. Off-campus participants were more likely to describe bad friendships, isolation, and the commute as part of their university experience and living environment.

Discussion
Demographics
For the purposes of our study, we decided to ask our participants a series of demographic questions in order to gain a broader understanding of the student population at McMaster. Due to the sample size of our research, we know that our findings are not necessarily generalizable to the broader society, however, with these responses we may be able to hypothesize whether specific demographics can influence the relationship between housing environment and overall experience. It is unfortunate that we were unable to run any cross correlational statistics surrounding the demographic results of our research due to unforeseen circumstances. This process would have aided in a better understanding of the relationships between the demographics and our variables. For this same reason, the discussion of demographic findings will be grounded in both the hypothetical relationships we believe to be present, as well as the areas we would like to pursue for future research.

The most important demographic we have acquired through our research is the specific proportion of participants who lived on- or off-campus. These results differ quite drastically, with 66% of our sample size living on-campus and 34% living off-campus. We hypothesize that there are three possible explanations for this trend. Firstly, we used convenience sampling whereby the people who completed our survey were more likely to find it on-campus. We used posters, and social media posts sent to groups run by on-

campus clubs and relied on snowball sampling to advertise our research. This means that it is more likely that the majority of our participants were on-campus students, as they were more likely to see the survey advertised. The second is that it is possible there are more students who live on-campus in their first year, as McMaster residences house approximately 3,600 students each year (McMaster, 2012). Although there is no way to know specifically what the numbers were each year, we hypothesize that McMaster provides plenty of opportunities for on-campus living. The third possible explanation for our findings is based on the 'typical student identity' as described by Holdsworth (2006). This states that perhaps more students choose to live on-campus to fit in with that preconceived idea of a university student (Holdsworth, 2006). With this knowledge, one may consider that our participants had already considered living in residence before they even started at McMaster University, as a means of fulfilling that specific social role (Holdsworth, 2006).

Another important demographic we asked of our participants was which faculty they belonged to. The reason for this was to try and determine if there were any commonalities amongst specific programs or faculties. The largest faculty representation was from the Faculty of Social Sciences (n=34), followed by Science (n=18) and Humanities (n=14). Our least mentioned faculties were Life Science, Health Science and Kinesiology, all with three responses each. We believe one of the possible explanations of the high volume of social science participants is a result of us being a part of the social science faculty ourselves. Due to our overlapping social networks, as well as being part of the fourth-year capstone course that is well known within our program, we assume that many of our participants within the faculty know us in some way. We also advertised our research via the social media pages for the social science students of various years, and although we did not seek out these subjects directly, we believe this could also contribute to the high presence of our faculty being represented.

Within our survey, we also looked at the race and ethnicity of our participants and divided our results into 9 categories. There were 46 individuals who identified themselves as Caucasian, with the second highest being 12 South Asian individuals, and the smallest group was that of the Indigenous individuals with only 2 responses. With these demographics, we would have been interested in finding out if there was a correlation between being Caucasian and living alone or being a racial minority and living collectively. According to the pre-existing literature, race and ethnicity can play an important role in social integration, as different cultures enforce various living situations and expectations individually (Pokorny et al., 2017). According to the study by Pokorny et al. (2017), in Caucasian culture it is usually more accepted to live alone, and we would have liked to see if those trends were visible amongst the first-year populations at McMaster.

The final characteristic we asked our participants to indicate was that of their gender identity. In our results, we had 74 females, 18 males, 1 non- binary individual and 7 who did not answer the question. We believe that we had so many females participate due to two possible reasons, the first being that the Faculty of Social Sciences is a predominantly female population. Being that this is the largest represented faculty in our study, a lot of those social science students are likely to be female. The second potential explanation is a result of one of the findings in our literature review. Some of the literature we have found regarding our study indicated that gender plays an important role in how likely students are to interact with their faculty or program, which we believe could give us insight into

how students may be influenced by their involvement (Muslim et al., 2012). In this study, it was concluded that women typically aim to engage more with members of their faculty in an attempt to strengthen such relationships as compared to men (Muslim et al., 2012). If this is true, then perhaps more female students completed the survey as it was advertised on their faculty page, or in one of their buildings, and their participation is a result of wanting to be more engaged with their program. Furthermore, if females are more likely to strive for strong relationships, they may have been more likely to share our survey with others, which is a product of our chosen snowball sampling method. We believe that this relationship would have been interesting to look at as it could have indicated if being on- or off-campus was not as relevant as engaging with one's faculty. This knowledge could have also helped us understand if perhaps gender played any role in how effectively an individual achieved all four of our main tenets. For example, are women more likely to make strong relationships, or do men achieve more academic satisfaction? Perhaps gender may not have impacted our results at all, but it would have been an interesting relationship to integrate into our findings, had we been able to study this further.

Although we were not able to run many of the discussed cross correlations regarding our demographic findings, the frequencies of our participants alone provided us with a substantial understanding of our sample. With these numbers, we were able to see the diversity of our participants and reflect on both the theoretical and literary explanations that helped us hypothesize our results. If we were to pursue this research in the future, we would like to run some of the tests necessary in establishing these relationships, and ultimately gain more knowledge on how external factors can influence both living arrangement itself, and the effect it has on an individual's first year experience.

Academic Achievement

As stated previously, academic achievement for the purposes of our study is quantified as the participants' satisfaction with their academics rather than the objective grading scale. Of all the variables studied, academic achievement had the least significant relationship to housing environment. Whether the individual was on or off-campus, 62% of all participants agreed that their academic achievement, whether positively or negatively, was influenced by their housing environment. Previous studies have found mixed results on the effect living on or off-campus has on academics (Turley & Wodtke, 2010). Our data reflects this concept as rates of academic satisfaction did not vary drastically with 50% for on-campus and 41% for off-campus. Although it was not found to be a relevant relationship, according to the current study, students who lived on-campus were slightly more satisfied with their academics. This concurs with previous studies that found that living in residence could provide students with more opportunities to study together with their peers as well as students from different faculties and learn from them (Pokorny, Holley & Kane, 2017). When asked about their ability to time manage there was also minimal difference between on-campus (59%) and off-campus (67%). This suggests that perhaps time management is an individual attribute rather than one that is impacted by one's housing environment.

The current study does offer certain contradictions to previously conducted research. Similar to other factors examined under the variable 'academic achievement', there was little difference between the mention of good or bad grades between on or off-campus

participants. The argument that has been made is that those who live on-campus are able to get better grades because they had more time and drive to focus on school (Pokorny et al., 2017). With the findings from our data we see that housing environment did not have a large impact on grades, whether it be positively or negatively. Our data shows that 14% of off-campus and 16% of on-campus students mentioned that their living environment enabled them to get good grades, while 16% of off-campus and 7% of on-campus participants stated that their housing environment impacted their grades negatively. We hypothesize that this is due to the fact that academic success is dependent on one's ability to accomplish work in their given housing environment, regardless of if it is on-campus or off-campus.

The conclusions drawn from the research study clearly outline that there is not a significant relationship between academic achievement and housing environment. Students with high academic self-efficacy have greater academic achievement due to their higher expectations and goals, as well as their tendency to see work as a challenge rather than a threat (Wilcox & Nordstokke, 2019). Our research concludes that although housing environment does have an impact on academic achievement, the influence is very minor. This suggests that higher or lower academic achievement is dependent on an individual's fortitude rather than housing environment.

The theoretical concept of 'mastering' also supports the minimalistic relationship that was found between housing environment and academic achievement. How well a student can master an environment can contribute to their success in academics. This may help to explain the low rates of dissatisfaction with academics among our participants. It is a possibility that many of our participants have mastered their environment (regardless of whether it is a residence, family home or other) so that it no longer impacts their academic success. The ability to master a new environment is particularly important for those who live on-campus as they will have to adjust. If someone can adjust quickly, the transition may not impact their academic achievement as much as someone who could not. We hypothesize that if a successful adjustment has been made for both cohorts (i.e. on-campus or off-campus) then there will be little impact of housing environment on the individual's academic success. If one is unable to master their environment it may lead to a variety of implications regarding their academic satisfaction.

Lastly, it is important to acknowledge that when trying to analyze the relationships found between academic achievement and housing environment, there are various external factors that could influence this relationship. If we were able to collect additional correlational data, we may have discovered additional relationships. We hypothesize that academic achievement may have been influenced by the other variables studied such as social relationships and stress, which is extremely likely when considering previous research done in this area.

Stress and Affect

The conclusions made from the current research study regarding the variable of stress and affect are categorized under the three concepts of mental health and stress, coping, and transitioning. In terms of mental health and stress our research shows that independent of housing environment, 80-85% of participants reported an increase in stress during their first year of university. Similarly, there was only a 2% difference between rates of poor mental health reporting between on-campus (14%) and off-campus

(12%) participants. Ross et al. (1999), suggests that undergraduate students face constant evaluation (i.e. tests, papers etc.) and that they have to deal with interpersonal conflict, self-esteem problems, and struggles with money, all of which are sources of stress. The fact that our research found no significant differences regarding mental health and stress between on-campus or off-campus students supports this claim. It is clear that poor mental health and stress are a result of universal struggles that all university students face, regardless of their housing environment. If we were able to pursue more in-depth analysis of the data collected, we would have been able to investigate the relationship that exists between a student's stress and their academic achievement, as some studies have discussed.

Among much of the literature, there is substantial evidence of the connection between stress and the amount of social support an individual has (Li et al., 2018). Studies have found that those who live off-campus express not having social support resulting in high levels of stress. Our research findings directly support this claim. Of the on-campus participants, 64% agreed that they were able to cope with life stressors while only 48% of the off-campus agreed. Stress occurs from both outside stimuli as well as the individual's ability to cope with the response that occurs (Ross, Niebling & Heckert, 1999). We hypothesize that those who live on-campus have an easier time accessing the mental health services provided by the university. In addition, these individuals may have additional social support from faculty and peers that is more accessible because of the lack of distance.

The third concept that emerged from the variable stress and affect is transitions. First-year students face many daily struggles associated with transitioning from high school to university life that cause them to feel stressed (Ross et al., 1999). One of the major adjustments for off-campus students during this transition time is commuting. A large portion of our off-campus participants indicated that commuting was a strong factor that influenced their degree of stress as well as their ability to cope with them. Some research suggests that student housing has strong benefits when it comes to the transition to university (Moore et al., 2019). However, our study supports the claim that the transition to living on-campus in a new environment actually increases feelings of depression such as homesickness and loneliness (De Coninck et al., 2019). Of the on-campus participants 56% reported feeling homesick while only 24% of off-campus did. Although only 11% of our on-campus participants claimed they had a good transition, no one from the off-campus population spoke on the subject at all. This indicates, that although the number of students on-campus who had a good transition was quite smaller, it was still present as opposed to the off-campus responses. One could argue that those who live off-campus do not experience a transition considering they are remaining in the same housing environment. However, as stated before, the impacts of student life on stress levels can be applied to all students (i.e. the same transition). Therefore the 11% on-campus statistic becomes significant in discussing the transition process because the only difference between the two university experiences is the participants' housing environment.

Our findings reflect that participants reported their housing environment did influence their overall stress. Of the off-campus individuals 45% agreed with this and of the on-campus individuals 50% agreed. Although there is not much discrepancy between the percentages, these rates can be explained through our theoretical approach. Based on the components and proximity principle we see that there is an influence of larger social

structures (i.e. residence) and those around someone on their behaviour, roles, and social norms. These concepts can all be classified under the identity of the individual. For individuals who live on-campus, their identity is rooted in and being influenced by those around them, which in most cases is fellow students who share similar experiences, and the university campus life as a whole. Students who live on-campus fit the 'typical student' identity, in that they do not have to manage multiple ones (Holdsworth, 2006). This could explain the lower rates of responses that housing environment influenced stress levels for on-campus students. Contrary to the single identity concept is the idea that off-campus individuals have to manage dual-identities. There is a university identity similar to those living on-campus, but there is also an identity that is rooted in their place of residence (ex. Family home). As one participant reflected: "Living off campus with my family, I had a less 'traditional' university experience." The continuous management of these identities can cause individuals additional stress linked to housing environment.

Sense of Belonging and Involvement

Our findings concluded that 47% of on-campus students felt that they belonged at the university compared to only 35% of off-campus students. As discussed in the literature, on-campus students develop a 'typical student" identity, while off-campus students may have two conflicting identities; 'a home vs. school' identity (Holdsworth, 2006). It is possible that as a result of having two different identities, students feel they do not belong entirely in either identity, therefore feel they do not completely belong in the McMaster community. The components principle of SSP states that where a person lives reflects the values and scripts they use in their everyday life (House, 1981). We hypothesize that on-campus students spend more time on-campus, and therefore would create similar scripts to other on-campus students and have a higher sense of belonging. Secondly, the personality principle of SSP states that where you live can alter your attitudes, values and beliefs (McLeod & Lively, 2003). We would hypothesize that people who live on-campus would have similar personalities, create more social relationships, and result in a higher sense of belonging.

Our study concluded that 55% of on-campus students joined extracurriculars compared to 26% of off-campus students. This supports the proximity principle of SSP that states that individuals within certain proximity are linked due to having similar experiences. Macro structures (i.e. where one lives) can influence social roles and the people one engages with (House, 1981). We know based on our findings that on-campus students join more extracurriculars, and therefore we hypothesize that this is one of the reasons on-campus students have a higher sense of belonging. The literature found that students that live on-campus are more likely to engage in binge-drinking due to their "typical student" identity (Holdsworth, 2006). Students who live off-campus and especially with their parents or guardians are less likely to engage in binge drinking (Holdsworth, 2006). According to the literature, off-campus students can be subjected to othering due to not being fully immersed within the "typical student" identity (Holdsworth, 2006). We hypothesize that othering could make the off-campus students feel as though they do not belong as much as on-campus students at the university.

The research found that 94% of on-campus students and 65% of off-campus attended McMaster's Welcome Week events. Welcome Week is designed to support a student's transition to university life (McMaster, 2012). We hypothesize from our findings that

Welcome Week is not as effective in integrating students as originally designed due to the fact our research found that 40% of off-campus students felt isolated in comparison to only 18% of on-campus students. These findings support the proximity principle of SSP. Off-campus students may not live in close proximity to campus and therefore, may have different experiences than on-campus students, which could cause off-campus students to feel isolated. According to our qualitative research, 11% of on-campus students thought they had a great transition to university, while 0% of the off-campus participants felt as though they did. While the results seem minor, we hypothesize that the 11% of on-campus responses displayed that students are able to master their environment better than off-campus participants. This leads us to hypothesize that on-campus students have an easier transition to university. This knowledge could help change how Welcome Week is designed to help off-campus students feel less isolated and have a better transition to university.

Our participants' perceptions of the overall influence of their housing environment on social belonging were as follows: 68% of those who lived on-campus compared to 82% of off-campus participants agreed that their housing environment influenced their social relationships. These results suggest that a large percentage of off-campus students felt that where they lived influenced if they belonged. Mattering theory states that when someone feels that they belong in a particular setting, they will be more satisfied with their experience (Elliot, Kao, & Grant, 2004). Therefore, our research concludes that where you live in your first year can influence whether you joined extracurriculars, felt isolated, had a smoother transition, and the overall sense that you were involved in the McMaster community.

Social Relationships

From our findings, we have concluded that social relationships are by far the most significant determinant of overall experience in relation to one's first year at McMaster University. The first significant result of our study pertains to how easy it was for first-year students to make new friendships as influenced by their place of residence. As illustrated in some of the literature discussed previously, it is less likely for students who commute back and forth from campus to be able to create meaningful social relationships (Astin, 1984; Holdworth, 2006). In our study, it was concluded that 62% of both on- and off-campus students were able to maintain their old relationships. This indicated that place of residence does not have a significant influence on previously formed friendships, and the real differentiation is in how students create new relationships. Within our study, we found that 61% of on-campus students claimed it was easy to meet new people and generate relationships, as opposed to the 38% of off-campus participants. When asked about both the quantity (50%) and quality (59%) of their new relationships, on-campus participants rated a higher satisfaction. This indicates that it is overall easier for on-campus students to meet new people and form significant relationships.

We hypothesize that this could be due to the fact that on-campus students are surrounded by more opportunities to form new relationships, which can also be illustrated by the proximity principle in the theory of SSP. This principle draws attention to the fact that those who are in a close radius to one another are more likely to form relationships, which relates directly to the findings of our study (House, 1981). With this knowledge, we can conclude that those who lived on-campus found it easier to make new social

relationships. As social relationships were the most influential factor of a good experience, we can hypothesize that those living in residence are more likely to have a better first year experience than those who live off-campus.

Throughout our findings, we can confirm that 65% of those who lived on-campus made the majority of their friends in housing, due to them being in close proximity. Alternatively, our research shows that of those who lived off-campus, 62% formed most of their relationships in classes. Not only does this finding support the proximity principle of SSP, it also indicates that there could be a difference in the roles which on- or off-campus students embody. As described by previous studies, it is common for students who live on-campus to typically consider where they live as a primary social setting, whereas those who commute may simply conceptualize it as a place to live (Turley & Wodtke, 2010). This different perception of place of residence may have significant implications when it comes to an individual's identity. A student who lives on-campus will most likely spend more time in their housing environment, and the social norms and scripts that are used in interactions are more likely centred around where they live. Theoretically speaking, this means that one's personality or identity begins to embody the 'typical' on-campus student. As described by the literature, a 'typical student' reflects those who live on-campus and present higher rates of stress, binge drinking, and debt (Holdsworth, 2006). With regards to the component's principle of SSP, which states that the roles individuals hold in society ultimately affect how they behave (Biddle, 1986). We believe that those who live on-campus share similar social roles by being 'typical on-campus students', and therefore are more likely to form relationships within that group (Biddle, 1986).

In a similar nature, those who live off-campus also embody a specific social role, which opposes those on-campus, meaning off-campus students are typically more focused on their academic identity (Biddle, 1986). As the participants who live off-campus may more commonly associate the university as a place for learning rather than living, our hypothesis is that they would meet more people in classes. Using the components principle, the norms and scripts associated with specific classes, faculties, and learning styles will help these students meet new people who also represent those same norms. We hypothesize that the majority of students who live off-campus come to campus grounds for academic purposes (i.e. studying, attending lectures, etc.), therefore the opportunities they have to meet new people are limited to academic related purposes. According to the proximity principle of SSP, off-campus students are most likely in close proximity with those in their classes. Overall, the understanding surrounding where our participants created most of their social relationships can effectively be grounded in both the previous literature and theoretical frameworks.

One of the questions of our survey indicated that 62% of those off-campus lived with friends, and 38% lived with family. This finding in particular was quite different than anything we had previously hypothesized, as we had predicted that more students off-campus would remain at home with their families. This indicates that students who lived off-campus still moved out of their family home, but simply did not live in on-campus residence. This small detail is very important when understanding one's ability to create relationships. Previous literature has stated that those who live with friends, regardless if they are off-campus, will find it easier to form relationships than those who live with parents or guardians (Turley & Wodtke, 2010). Although we were unable to run any cross correlations between who these off-campus students lived with and their ability to form

new relationships, that is a relationship we would have liked to understand more to better represent our participants' experiences.

The results regarding our participants' perceptions indicated that 89% of those on-campus and 94% of those off-campus stated that there was an overall influence of housing environment on their social relationships. Although both groups rated very high in this aspect, this indicates that those who lived off-campus felt that where they lived mattered more when creating and maintaining social relationships. With this statistic alone, we hypothesize that most students felt that their place of residence and ability to create social relationships were strongly related. To better understand this relationship, we looked into the qualitative responses of both on and off-campus participants. Almost all of the qualitative responses across both groups indicated a common theme of friendship, whether positively or negatively. According to our results, the theme of good friends was discussed by 50% of on-campus and 8% of off-campus students. This indicates that more students on-campus described having good friends, and that those good friends impacted their overall first year experience at McMaster University. The theme of bad friends was represented in 27% of the on-campus and 44% of the off-campus populations in our research. This reinforces both the idea that it is usually more difficult for off-campus students to make good social relationships, as well as how influential social relationships are in determining overall experience, regardless of whether it is positive or negative.

Broader Significance

As stated previously, with our sample being from the McMaster population, we know our findings are not necessarily generalizable to the broader society. Our research findings provide significant insights to McMaster and how they can make students on and off-campus satisfied with their first year experience. Overall, 65% of on-campus students in comparison to 50% of off-campus students were satisfied with their overall experience. We presume that McMaster would want all of their first-year students to be satisfied with their overall experience. While our research does not touch on every variable that could affect a student's experience, our research offers insights on where McMaster should focus on developing programs and solutions to better the first year experience. In our qualitative responses, 70% of participants mentioned friends to be influential to their first year. Further research should look at exploring social relationships and friendships in university.

According to our research, regardless of where one lives, an individual's closest relationships are with one's friends. Off-campus students indicated they found their friends in classes and on-campus students found their friends in housing. Overall, since off-campus students are less satisfied with their overall first year experience, McMaster University needs to focus on finding ways to connect off-campus students more to their classmates. The literature states that a student's anxiety and stress can be improved by more group facilitation (Ames et al., 2011). We hypothesize one potential solution is increasing the number of active learning classrooms for first-year students. These classrooms have smaller class sizes and allow students to communicate better (McMaster, 2012). We hypothesize based on our research, that if students were given more opportunities to make close friendships, they would have a better first year experience. While our research suggests on-campus students have a better overall first

year experience, university housing can only accommodate for 60% of the first-year population (McMaster, 2012). This suggests that McMaster University should focus more on helping off-campus students find accessible ways to find and create social networks.

According to past research, students who lived off-campus benefited more when they have a strong perception that their faculty cared for them (Henderson et al., 2018). According to our research, off-campus students participate in fewer extracurriculars. We hypothesize that off-campus students have less access to campus and people in their program which in turn can affect their overall first year experience. Further research should look into off-campus students and their access to resources on-campus to learn more about this potential correlation.

Our group initially hypothesized that where you lived would have an effect on academic achievement. According to our results, 14% of off-campus students and 16% of on-campus students report having good grades. The percentage does not provide a relevant relationship because the numbers are similar in percentage and low compared to our other variables. These results suggest that academic achievement is not firmly correlated with housing at McMaster University. Similarly, we hypothesized that where you lived would affect your mental health because past literature states that undergraduate students report distress rates three times higher than the general public (Mackinnon, Sherry, Pratt & Smith, 2014). Past research has also stated that among all university students, first-year university students score the highest in chronic stress (Ross et al. 1999). Our results tell us that this increase in stress is most likely due to factors other than living environment. Our qualitative results indicated that 14% of on-campus students and 12% off-campus students reporting their mental health was affected by where they lived.

We hypothesized that each variable would contribute to our results, but we did not anticipate that social relationships would have such a substantial relationship. Overall, 94% of on-campus students and 89% of off-campus students indicated that their living arrangement affected their social relationships. These results indicate that social relationships play a significant role in the first year of university regardless of housing environment. Social relationships had the highest percentages over any other variable. Further research needs to be done on social relationships and the role they play in a student's first year of university.

Another surprising statistic we found was 62% of on and off-campus students indicated that their living arrangements impacted their academic achievement. With a sample size of 100 participants, receiving the same statistic from both populations was not anticipated. There was a 9% difference in statistics for academic achievement between on and off-campus. The literature states that on-campus students develop the "typical student" identity and engage in more binge drinking and have more social relationships (Holdsworth, 2006). We hypothesized that due to binge drinking and having a large number of social relationships would cause on-campus students to be less satisfied with their academic achievements, but this is not consistent with our results.

Levels of stress were also similar across the statistics; 80% of on-campus students and 85% of off-campus students reported stress. These results suggest that regardless of where you live, the first year of university is stressful. The literature suggests living away from your parents causes more stress. Reported in the literature and our data, on-campus students report higher levels of homesickness, and therefore would report higher

levels of stress than off-campus students. Further research should be done on how these high levels of stress can be reduced in students.

Lastly, in our qualitative research, a large percentage of participants mentioned that commuting impacted their first year experience. One participant responded:

> Yes, I think it did. Because I lived outside of the immediate McMaster community, I tended to bond with others who were commuters. I was in a smaller program and did join a club, so even though I didn't live on campus like most of my classmates, I still felt a sense of community within McMaster.

Our qualitative responses indicated that commuting could be a positive or negative experience. We hypothesized that in our qualitative research, we would see each variable expressed equally. Our results indicated that social relationships and commuting were the most influential to students in their first year. While a large amount of our data suggests that living off-campus negatively affects social relationships, it is important to acknowledge positive responses as well. Further research should focus on the relationship between commuting and friendship, as the results can help indicate further ways to improve the overall first year experience.

Conclusion

Summary

The main focus of our study focused on the influence of where a student lives in their first year and how it affects their first year university experience. The way in which we measured the experience was through the conceptualization of four variables: academic achievement, stress and affect, belongingness and social relationships. Using the Social Structure and Personality theory, we used the foundational principles of the proximity principle, components principle, and psychology principle to determine the possibility of a correlation. To get a basis of our study, we used literature surrounding the factors that affect each of our concepts and then discussed the effects of housing on these themes. Through posting online and around the McMaster campus we used an anonymous survey in order to generate generalizable and unbiased data within the McMaster community. For future research, we touched on some limitations that could potentially be considered for further prospective studies. With all of the information we collected, we found that social relationships were most influenced and where one lives strongly affects their overall university experience.

Limitations

Throughout the process of our research study, we have discovered some potential limitations of our methods, literature, and concepts. The first limitation to our approach is that we were unable to regulate the participants who completed our survey. With our survey being structured to keep participants anonymous, we were unable to guarantee that they properly met the criteria we needed. There was no way to be absolutely certain that the student is a) 18 years or older, b) an undergraduate student, c) completed one year of university, or d) one who attends McMaster University. Although these factors may have caused a slight inaccuracy in our data conclusions, there was simply no way

to ensure this criterion was accurate without compromising the anonymity of our participants.

Another general limitation to our research study is the fact that not all students who attend university may have had a choice of where they lived in first year. Due to factors of socioeconomic status, religious beliefs, or parental influence, some students may not select a place of residence by personal preference alone, which is an important factor to consider when looking at overall experience. For the purposes of our study, we were not focusing on the reasons why students selected a particular living arrangement, which may have prevented us from understanding the full extent of our conclusions. Although studying the motivation behind choosing a specific living arrangement may have provided us with a richer understanding of the data, we believe this limitation has not impacted the relationship we have chosen to observe. It is also important to acknowledge that the variables we chose to represent the overall university experience are limited in scope. There could be other variables important to this experience that were overlooked, therefore limiting the effectiveness of research on the overall experience.

While looking at where one lived in first year, there were some aspects we had not focused on that could change the way the data was interpreted, posing another potential limitation. Just because an individual lived in a particular environment does not necessarily mean they spent all their time there. For example, our study did not account for the individuals who went home to be with family, a significant other, or friends frequently. This is a critical piece of information that could have severely changed the impact one's living situation has in everyday life, as the factors associated with living near the campus may not be as prevalent in those who are consistently away from it.

Another important limitation of our research study was simply a result of the lack of time. Through a series of demographic survey questions, we have gathered results on characteristics such as gender, ethnicity, and program of study. We believed that these results could provide our research with a thorough and well-rounded understanding of differences in how living environments impact McMaster students. Using any gender or ethnic differences based on our four variables of evaluation, we would have potentially been able to draw correlations or relations surrounding them. Unfortunately, due to the nature of this project, as well as lack of resources and time, we did not have the necessary opportunity to dedicate to these findings. Although we have touched on specific demographic factors regarding gender or race, we have not been able to dedicate enough time to make it a part of our main focus.

With regards to the findings we have acquired throughout the data collection process, we have found some small limitations that may alter the minor details of our conclusions. The first, and probably most notable, limitation to our data is the disproportionate amounts of participants who lived on- versus off-campus. As we used primarily on-campus means of recruitment (i.e. posters), as well as the simple fact that McMaster University is able to house many more first-years, it makes sense why our numbers of on-campus participants were much higher. In order to best represent this discrepancy in the data, we have chosen to display our findings as proportional percentages rather than frequencies. We believe that this helped aid in demonstrating the overall trends in both the on-campus and off-campus participants, without giving the illusion that the two groups were equal.

Another limitation we have found with our results is a product of our selected means of sampling. As mentioned previously, we anticipated snowball and convenience sampling

as our selected means of data collection. Due to this factor, we assume that anyone who had completed our survey would most likely send it to their friends or classmates, and we think that this is the main contributor to the fact that a lot of our participants are from the same program and/or faculty. With us being part of the Faculty of Social Sciences, we assume that our social circles involve many of the same students, which is why our proportions of the one faculty are so much higher. Although this is a limitation to the diversity of our results, we believe that it does not have much impact on the correlations between place of residence and overall experience. Additionally, disadvantages of questionnaires may have caused more potential challenges. For example, we were unable to ask any follow up questions that would further our understanding on the topic (Bryman & Bell, 2016). It is also proven that participants frequently do not write much during online surveys. Thus, participants may have skipped the "other" line and chosen an answer out of convenience (Bryman & Bell, 2016). This means that these questions may have not gotten authentic responses.

One of the smaller limitations of our research was with the functionality of that of both LimeSurvey and SPSS. There was a feature on LimeSurvey that prevented us from being able to make any edits to our survey once it had been posted. Due to this, we were unable to change wording, or correct any typos that had been missed in editing. Although this didn't impact our data too much, it may have made the survey seem less professional to our participants, which is not something we would have liked to convey. With this being said, we feel our questions were straight forward enough that regardless of a minor spelling error, our participants were still able to answer the question effectively. Similar to the functionality of LimeSurvey, we had several limitations when it came to using SPSS. As SPSS was not a computer program we had much experience with, it took us some time to be able to understand how to properly use it. We eventually got to the point where we understood the functions and the most effective way to run specific statistics. It did take some time at first to become familiar with the program, which could have been used more efficiently to run more statistics.

Another notable limitation we acquired throughout the research process is involving that of our qualitative data. The purpose of the qualitative question was to gain knowledge on our participants' subjective opinions of their overall first year. Once we had closed the survey and gone through the data, we discovered that many people chose not to answer that specific question. We managed to use 69 responses, which although a significant number, does not match our sample size (n=100). In order to better represent these responses, we chose to look at the proportions of the themes discussed only within those 69 people. This means that when discussing our qualitative results, the percentages that have been calculated are reflective of those who answered the qualitative questions only. Another limitation with the qualitative data was simply in the responses themselves. Many of the participants used contradictory statements to indicate how they felt their living arrangement impacted their first year: "Yes, I didn't have a great roommate which affected how much I enjoyed residence. But I overall met good friends and it was worth it." In order to resolve these issues while still keeping the integrity of the data, we coded and analyzed the responses manually, and found similar themes that were discussed. This allowed us to draw conclusions on broad ideas that were most commonly discussed by students with regards to a positive or negative first year experience.

The last and most significant limitation of our research study was a result of completely unforeseen circumstances of COVID-19. Due to the closure of the university campus, our access to SPSS was cut off unexpectedly. This meant our group was unable to run further statistics on specific correlations and variables of interest that we would have liked to. Although we still managed to collect significant findings with the time we had, we were unable to look into any other interesting relationships between specific variables, which could have provided a more well-rounded understanding of the data. This limitation was a result of external factors beyond anyone's control, and therefore there was no way to resolve such impacts on our research.

Overall, there have been some limitations in conducting this particular research study. However, we believe that the limitations presented are in no way harmful to participants and can easily be addressed in further research. Although it is unfortunate that we were unable to touch on factors such as demographic differences, motivations for living in a particular location or how much time one spends at home, we would much like to continue to investigate these facets in future research.

Significant Insights

The conclusions of the research that was conducted is very useful to the greater society in a variety of ways. The majority of our participants stated that overall their housing environment did have an influence on their first year university experience (whether good or bad) based on the four variables studied. This information can provide incoming university students with a better understanding that will in turn help them make a decision on where they would like to live. The conclusions of this study will help students prepare for outcomes that may come out of their decision on where to live in regards to their academic achievement, stress and affect, sense of belonging and involvement, and lastly, their social relationships. The information is especially useful for McMaster students as the current study was conducted using the McMaster population. However, future research could use our study as a starting point to further develop the hypotheses and research findings at other university campuses.

Overall, those who lived on-campus were more satisfied with their university experience than those who lived off-campus. One of the main conclusions of our research is that out of all of the variables that were studied, social relationships were proven to be the most significant influence on the first-year university experience. This information is extremely useful to both students themselves and universities. From a student's perspective, knowing how influential social relationships are could potentially encourage them to participate and get more involved in university organizations. This in turn will help them have a more positive university experience. From a university administration standpoint, knowing the importance of social relationships in the university experience can help them provide a better experience for their students in a variety of ways.

According to our qualitative responses, those who lived on-campus found it much easier to form good friendships than those who lived off-campus. Knowing this can aid in McMaster university to design more affordable and accessible residences to more individuals. It will help them to design enhanced residence areas and programs which could lead to a higher standard of living conditions for students that makes on-campus residences more welcoming. However, the reality of the situation is that there will still be students who are unable to live on-campus. This stresses the idea that McMaster needs

to implement additional programs, clubs, and activities directed at off-campus students. By doing so, they will hopefully help these individuals build stronger social relationships in the university community, which according to the research will influence their university experience positively. This finding can also play a role in the promotion of living on-campus for universities, especially McMaster. When universities send representatives to high-schools to promote the positives of their particular university it would be useful to include the benefits of living in a residence or close by to the university.

The conclusions surrounding the other three variables that were studied (i.e. academic achievement, affect and stress, and sense of belonging and involvement) also provide useful information to students and universities. Given that participants who lived on-campus reported higher levels of involvement and less isolation adds to the information students need when deciding on where they want to live during their first year of university. As stated before, this conclusion also perpetuates the idea that universities, in this case McMaster, need to implement better activities that make off-campus students feel included in the university community. Finally, the final conclusion from the research stating that stress and affect are relatively equal among both cohorts displays the increasing need for mental health services. Both groups felt that they had an increase in stress but had minimal ability to cope with these circumstances. This information is extremely useful to the administrators and policy makers at universities as university students are an extremely vulnerable population to mental health concerns. There needs to be an increased pressure and implementation of resources for students who are experiencing increased stress and are unable to cope. These programs can be designed better to meet the needs of students as a whole and hopefully create a more positive university experience.

If we were able to continue the current study into further detail, we may have also found that the four variables this study looked at may also provide insights into the relationships that exist between each one. Throughout the process of establishing a relationship between housing environment and overall university experience, our conclusions may also find connections between how the factors themselves impact one another. For example, does the number of social groups one belongs to impact their academic achievement in any way? Could a sense of belonging contribute to a positive emotional response? How does academic success contribute to stress levels experienced by first-year students? These are the potential questions that arise from the research question of focus and may provide additional information. In addition, these connections could also potentially show possible areas for further research that can be conducted.

Furthermore, if we were able to gather more conclusions from the current study, we may have found additional connections regarding participants' race and gender. Although this was not the focus of the current study, the information from these demographic questions may have provided insights between them and housing environments as well as the four variables that make up a university experience. We would have been able to identify possible trends between an individual's race and where they choose to live during their first year and their university experience. In addition, the study may have shown the difference in university experience and housing environment between genders. For example, do women have better academic satisfaction compared to men? These types of questions were not the focus of the current study but having demographic questions about race and gender included could have provided potential insights for future

correlations and research. While conducting our research it was important to keep in mind that these characteristics are not completely independent of each other and do create intersectionality.

Concluding Thoughts

In conclusion, our research team intended for the findings to help the McMaster University community as a whole through giving insight to future students. Through allowing future students to have a full grasp of all their options and their implications, students can use our study to be able to make an informed decision. We believe it is important to fully understand the impact of where you live in your first year in order to get the best experience possible. It is therefore a beneficial study to further research since it will give insights to help increase overall university satisfaction. As well, we hope that future research on this topic will implement a larger sample size from different universities so that the findings can be more generalizable to students and faculties. Overall, this study sheds light on the importance of where a student lives in first year and how this may correspond to academic achievement, stress and affect, sense of belonging, and involvement and social relationships. These are important variables we hope future university students will consider in order to enhance their overall first year experience.

References

Ames, M. E., Pratt, M. W., Pancer, S. M., Wintre, M. G., Polivy, J., Birnie-Lefcovitch, S., & Adams, G. (2011). The moderating effects of attachment style on students' experience of a transition to university group facilitation program. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement, 43*(1), 1–12. doi: 10.1037/a0020648

Astin, A. (1984). Student Involvement: A Development Theory for Higher Education. *Journal of College Student Development, 40*(5), 518-529.

Biddle, B.J. (1986). Recent Development in Role Theory. *Annual Review of Sociology, 12,* 67-92.

Bryman, A., & Bell, E. (2016). Social Research Methods (Fourth Canadian). *Don Mills, ON*, 54-403.

De Coninck, D., Matthijs, K., & Luyten, P. (2019). Subjective well-being among first-year university students: A two-wave prospective study in Flanders, Belgium. *Student Success*, *10*(1), 33–45. doi: 10.5204/ssj.v10i1.642

DeLamater, J. D., & Ward, A. (Eds.). (2006). *Handbook of social psychology* (pp. 77-102). Hoboken, NJ: Springer.

DeLamater, J. D., Myers, J. D., & Collett, L. J. (2015). *Social Psychology.* Boulder, CO: Westview Press, 59.

Elliot, G. C., Kao, S., & Grant, A. (2004). Mattering: Empirical Validation of a Social-Psychological Concept. *Self and Identity, 3*, 339-354

Gecas, V. (1989). The Social Psychology of Self- Efficacy. *Annual Review of Sociology, 15,* 291-316.

Henderson, L., Thompson, K., Hudson, A., Dobson, K., Chen, S.P., & Stewart, S. (2018). An Analysis of Campus Culture, Mental Health, and Drinking at Three Canadian Universities. *Canadian Journal of Community Mental Health*, *37*(3), 97–113. doi: 10.7870/cjcmh-2018-013

Hendrix, D. (2014, March 26). Students look for benefits to on, off-campus housing. *UWIRE Text*, p. 1. Retrieved from https://link.gale.com/apps/doc/A362903747/AONE?u=ocul_mcmaster&sid=AONE&xid=04b0f2f1

Hoffower, H. (2019, October 11). 11 mind-blowing facts that show just how dire the student-loan crisis in America is. Retrieved from www.businessinsider.com/student-loan-debt-crisis-college-cost-mind-blowing-facts-2019-7

Holdsworth, C. (2006). 'Don't You Think You're Missing Out, Living at Home?' Student Experiences and Residential Transitions. *The Sociological Review*, *54*(3), 495–519. doi: 10.1111/j.1467-954x.2006.00627.x

House, J. S. (1981). Social structure and personality. *Social psychology: Sociological perspectives*, *525*, 561.

House, J. S. (1986). Work and Personality: An Inquiry into the Impact of Social Stratification.

House, J. S.(1992). Social Structure and Personality. In M.Rosenberg's & R.H. Turner's (Eds.), *Social Personality: Sociological Perspectives* (pp. 525-561). NJ: Transaction Publishers.

Li, Y., Sheely, M. C., Whalen, D. F. (2005). Contributors to Residence Hall Student Retention: Why do Students Choose to Leave or Stay? *Journal of College and University Student Housing, 33*(2), 28-36.

Li, J., Han, X., Wang, W., Sun, G., & Cheng, Z. (2018). How social support influences university student's academic achievement and emotional exhaustion: The mediating role of self-esteem. *Learning and Individual Differences*, *61*, 120–126. doi: 10.1016/j.lindif.2017.11.016

Mackinnon, S. P., Sherry, S. B., Pratt, M. W., & Smith, M. M. (2014). Perfectionism, friendship intimacy, and depressive affect in transitioning university students: A longitudinal study using mixed methods. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement*, *46*(1), 49–59. doi: 10.1037/a0033764

Maldonado, B. M. B. (2018, November 5). Off-campus living offers benefits, drawbacks. *UWIRE Text*, p. Retrieved from

https://link.gale.com/apps/doc/A561203801/AONE?u=ocul_mcmaster&sid=AONE&xid=b718fca5

McLeod, J. D., & Lively, K. J. (2003). Social Structure and Personality. In J. D. DeLamater's (Ed.), *Handbook of Social Psychology* (77-102). New York: Kluwer Academic/ Plenum.

McMaster University. (2012). Residence & Housing. Retrieved March 26, 2020, from https://future.mcmaster.ca/student/residence/

Merton, R. K. (1957). Bureaucratic structure and personality in social theory and social structure. *New York: Free Press, retrieved March*, 7, 2008.

Moore, H. P., Carswell, A. T., Worthy, S., & Nielsen, R. (2019). Residential Satisfaction among College Students: Examining High-End Amenity Student Housing. *Family and Consumer Sciences Research Journal, 47*(3), 260-275. DOI: 10.1111/fcsr.12298

Muslim, M. H., Karim, H. A., & Abdullah, I. C. (2012). Satisfaction of Students' Living Environment between On-Campus and Off-Campus Settings: A Conceptual Overview. *Procedia - Social and Behavioral Sciences*, *68*, 601–614. doi:10.1016/j.sbspro.2012.12.252

Pokorny, H., Holley, D., & Kane, S. (2017). Commuting, transitions and belonging: The experiences of students living at home in their first year at university. *Higher Education, 74*(3), 543-558. doi:http://dx.doi.org/10.1007/s10734-016-0063-3

Rohall, D. E., Milkie M. A., & Lucas, J. W. (2014). *Social Psychology: Sociological Perspectives* (3rd ed.). (pp. 38-44, 57-68). Upper Saddle River, NJ: Prentice Hall.

Rosenberg, M. (1986). *Conceiving the Self*. Malabar, FL: Krieger

Rosenberg, M., Schooler C., & Schoenberg, C. (1989). Self- Esteem and Adolescent Problems: Modeling Reciprocal Effects. *American Sociological Review, 54,* 1004-1018.

Ross S., Niebling, B., Heckert, T. (1999) Sources of Stress Among College Students. *College Student Journal, 33*(2)*,* 312.

Rubinstein, D. (2014). The concept of structure in sociology. In *Sociological Theory in Transition (RLE Social Theory)* (pp. 80-94). Routledge.

Simpson, E. N. (1998). Edward A. Ross and the Social Forces. *Sociological Origins*, *1,* 27-32.

Stallman, H. M. (2010). Psychological distress in university students: A comparison with general population data. *Australian Psychologist, 45*(4), 249–257. doi:https://doi.org/10.1080/00050067.2010.482109

Turley R., Wodtke. G., (2010). College Residence and Academic Performance: Who Benefits From Living on Campus? *Urban Education 45(4) 506-532.* DOI:10.1177/0042085910372351

Wilcox, G. Nordstokke, D. (2019). Predictors of University Student Satisfaction with Life, Academic Self-Efficacy, and Achievement in the First Year. *Journal of Higher Education, 48*(1), 104-124. https://doi.org/10.7202/1060826ar

Williams, D. R., & Collins, C. (1995). US socioeconomic and racial differences in health: patterns and explanations. *Annual review of sociology*, *21*(1), 349-386.

Wode, J. (2018). Identifying the Factors That Motivate Students to Choose Off-Campus Housing. *Journal of College and University Student Housing, 44*(2), 44-63.

A Qualitative Study of Self-Validation among First-Year Undergraduate Students in STEM and Arts Programs

Ranuli De Silva[1]*, Tessa Hinkel[1], Alysha McDonald[1], Emily Pooran[1], Taylor Smiley[1], and Namya Tandon[1]*

Abstract

A positive foundational experience within one's faculty is crucial for first-year undergraduate students, as lower self-validation is found to lead to dissatisfaction, lower self-confidence, lower academic success, and higher dropout rates (Harrison, 2007; Hurtado et al., 2011; Shapiro & Sax, 2011). This research focuses on the differences in self-validation among first-year undergraduate STEM and Arts students. It aims to explore if students are more validated in STEM or Arts faculties and what variables contribute to an unequal distribution of self-validation. Nine participants (four Arts and five STEM) were interviewed in-depth over the course of five months. The research finds that STEM students are more validated in comparison to Arts students due to variables such as greater perceived prestige and value, sense of community and belonging, and academic efficacy and confidence. Other variables are also explored. This research can be used to foster a strong sense of self-validation among first-year undergraduate students and in turn, a more positive academic and social university experience.

Introduction

Background Information

Beginning university can be an exciting, nerve-racking, and weary experience for students. It often involves moving to a new place, meeting new people, and exploring different avenues of life; all while trying to learn new information in an unfamiliar area of study (Yomtov, 2015). While trying to navigate the first year and become familiar with their program of study, students may get involved in different on-campus activities such as faculty events or clubs; they may also develop relationships with like-minded peers (Buote et al., 2007; Yomtov, 2015), professors, and/or other faculty members in order to develop a sense of belonging in their program of study (Hurtado et al., 2018; Baker & Griffin, 2010).

However, different faculties offer different levels of involvement for first-year students, providing them with a variety of diverse experiences throughout their first year. For

[1]Undergraduate Student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada

instance, STEM programs (i.e., Science, Technology, Engineering, and Mathematics) and Arts programs (i.e., Social Sciences and Humanities) often differ in the experiences and opportunities they provide their students (Komarraju et al., 2010; Harrison, 2007). This ranges from the availability of faculty merchandise, events, and clubs to the various professors and allocated funding within their faculty. These unique experiences can contribute to a different sense of self-validation (i.e., recognition or affirmation that one's feelings or opinions are valid) among first-year students who belong to different faculties (Hurtado et al., 2011; Hyde & Gess-Newsome, 2000; Newton et al., 2009; Shapiro & Sax, 2011). A positive foundational experience within one's faculty is crucial for first-year undergraduate students, as lower self-validation is found to lead to dissatisfaction, lower self-confidence, lower information retention, lower academic success, and higher dropout rates (Harrison, 2007; Hurtado et al., 2011; Shapiro & Sax, 2011).

Social Psychological Context

Our research works to confirm and expand on previous social psychological work done on the undergraduate student population in relation to their overall university experience. Our research is situated in and adds to social psychological themes including but not limited to: the development of self and identity, in-group and out-group interaction, the predictors of a strong sense of community and belonging – including meaning making and its relation to community building among first-year undergraduate students – and upward and downward social comparisons in relation to faculty of study (STEM vs. Arts). These themes are positioned in social psychological theories such as Symbolic Interactionism (SI), Social Identity Theory (SIT), Interpersonal Contact Theory (ICT), and Schema Theory. The combination of these theories provides a unique lens to evaluate and understand the first-year university experience.

Our research adds to previous work by looking at the differences in experiences of undergraduate students in STEM and Arts faculties. By examining the differences between faculties, we are able to compare the university experience of students who form specific academic identities (i.e., as a STEM student and Arts student). While this allows us to gauge the current experiences of these students, doing this research qualitatively (i.e., using semi-structured interviews) has also provided insight into the changes students would employ to their faculty to improve the experiences of incoming first-year students.

Our research process also employs the researcher experience aspect of qualitative social psychological work as it has allowed us, as outgoing social psychology students, to reflect on our own experiences as first-year individuals. As a result of our academic background, we formed a connection to this project that allowed us to understand the first-year undergraduate university experience from a unique perspective. This allowed us to achieve our goal of giving first-year undergraduate students a voice in the contribution to improving the experiences of future, incoming students.

Purpose of Research

At McMaster University, there are various faculties that future students may decide to go into. To specify, the six faculties are Business, Engineering, Health Sciences, Humanities, Sciences, and Social Sciences. The issue we analyzed is whether first-year undergraduate students feel more validated in certain faculties in comparison to others at

McMaster University. Specifically, our study focused on comparing self-validation among first-year undergraduate students belonging to STEM and Arts faculties at McMaster University. We chose this comparison because STEM and Arts faculties are often understood as very different from one another in terms of curriculum and the opportunities they offer their students outside of the classroom (Komarraju et al., 2010; Harrison, 2007). In addition, we believe first-year students are not always given a voice when it comes to their experience within their faculty of study. We believe McMaster University is a very progressive institution, and will benefit from the direct input of first-year students.

We believe this research is extremely beneficial as previous studies confirm that self-validation heavily impacts the university experience of students. Specifically, self-validation is found to be an important measurement of self-esteem (i.e., feeling good about one's self) and self-confidence (i.e., belief in oneself) (Buote et al., 2007; Harrison, 2007; Yomtov et al., 2015). It has also been linked to the likelihood of students continuing their education and getting a degree in their field of study (Chemers et al., 2001; Wright et al., 2012). Previous research also reveals that strong self-validation and related measures (i.e., self-efficacy, esteem) is linked to information retention, persistence, engagement, and academic achievement (i.e., higher grades) (Marra & Bouge, 2007; Marra et al., 2009; Marra et al., 2012; Komarraju et al., 2010; Nora et al., 2011; Zimmerman et al., 2014; Hyde & Gess-Newsome, 2000; Huang & Brainard, 2001; Brainard & Carlin, 1998; Shapiro & Sax, 2011).

We observed this problem by dividing the Arts and STEM faculties from one another. Our main area of inquiry was self-validation. We measured self-validation based on faculty of study by inquiring about variables like social validation from outside sources (i.e., approval from friends, parents, siblings, or professors), and internal variables such as self-confidence (i.e., belief in oneself), self-efficacy (i.e., the perceived ability to attain a set course of action), perceived prestige (i.e., student's perception of their own faculty as having a high status), and the students' sense of connection to their faculty. Sense of connection was measured based on the students' sense of belonging in their field of study (i.e., does the student feel like they belong in their faculty), student-faculty relationships, and the students' sense of community within their faculty of study (i.e., does the student feel like they fit in with other members of the faculty, do they feel welcomed).

With the data we receive, we were able to compare these two faculties of study in order to observe whether there were noticeable differences in these variables. This information has allowed us to understand how one's faculty of study (STEM or Arts) impacts self-validation among first-year undergraduate students at McMaster University. Investigating these variables have also helped advance our understanding of the experiences of first-year undergraduate students in their specified faculty. By examining students' experiences, we were able to explore what impacts a student's sense of self-validation within their faculty of study. For instance, we found there is a stronger sense of community within smaller faculties, which is linked to experiences such as adequate symbols of belonging (i.e., faculty merchandise) and greater connectedness among members, leading to a better ability to develop interpersonal relationships with peers and professors. Whereas, in larger faculties, there is a greater anonymity among students, leading to less developed relationships.

Overall, we believe these findings provide information that can be used to foster a strong sense of self-validation among first-year undergraduate students and in turn, a more positive experience for first-year students at McMaster University.

Research Questions

The primary questions of our research include: "are students more validated in STEM or Arts faculties?" and "what variables contribute to an unequal distribution of self-validation?" We believe this will provide a lens into how these mechanisms of self-validation contribute to the first-year undergraduate university experience. Our research team composed these questions during the beginning of the 2019 school year after observing advertisements for faculty merchandise, located at the McMaster University campus. These advertisements led us to critically think about the sense of connection and belonging that faculty merchandise tends to create for students in certain faculties. From here, we began to wonder whether the students involved in certain faculties (that do not provide much faculty merchandise) feel less connected to their faculties. As Social Psychology students, we believe that we have a strong sense of connection to our program, which encourages us to feel validated in the Honours Social Psychology program. We wanted to further explore why we felt this way. For instance, is it because we are fourth-year students who have spent a lot of time in our faculty? Or, is it because there are many faculty events and opportunities for us to bond with our peers?

These questions led us to ask ourselves if other students feel the same way about their faculties, especially if first-year students feel the same sense of validation, given that they are new to McMaster University and have not had the same amount of time as upper-year students to experience what their faculty may have to offer. After doing preliminary research on this topic, we found many studies that look at self-validation focused on the experience of STEM students. However, we found that there were limited studies that look into the self-validation of Arts students. We then became interested in whether there is a difference between self-validation in first-year undergraduate students enrolled in STEM faculties versus Arts faculties. From here, our specific questions developed.

For our research study, we conducted semi-structured interviews in order to give the participants leeway to answer questions regarding their beliefs, opinions, and experiences during the interview process. We asked various questions in order to better understand the general experience of first-year undergraduate students based on their faculty of study, while also seeking if self-validation differs among STEM or Arts students. We asked various questions that investigate self-validation by further examining the areas of social validation, students' sense of self-confidence, self-efficacy, student's perception of their own faculty, and students' sense of connection to their faculty of study.

Regarding the social validation that students receive from outside sources, we inquired about approval from others such as friends, parents, siblings, and professors. In terms of this variable, we discovered the impact that social validation has on a student's sense of self. We chose this question because we wanted to understand if/how outside sources like family, friends, and other social groups impact student's self-validation. Prior research also reveals that social-validation may lead to increased self-validation (Colbeck et al., 2001; Hurtado et al., 2011; Shapiro & Sax, 2011). Under this topic of inquiry, we asked participants how they chose their faculty of study and if they plan on continuing in their faculty of study for the rest of their undergraduate careers. During the interview process,

we received answers about how one's friend(s) and family feel about their faculty of study. These questions provided us with a general understanding on whether these individuals receive social validation from significant others regarding their area of study.

In terms of self-confidence, we were interested in exploring the impact of self-confidence and what it has on a student's sense of self-validation. We chose this question as previous research states that self-confidence has a large impact on how validated students feel in their faculty of study (Shapiro & Sax, 2011; Huang & Brainard, 2001; Hyde & Gess-Newsome, 2000). Inquiring about self-confidence also provided insight into how faculties may be able to increase this variable among first-year students, which was found to increase their sense of belonging, persistence, and academic success (Hyde & Gess-Newsome, 2000).

For inquiry on self-confidence, we looked at whether first-year undergraduate students believe in their ability, judgement, and qualities. One question we asked under this topic of inquiry is, "if you were thinking about taking a bird course (i.e., an easy elective), which faculty would you consider?" The data from this question displayed the perceptions that others have based on the difficulty of different faculties. For instance, if they were to consider a bird course in the Social Sciences or Humanities, this indicates that they perceive these faculties as easier than others. We also prompted the participant by asking them which course they would stay away from, as responses indicated whether they view certain faculties as too difficult/challenging. Additionally, we asked how often the participant participates in required lectures and tutorials (i.e., attends, asks questions, gets involved in group discussions). This helped us gain awareness about their confidence level regarding the lectures and tutorials within their faculty of study. By telling us to what extent they get involved in their classes, we were able to see how connected they felt to their faculty.

We also inquired about self-efficacy. In terms of self-efficacy, we were interested in finding out the impact self-efficacy had on a student's sense of self-validation. We chose this question because previous research often uses self-efficacy and self-confidence as synonymous variables (Marra et al., 2009; Marra & Bogue, 2007; Komarraju et al., 2010). However, we believe that by separating these variables, we were able to find additional insights into self-validation in first-year students in regard to goal setting and goal achievement. For this topic, we attempted to see whether these individuals are confident in their ability to achieve their goals by asking them how heavy their course workload is, and what their plans are after graduation. We also prompted the participant by asking them if they believe their faculty of study will help them achieve these goals. This helped us understand the participants current sense of self-efficacy and their belief in their ability to achieve future goals, including if they believe their current faculty of study will aid them in achieving these goals.

Another significant topic that we examined were student's perceptions of their faculty. In terms of this topic, we were interested in learning about the impact of the perception of one's faculty, and what it had on a student's sense of self-validation. We chose this question because research shows that perception of academic validation (i.e., faculty member's interest in students learning and success) within one's faculty improves the university experience (Hurtado et al., 2011). Based on this research, we believe that personal perceptions of one's faculty (i.e., perceived prestige) may also impact self-validation and in turn, the university experience. A question that falls under this topic of

inquiry, is "do you feel like your faculty is valued by McMaster University?" This question inquires about the participants' perception of prestige regarding their faculty of study. This question provided insight into the participants' perceptions of prestige based on funding allocation within different faculties, student's awareness of any research projects occurring in their faculties, and/or if they believe others view their faculty as prestigious.

Finally, we looked at students' sense of connection to their faculty. Specifically, we were interested in discovering if a student's sense of connection to their faculty of study impacts their self-validation. We chose this question because a sense of community, connection, and belonging is shown to impact the university experience, especially when other identity markers such as ability and ethnic identity are taken into account (Gormally & Marchut, 2017; Syed, 2010). Furthermore, we hoped to expand on this research by examining how a connection to one's faculty impacted their sense of self-validation, if at all. Sense of connection was measured using three areas of inquiry: students' sense of belonging in their field of study, student-faculty relationships, and students' sense of community within their faculty of study. A students' sense of belonging in their faculty refers to how welcomed a student feels in their faculty, and whether there is a sense of community within their faculty of study. Under this subtopic, we asked if students felt welcomed by others in their faculty. This allowed us to gauge if students felt connected to their faculty or if they felt disengaged and why.

In terms of student-faculty relationships, we asked what students generally think of the professors in their faculty, and what the relationship with their professor(s) in their faculty is like. We prompted participants by asking them how often they spoke to their professors, as well as how often they attended office hours. This gave us insight into the relationships between students and faculty members, which is shown to improve a student's sense of engagement, retention, belonging, academic success, and motivation to pursue a degree in that field of study (Komarraju et al., 2010; Nora et al., 2011; Zimmerman et al., 2014).

In regards to the students' sense of community within their faculty of study, we inquired about whether participants felt as if they fit in with their peers and faculty. To do so, we asked participants if their friend group consists of mainly people in their faculty and whether they attend faculty events (i.e. Welcome Week, Meet the Prof Night). This gave us a sense of student's involvement in their faculty and the different types of opportunities/experiences offered by various faculties at McMaster University.

Overall, we asked many questions in order to develop better insight into whether certain faculties lead to different levels of self-validation among first-year undergraduate students at McMaster University. By measuring self-validation through variables such as social validation, self-confidence, self-efficacy, students' perceptions of their own faculty, and students' sense of connection to their faculty, we were able to find that STEM and Arts students experience different levels of self-validation based on their faculty of study. This also provides insight into the contribution of self-validation to the first-year undergraduate experience. For more information on the interview guide.

Overview of the Paper

In the remainder of this thesis paper, we will provide an overview of the literature that has previously been done on our area of inquiry and what gaps still exist in this data, including how our current study fills these gaps. We will then outline the theoretical frameworks we have used in our research study including Social Identity Theory,

Interpersonal Contact Theory, Symbolic Interactionism, and Schema Theory. We will include a detailed explanation of each theoretical body and a discussion of the theoretical assumptions along with their connection to our research. After, we will discuss our methodology including our research questions, why we chose them, and how we measured them. We will also provide an outline of the ethical methodological concerns for our research. We will then outline the methods we used for our research study including a step-by-step overview of our research process from recruitment to data collection. We will also include our timeline including data collection and analysis. We will also outline the stages of data analysis. Next, we will provide the results of our research. We will then discuss our results including our analysis and interpretation of the results and comment on the broader significance of our research. Finally, we will conclude by providing a summary of our results. We will also discuss the limitations of our research study. In addition, we will discuss our significant insights and contributions our research provides to the experience of first-year undergraduate students at McMaster University.

Literature Review
Identity Development in Students

   There are sparse qualitative research studies that examine self-validation among first-year undergraduate students in STEM and Arts programs. A large portion of related studies focuses on student identity development both generally and by field of study. Studies in this area have found that junior and senior students in majors like marketing, acquire a role-identity throughout their undergraduate career based on their program of study (Kleine, 2002). This study finds that a student's program helps to define him or her because it influences the classes they take, their behaviours, their aspirations, and the people they associate with (Kleine, 2002). Enhancing role-identity is associated with social commitments that relate to the program of study, creating face-to-face connections with those involved in the program, and increasing symbols and rituals around the program (i.e., clubs, merchandise). These findings are especially significant for female marketing students (Kleine, 2002).

   Although this study is quantitative (based on survey data from 142 students), and does not look at the experiences of first-year students, we predict that our study will produce similar findings in regards to students identifying heavily with their faculty of study and developing certain role-identities based on variables like faculty-student connections and faculty symbols and/or rituals. However, we believe these factors will contribute heavily to first-year students' sense of self-validation based on their faculty of study rather than role-identity.

   Some quantitative longitudinal studies look at student's identity development and motivation as a predictor of leaving STEM programs (Perez et al., 2014). Factors that may make students leave STEM programs include perceived costs vs. benefits of STEM, such as stress, anxiety, and lost opportunities (Perez et al., 2014). Although this study looks at the impact of identity development and motivation in leaving STEM programs, rather than self-validation within STEM programs, we believe these variables may also come forth in our study as measures that could contribute to decreased self-validation in first-year STEM students. 62% of this study population are first-year undergraduate STEM students, which increases our confidence that we may yield similar results (Perez et al., 2014). If so, using qualitative data analysis will allow us to probe further to

understand why students experience a decreased sense of self-validation and what can be done to improve it.

Additional studies find that other identity markers such as ability and ethnicity also play a role in a student's sense of belonging in their program of study. For instance, Syed's (2010) study on identity development in ethnically diverse students finds that student majors – a variety of STEM, Humanities, Commerce, and the Arts – impact their ethnic identities and are related to how they understand themselves and negotiate their identity throughout their college experience. However, ethnic identity negotiation is found to be more prevalent in later years compared to first-year (Syed, 2010).

Other identity markers like hearing ability are also found to impact student's recruitment into and experience in science programs (Gormally & Marchut, 2017). These studies find that groups of differing abilities are often underrepresented in science majors because science programs are perceived to be non-communal and thus hindering to the integration of people with disabilities (Gormally & Marchut, 2017). Both of these studies use a mixed methodology approach and show the intersectionality of interpersonal variables that impact identity development in various fields of study. Although our study will focus on a qualitative methodology, we believe we may also find that interpersonal variables will have an impact on students' sense of belonging and community in STEM and Arts faculties, which may, in turn, impact their self-validation in their field of study.

Many studies that focus on identity development explore identity development in nursing students. For instance, Goodolfe (2018) looks at how nursing students develop a professional identity. This study finds that developing a professional nursing identity is impacted by support networks and unanticipated expectations including self-doubt, confidence, sacrifice, rigor, and relevance. Adaptation to the nursing climate is also a predictor of successful progress through the program (Goodolfe, 2018). Identity development in the nursing field is also found to be impacted by doing activities related to nursing, learning how to be a nurse through on the job experiences, speaking like a nurse (i.e., using nursing terms), and knowing how to respond in certain situations (Williams & Burke, 2015). These measures impact if a student identifies with their program (i.e., feels like a nurse) and may also be a predictor of their success in the program (Williams & Burke, 2015). Because these studies analyze upper-year nursing students, we do not believe that the development of a professional identity will impact first-year undergraduate students' sense of self-validation because of their lack of experience in their faculty of study. We do, however, believe that first-year students will develop an academic identity (i.e., a sense of being a student), which may increase their self-validation and foster a sense of belonging within their field of study.

Research in this area shows that a student's program of study and their sense of belonging within that program does impact their identity development. These studies are a mix of both qualitative, quantitative, and mixed methodologies, which allows for an overview of the research that is generalizable, valid, reliable, inductive, and humanistic. However, none of these studies measure self-validation by program of study. In addition, although many of these studies look at specific programs of study (i.e., STEM, nursing), they examine a wide range of students, not only first-year students, which may yield different results. These studies also lean towards STEM students (Perez et al, 2014) and Nursing students (Goodolfe, 2018; Williams & Burke, 2015); largely ignoring students majoring in Arts programs like Humanities and Social Sciences. Finally, while some

studies look at variables such as sense of connection to the program, perception of community (Gormally & Marchut, 2017), belonging, and confidence in the field of study (Goodolfe, 2018), they ignore other important factors like self-efficacy, perceived program prestige, and faculty-student relationships; all of which our study will use to measure self-validation among first-year undergraduate students at McMaster University.

Faculty-Student Interactions

Studies that measure variables related to self-validation like confidence and self-efficacy, focus on how faculty-student interactions (i.e., extent of interactions between professors and other faculty members and students) impact these variables. For instance, Komarraju et al. (2010) conducted survey research to examine the importance of faculty-student interactions. Komarraju et al. (2010) finds that faculty-student interactions improve academic self-concept, academic achievement, and motivation to continue their studies. This study also finds that formal (i.e., in class) and informal (i.e., out of class) interaction with faculty members adds to college culture. This interaction fosters student attitudes, interests, and values, creating a strong sense of belonging within the institution, which leads to greater academic success and motivation to pursue a degree (Komarraju et al., 2010).

Further mixed methods studies confirm that validation from professors increases engagement, persistence and academic achievement (i.e., graduation rates), especially in low-income students (Nora et al., 2011). Communication and discussion between students and professors about course feedback are also found to increase student engagement and information retention across multiple programs (Zimmerman et al., 2014). Based on these findings, we believe our study will show the importance of student-faculty interactions in a student's sense of self-validation. Although these studies use many of the internal and external variables our study will use to measure self-validation, these studies do not specifically measure self-validation and do not control for faculty of study (i.e., STEM or Arts). These studies also do not focus on first-year students and mainly use a quantitative survey method. By using a qualitative semi-structured interview method, we believe our study will yield unique, inductive information about the experience of first-year undergraduate students that quantitative data cannot.

Other studies that examine the impact of faculty-student interactions examine students who come from minority backgrounds. Most of these studies look at how validation from faculty-student interactions increase minority student's sense of belonging in their institutions (Hurtado et al., 2018; Baker & Griffin, 2010). Studies find that faculty-student interactions that create an inclusive environment for students amplify their sense of belonging, especially for students that may face racial or ethnic discrimination on college campuses (Hurtado et al., 2018). Faculty-student interactions may also increase student's degree aspirations and knowledge retention, especially in students from minority groups. However, these results are mainly applicable to science programs (Baker & Griffin, 2010), largely ignoring arts programs. Some studies also suggest that planned mentoring between minority students and faculty members, can reduce college dropout rates among this group by improving academic retention and thus, academic success (Redmond, 1990).

Although these studies outline the importance of faculty-student interactions, most do not look at faculty-student interaction based on program of study (i.e., STEM or Arts);

those that do only focus on science programs (Baker & Griffin, 2010), ignoring Arts programs. Furthermore, these studies do not measure self-validation in students; most only look at related variables like self-efficacy and self-confidence. These studies also focus on interactions between faculty and students in upper years. However, we believe interactions between faculty and students will be especially important for first-year students because they are new to the college environment and thus often do not have an established connection to the faculty or community, which may impact their sense of self-validation. Based on these studies, we also believe faculty-student interactions will be especially validating for students who come from minority backgrounds.

By asking questions specifically about faculty-student interactions and its relation to self-validation, we believe our research will expand on current studies to confirm if faculty-student interactions differ in first-year students who are in STEM or Arts faculties and what impact this may have for their sense of self-validation. Based on these studies we believe that if faculty-student interactions are found to increase self-validation among first-year students, it may increase students' sense of faculty belonging, and in turn, academic success.

First-Year Students

Studies that look specifically at first-year students focus on self-efficacy. Some quantitative longitudinal studies find that first-year students' expectations of university achievement (measured based on previous grades, self-efficacy in academics, and optimism for future academic attainment) and their adjustment to university (measured based on one's expectations of their academic achievement and one's perception of their ability to cope in a given situation) directly impacts their performance in first-year university (Chemers et al., 2001). Optimism along with self-efficacy are strong predictors of stress, health outcomes, academic satisfaction and achievement, and adjustment to university life. These factors directly and indirectly, impact if students continue to pursue a degree (Chemers et al., 2001). Further studies confirm that increased self-efficacy in first-year undergraduate students is a strong predictor of academic success and persistence decisions (Wright et al., 2012). Because this study focuses on first-year students, we believe our study will yield similar results. However, we believe our study will find that these factors are linked to students' sense of self-validation rather than self-efficacy. We also believe that because our study is qualitative (semi-structured interviews), it will be more humanistic, revealing more detail about why these factors affect students and how they interpret these impacts.

Mixed methods studies that look further into university adjustment find that friendship development is crucial to the adjustment process, especially among first-year students (Buote et al., 2007). Friendship with others leads to a better adjustment to new social environments outside of the classroom, which increases self-validation and self-efficacy in university students (Buote et al., 2007). Field of study, settling into the university community, financial issues and financial support, expectations, course-related experiences, and developing early support systems all impact first-year students' decisions to continue their field of study (Harrison, 2007). Additional factors that impact the first-year undergraduate experience include programs like peer mentoring, which is found to increase students' sense of belonging and adjustment at the first-year level, which leads to increased academic success (Yomtov et al., 2015). Yomtov et al. (2015)

finds that peer mentoring is not only beneficial for the mentees first-year experience, but also for the mentor's sense of belonging and accomplishment.

Although these studies consider interpersonal variables like self-efficacy and outside variables such as friendship and peer-based support systems, they do not control for program of study. The majority of research on first-year students also measure self-efficacy rather than self-validation. Although self-efficacy and self-validation are often associated measurements of esteem, we believe that measuring self-validation in first-year undergraduate students in STEM and Arts faculties will yield different results. However, because self-efficacy and self-validation are closely related, these studies outline possible variables we may encounter in our study such as the importance of student's friends' perceptions of their program of study, academic expectations, and optimism when entering the university environment.

Longitudinal research that focuses on first-year students and is program specific looks at self-efficacy in female engineers, finding that a sense of belonging in their program of study (i.e., feeling like they are welcomed by peers and faculty) increases their sense of self-efficacy (Marra et al., 2009). Self-efficacy is also found to be a predictor of persistence in the field and is found to be especially low among females of colour when compared to their male counterparts (Marra et al., 2009). Further studies confirm that factors related to leaving engineering programs include poor teaching/advising, difficulty of the material, and sense of belonging (Marra et al., 2012). These factors are not strongly linked to gender differences but sense of belonging is strongly linked to ethnicity (Marra et al., 2012). Contrasting longitudinal studies find that there are no gendered differences between male and female engineering students when it comes to self-efficacy and suggests that self-efficacy is more so related to participation in extracurricular activities and student persistence plans (i.e., if students plan to continue their studies) (Marra & Bouge, 2007).

Although these studies focus on self-efficacy and not self-validation, these two variables are very similar. These studies are also program specific and control for additional variables like gender and ethnicity, which makes us believe that a sense of belonging in our study will impact self-validation among first-year female students of colour in STEM faculties. However, these studies also lead us to believe that we may find contrasting results regarding self-validation in Caucasian male and female students. We believe that using qualitative semi-structured interviews will allow us to understand why these relationships between gender, ethnicity, and sense of belonging in engineering exist.

Self-Validation

Studies that examine self-validation measure both interpersonal validation (i.e. self-validation) and students' perceptions of academic validation (i.e., faculty member's interest in students learning and success) (Hurtado et al., 2011). Using survey-based data, Hurtado et al. (2011) find that a strong sense of validation increases information retention, academic success, and improves students' university experience (Hurtado et al., 2011). This is especially true for students of colour, who may feel underrepresented in the college environment (Hurtado et al., 2011). This research reiterates previous findings that interpersonal variables like race also impact self-validation among students. It shows that perceived academic validation also impacts rates of academic success,

which may be an additional variable we find in our research. However, this research does not control for program of study, does not focus on first-year students and is survey-based, leading us to believe that our study will yield different results by studying a different population of students.

Studies that look at self-validation in specific programs of study acquire various findings. Newton et al. (2009) use interview data, finding that self-validation is a strong reason why nursing students enter the nursing field. The study also finds that self-validation in nursing students and practicing nurses is a strong reason they maintain their studies and their careers (Newton et al., 2009). For those in programs such as engineering, survey data shows that teaching practices such as frequent and detailed feedback, collaborative learning, and clear expectations, all lead to a greater sense of responsibility, motivation, self-confidence, self-validation, and intention to complete an engineering degree (Colbeck et al., 2001). Although these studies do not focus on first-year students and do not include information on Arts programs, our study will be using similar variables to measure self-validation and may therefore yield similar results.

Most other studies focus specifically on women in STEM. Survey-based studies find that the persistence of women in STEM programs is influenced by self-confidence (measured through self-validation), sense of belonging in STEM culture, the extent of peers and social connections, and family influences and expectations (Shapiro & Sax, 2011). Other studies find that women in science programs with higher self-validation generally evaluate their experiences more positively, which is associated with academic success in the program (Hyde & Gess-Newsome, 2000). Factors associated with self-validation include strong support systems (i.e., friends and family), study groups, peer mentors, self-confidence, and faculty encouragement, all of which lead to greater persistence of women in STEM programs (Hyde & Gess-Newsome, 2000). Further studies confirm that males generally have more internal self-confidence (measured through self-validation) when it comes to STEM programs, whereas self-confidence and self-validation in female students often come from outside sources such as friendships networks (Huang & Brainard, 2001). Academic self-confidence is also found to drop in women in first-year STEM programs, which is linked to a sense of belonging in the program (Brainard & Carlin, 1998).

Studies that focus on self-validation measure many variables our study will be focusing on such as self-validation, confidence, faculty-student interactions, and a sense of belonging in the program of study (Brainard & Carlin, 1998; Colbeck et al., 2001; Shapiro & Sax, 2011; Hyde & Gess-Newsome, 2000; Huang & Brainard, 2001; Hurtado et al., 2011; Newton et al., 2009). However, these studies largely ignore students in Arts programs and do not focus on first-year students, which may yield different results. Many of the studies also control for gender (Shapiro & Sax, 2011; Hyde & Gess-Newsome, 2000; Huang & Brainard, 2001; Brainard & Carlin, 1998), which may provide interesting results about self-validation in women in STEM programs and self-validation in men in Arts programs, as these genders are often underrepresented in these programs of study, which may impact their sense of belonging and community (Rotter, 1982).

Concluding Remarks

Most of the previous studies look at student self-validation or a variation of self-validation (i.e., self-efficacy, self-confidence) as a predictor of classroom performance

and/or sense of belonging. However, most studies do not consider the academic year of the student, or factors related to the student's field of study (STEM or Arts) such as sense of community/belonging in their faculty of study, perceived prestige of their faculty, social validation from others, and connectedness to their faculty, all of which may impact a student's sense of self-validation based on their faculty of study. Most of these studies also focus on a quantitative methodology or a mixed methodology. Our study will expand on and combine aspects of previous studies to qualitatively examine first-year undergraduate students' sense of self-validation based on their academic field of study (STEM or Arts). We will be examining if self-validation is impacted by factors specific to the field of study such as sense of community, confidence, perceived prestige of their faculty of study, connection to their faculty, and faculty-student relationships. Although our study does not seek to measure or improve the academic achievement of first-year undergraduate students, previous studies have shown that it may uncover helpful information that can be used to achieve this goal.

Theory

Introduction

Prior to beginning our research, we selected five social psychological theories to explain our findings; Interpersonal Contact Theory (ICT), Social Identity Theory (SIT), Symbolic Interactionism (SI), and Schema Theory. These theoretical frameworks provide us with the foundation to explain our research findings. We chose these theories, as they provide a framework to interpret and understand how individuals and groups develop perceptions concerning their own, and other faculties. Additionally, these theoretical frameworks allow us to understand how different faculties of study shape an individual's sense of self-validation. This section will discuss each theory in more detail and how it relates to our research of inquiry.

Interpersonal Contact Theory

ICT was developed by Gordon Allport in 1958 (Allport, 1958). ICT states that individuals develop in-group and out-group mentalities based on similarities and differences between group members and tend to have negative attitudes — such as prejudice and discrimination — towards out-groups due to lack of contact and interaction between groups (Allport, 1958; Lytle, 2018). Allport (1958) defines prejudice as "an avertive or hostile attitude toward a person who belongs to a group, simply because he (or she) belongs to that group, and is therefore presumed to have the objectionable qualities ascribed to the group" (p. 8). According to Allport (1958), prejudice may be sensed or conveyed, and is typically aimed towards a group or an individual due to their group membership. Prejudice may be detrimental to one's self-concept, as it typically fosters low self-esteem (Allport, 1958). Due to this, individuals may discriminate against others to exhibit power, improve their self-esteem, and mitigate individual and group problems by using stereotypical categories as scapegoat (Allport, 1958; Lytle, 2018).

Allport (1958) theorized that under the right conditions, contact and interaction between groups is the best strategy for lowering hostility, prejudice, and negative stereotypes of the out-group. The theory states that both groups must have equal status, similar/superordinate goals and interpersonal contact that allows them to work together to achieve these goals, and the contact must be supported by legitimate authoritarian

figures. Allport (1958) also entails that interpersonal contact must be informal in nature and must not be forced by outside sources in order to operate successfully.

In terms of our research, we predicted that in-group and out-group mentalities would be reflected in the two populations we studied — first-year STEM and Arts students. We presumed that students identify heavily with their faculty of study (i.e., they will have the feeling of being a STEM or Arts student) and thus, would feel some sort of prejudice towards the opposing out-group (i.e., those not in their faculty of study). We believed that this sense of identity within the in-group and prejudice towards the out-group would impact students' sense of self-validation within their faculty of study.

We thought this framework would also be useful in our study in order to understand where cross-faculty prejudices come from. For instance, we predicted there would be differences in perceived prestige between STEM and Arts students, which would impact the element of equal status. Using this framework along with further research may also help us understand how to integrate STEM and Arts faculties across campus to negate and lower possible cross-faculty prejudice, as well as promote positive contact. Positive contact may also promote greater self-validation among both in-group and out-group members by reducing prejudice.

Social Identity Theory

SIT is a theoretical framework developed by Henri Tajfel and John Turner that looks at identity development based on group membership (Tajfel & Turner, 1979). This theory understands social groups as a main factor in individual identity formation and maintenance. SIT holds that an individual's identity is categorized based on in-groups (i.e., groups individuals belong to) and out-groups (i.e., groups individuals do not belong to), where belonging fulfills and maintains one's self-esteem and pride as a member of the in-group (Tajfel & Turner, 1979). In-group and out-group membership involve three cognitive processes: categorization (i.e., sorting of characteristics or traits into groups), social identification (i.e., a sense of belonging in the in-group), and social comparison (i.e., weighing one group against another).

Tajfel & Turner (1979) establish that group membership solidifies an individual's sense of belonging within society. As a result, individuals will emphasize the positive traits of their in-group and the negative traits of the out-group to increase their sense of self-esteem and solidify their identity based on in-group membership. This results in prejudice and/or discrimination towards the out-group, which solidifies and emphasizes the positive position of the in-group (Tajfel & Turner, 1979).

SIT allowed us to explore if/how individuals develop a sense of group membership or identity within STEM or Arts faculties. In other words, do individuals have a sense of *being* a STEM student or an Arts student? It also allowed us to understand if/how individuals categorize themselves as STEM or Arts students (i.e., what makes a student a STEM student or an Arts student). This framework allowed us to interpret if/how self-validation is developed based on group membership (i.e., does membership in a certain faculty of study lead to greater self-validation?). We predicted that our research would show that students would feel more validated in their faculty if they have higher self-esteem, self-efficacy, a stronger sense of connection to their faculty (i.e., belonging, community), greater perceived prestige, stronger student-faculty relationships, and stronger social validation (i.e., approval from friends, parents, siblings). Finally, this theory helped us

explore if/how individuals emphasize the positive traits of their faculty and the negative traits of other faculties to increase their sense of self-validation within their faculty of study (the in-group).

Symbolic Interactionism

George Herbert Mead introduced the concept of SI into the world of American Sociology in the early 1920s (Dingwall, 2001). However, Herbert Blumer, a student of Mead, coined the term in 1937 (Dingwall, 2001). SI is a micro-level theoretical framework that focuses on social interaction, language, and the use of symbols as key tenants in the construction of social reality. SI understands humans as active agents in meaning making behaviour — they interact in their social worlds to create shared meanings and definitions (Blumer, 1969). SI also views meaning as fluid and relative — changing across time and place. In this regard, by interacting with others, individuals are able to create definitions of social reality. These definitions are internalized, repeated, and recreated in social interactions with others over time (Blumer, 1969).

SI was useful to use in our research study because it allowed us to see patterns in social interaction between different groups of students (i.e., STEM students and Arts students). It allowed us to see if/how these students construct their social realities differently based on different levels and/or different kinds of social interaction and how this may impact their sense of self-validation within their faculty of study. SI gave us insight into how different symbols are used in different faculties (i.e., faculty merchandise) and how this contributed to a students' sense of connection (i.e., belonging, community) within their faculty of study. For example, having an item of merchandise, or multiple items indicates a high symbolic connection to one's faculty, whereas having a low number, or no merchandise at all may indicate a low symbolic connection to one's faculty, and in turn, may impact their self-validation. Not having any faculty merchandise available to students may also symbolize a low sense of community within the faculty and may also lower individual students' sense of self-validation. Thus, SI was useful in our research study as it helped us understand the symbolic experiences and social realities of first-year students.

Schema Theory

Schema Theory was first introduced by Sir Frederic Bartlett in 1932 (Bartlett, 1932). Schema theory is a theoretical framework based on schematic development (Bartlett, 1932). Schemas are cognitive concepts that organize information into mental categories. This process is based on the presentation of an object, which in turn creates prototypes (i.e., cognitive representations of categories that rely on previous experiences with objects belonging to each category); making it easier for new information to be stored and organized according to previous experiences with an object (Bartlett, 1932). Schemas are developed in three stages: encoding, which includes the process of storing a memory trace based on perceptions of previous experiences, storage – preserving a memory in cognition to be available for retrieval in the future – and retrieval – recovering the memory trace from cognitive storage to be used in cognitive action (Bartlett, 1932). Additionally, schemas are social, meaning that information is interpreted in social interactions and experiences, ultimately contributing to the formation of one's schemas. An individual may also have schemas about the self (i.e., who they are). Self-schemas refer to "cognitive

generalizations about the self, including the processing of information about the self" (Fong & Markus, 1982, p. 191). Self-schemas are reflective of what individuals perceive about others (Fong & Markus, 1982) and can also be applied to factors such as school faculty and stereotypes.

Schema Theory was a useful framework to integrate in our research because it allowed us to understand how students store schemas related to their faculty. For example, do they store cognitive classifications based on the category of a STEM student or Arts student? This allowed us to understand if they see themselves as holding a unique identity due to being a certain type of student and if/what other characteristics, behaviours, values, and/or beliefs are categorized alongside this identity to create a certain type of student. This also helped us understand what other students, who belong to different faculties, classify as a STEM student or an Arts student. In other words, do they hold certain prototypes of what it means to be a STEM student or an Arts student? In this sense, Schema Theory was used similarly to Social Identity Theory but on a more micro, individual level. Group schemas also allowed us to understand if certain faculties hold perceptual stereotypes of "other" out-group faculties. For instance, do Arts students hold the stereotype that all STEM students are "stuck up," or "smart"?

We were also able to determine if students internalized schemas about how others judge their faculty. For example, are they aware of any stereotypes that exist for STEM or Arts students and how does this impact their self-validation within their faculty, if at all? We were also able to determine to what extent self-validation is impacted when schemas do not match others judgements. For instance, is self-validation lowered or negatively impacted when schemas do not match others expectations of that student (i.e., if others believe one's faculty is not prestigious)? Similarly, is self-validation higher when schemas do match others expectations of that student (i.e., if others believe one's faculty is very prestigious). Therefore, Schema Theory is useful in the sense that we can understand the cognitive processes of individual students and how they develop perceptions of others.

Concluding Remarks

In sum, ICT, SIT, SI, and Schema Theory are relevant to our research, as each of these theories demonstrate how self-validation contributes to the overall first-year undergraduate experience. These theories are integrated into our research, as we compare the experiences of both STEM and Arts students, and how they differ based on group membership and cross-faculty prejudices. This enables us to relate various theoretical frameworks to the results of our study, to gain further insight into how one's faculty of study contributes to their sense of self-validation.

Methodology

The research was approved by the McMaster Research Ethics Board (MREB#: 0327, 2012 67).

Aim of Research

The purpose of this study is to understand how faculty of study impacts self-validation among first-year undergraduate students in STEM and Arts faculties. We investigated whether or not first-year undergraduate students are more validated in STEM or Arts

faculties at McMaster University. Additionally, we explored what processes contribute to these students' sense of self-validation.

Ethical Considerations

Ethics is a major concern and was greatly considered throughout the entirety of the research process. It was crucial to minimize the risks that could have potentially caused psychological and social harm. Potential psychological and social risks that the research may have produced was intercepted through implemented preventative measures which allowed the participants' dignity to be safeguarded.

Psychological Risks

Potential psychological risks include interview questions leading to possible dissatisfaction with one's faculty (i.e., confusion about one's faculty of choice, realization of a lack of belonging and/or community) and/or one's self (i.e., feeling inadequate in one's faculty, doubting their academic and/or social capabilities. Reflecting on one's experience as a first-year student could have triggered psychological discomfort (i.e., memories of traumatic university experiences). Participants may have been apprehensive or anxious to be interviewed in-person. They also may have also been apprehensive or anxious about being recorded. Researchers understood that this could have been the first time students participated in a research study and may, therefore, have required additional support and/or accommodations to ensure they felt comfortable and safe.

To minimize psychological risks, we provided example questions on recruitment scripts to ensure potential participants knew what to expect during the interview. When asked, we forwarded the complete list of interview questions prior to the interview which assured our participants to feel comfortable. We also ensured our questions were worded neutrally (i.e., ungendered, unbiased, inoffensive) to avoid any triggering language. The more sensitive questions were asked in the middle of the interview once rapport had been established to ensure the participants felt comfortable relaying information to researchers. During interviews, individuals were able to skip any questions they felt uncomfortable answering with no repercussions from researchers. Participants were assured before the interviews that they could withdraw from the study at any time during the interview and may withdraw their interview data seven days after the interview has taken place. This ensured that participants had ample time to reconsider their participation.

Participants were instructed before the interview began on how to voice their desire to withdraw. If the interview had already taken place, participants were instructed to send an email with the subject line: "Research Withdrawal" to withdraw their interview data. Participants were also instructed to provide the date and time of their interview to ensure the correct data was destroyed (as pseudonyms were assigned directly after the interview). This information was relayed to all participants in emails before scheduling and at the beginning of the interview. To further minimize any psychological distress, the letter of information included contact details for the McMaster Student Wellness Centre and was relayed again when the interview had been concluded. This ensured that participants could access the appropriate resources if necessary.

Social Risks

Potential social risks included involuntary participation, breaching confidentiality (i.e., participants' data being revealed in association with their personal information), anonymity (i.e., keeping participants' identity unknown), and informed consent. These potential social risks may have resulted in negative feedback or backlash from peers and/or other faculty members if participants' responses were viewed as inconsistent with faculty and/or peer views. This may have resulted in the loss of relationships with peer/social groups or negative attitudes towards the participant.

To minimize the social risk of involuntary participation, we conducted our recruitment through posters and Facebook pages where individuals were able to voluntarily contact the research team to schedule an interview. We did not actively recruit people we were in affiliation with. We minimized social risk on our initial recruitment scripts (including posters posted on the McMaster University campus, student-run Facebook groups, social media pages for student-run clubs, and services that focus on first-year undergraduate students) by reminding participants that they would remain anonymous throughout the recruitment and interview process. We also reminded potential participants not to comment, like, or share posts if they wanted to remain anonymous.

The interviews were conducted in private study rooms at McMaster University where the participant's answers could not be overheard. Following the interviews, we assigned pseudonyms to protect the identity of the participants. We stored data in a secure, password-protected file that ensured that participants' identities remained anonymous throughout the data transcription, analysis, and presentation process. Only researchers had access to these documents and audio recordings. The audio recordings were destroyed no more than seven days after the interview had taken place. Any email correspondence with participants or those reaching out to participants were deleted after they were sent a thank-you email after the interview had taken place.

All remaining research (i.e., interview transcriptions) will be deleted by April 30, 2020 to ensure there are no discrepancies within the research while the final thesis project awaits grading. At this time, the files and documents will no longer be (potentially) needed for review (i.e., grading). This will ensure participants' information remains confidential and inaccessible to the researchers and others.

Verbal and written consent was also established before the interview took place to ensure the participants' were adequately informed about the research study and that the information they shared would be used towards our research.

Research Process

For our research study, we took a qualitative approach to study self-validation among first-year undergraduate students in STEM and Arts faculties at McMaster University by conducting semi-structured in-person interviews. Our research team received ethics approval on November 1, 2019 and started the recruitment process on November 4, 2019.

We chose semi-structured interviews because they contain more open-ended questions, which allows for flexibility and greater discussion between the interviewer(s) and interviewee. Using semi-structured interviews was advantageous to our research study as it provided us with the ability to collect and analyze intricate data from the personal experiences of our participants. Semi-structured interviews generated greater

flexibility which allowed the research team to probe for additional information, a stronger ability to develop rapport among participants and the interviewer(s), and allowed new ideas and themes to surface amid interviews. This approach is inductive and humanistic, which ensured that we grasped the experience of the student and inferred patterns from this information. We were not seeking to prove a hypothesis, rather, we aimed to understand the experience of the student.

Semi-structured interviews provided us with greater knowledge of first-year students' sense of self-validation within their faculty of study. Qualitative interviews also allowed elaborate personal experiences to be shared through the participants' perspectives, which provided a rich and detailed data set. By using this methodology, we were able to understand how first-year undergraduates develop a sense of self-validation through acquiring insight into their individual opinions, thoughts, and experiences. Semi-structured interviews contained considerable flexibility, which allowed the interviewer to probe for additional information. If there was any uncertainty regarding a question, the researcher(s) would give examples of potential themes that could be discussed within their answer which allowed participants to gain clarity on the question(s) administered. Amidst interviews, the researcher(s) and participants created professional relationships that allowed solidified rapport to be established between them. The rapport established between the researcher(s) and participants allowed both parties to feel comfortable in an interview setting.

We recruited specific participants from the McMaster University population (i.e., first-year undergraduate students 18 years of age and older from STEM and Arts faculties). The sample population was gathered through convenient and purposive sampling techniques. Our participants were also recruited through snowball sampling if information was released about our study through word of mouth from other participants who took part in the study. However, we did not encourage or ask previous participants to act as recruiters. This ensured that no breaches in confidentiality or anonymity would occur. This also ensured that previous participants did not feel obligated to discuss our study.

The in-person interviews took place in private study rooms at McMaster University in L.R. Wilson Hall. Conducting interviews from this location minimized the risk for breaches in anonymity since the participants answers could not be overheard. This location also mitigated potential risks for both the interviewer(s) and interviewee by being private, but not completely isolated. We attempted to recruit participants through posters on campus, the McMaster class of 2023 Facebook page, social media pages directed at certain faculties such as the McMaster Social Sciences Society, Humanities Society, Engineering Society, Biology Society, Science Society, Health Science Society, and Math and Stats Society; each of which we attempted to gain permissions through the McMaster Student Union and page administrators. We also reached out to first-year focused services such as MSU Spark and recruited through their Facebook page. This ensured that we reached an ample amount of potential first-year undergraduate students in both STEM and Arts faculties.

Unfortunately, our ability to recruit participants were limited because our access to certain groups were restricted by gatekeepers. We were unable to reach most page administrators except for the McMaster University class of 2023 Facebook page which granted us permission to upload our poster to their page. We advertised our recruitment posters around campus as soon as it was approved by the MSU Underground Media +

Design Center. Active recruitment occurred between November 4, 2019 and February 1, 2020.

Our recruitment processes allowed us to obtain a total of nine participants. This sample was primarily female (N = 7), five of which were STEM students and two of which were Arts students. The remaining participants were male (N = 2), both of which were Arts students. Of this, four participants were Caucasian, three South Asian, one East Asian, and one Multiethnic.

Participants received compensation for their participation by being given a drink of their choice during the interview. This small compensation was advertised in recruitment scripts as an incentive to participate in our study and as a form of appreciation to participants for their time. If the participant chose to withdraw before the scheduled interview, they did not receive the beverage provided. If the participant chose to withdraw at any time during the interview or while still in the interview room, they were given the choice to take their beverage with them, finish it in the interview room, and/or dispose of the beverage as they wished to do so. All research was conducted through voluntary participation. We remained in close touch with the Dr. Clancy who acted on behalf of the McMaster University Research Ethics Board to verify that our plans for the research study received ethical approval.

Once potential participants contacted the research team about the study, the research team immediately sent the potential participant a letter of information to determine if they would like to continue with the study. Upon request, we were willing to provide the full list of interview questions to ensure they felt comfortable in their decision to participate in the study. Participants were given the ability to choose the date and time of their interview. Once an interview had been scheduled, the research team would send the participant an email reminder the day before the interview with the time and place of their interview. An interview team (one researcher to conduct the interview and one researcher to ensure proper audio recording) was then selected based on their availability and affiliation to the participant (only those with no prior or current affiliation were selected to interview the participant). The interviews took place in private study rooms at McMaster University in L.R. Wilson Hall. Although, since one interview was unable to be held at this location, we resorted to utilizing a private study room in the Health Sciences Library. The interviews were administered by two researchers and took approximately 15-30 minutes to complete. The interviews included 15 questions and 5 demographic questions.

Once in the interview room, the interviewer went through a series of steps before the questions were administered. First, the interviewer thanked the participant for their interest and involvement in our study and offered them compensation for their time (a beverage of their choice) which they had the option to drink whenever they pleased or decline for any reason. We then gave the participant time to review the letter of information and consent form. Next, we reviewed the letter of information and consent form with them and outlined the steps involved in the interview process such as how long it would take, how many questions we would ask them, if they were comfortable being audio recorded, and how and when they could withdraw from the study. We then obtained their signature on a hard copy of the written consent form. Participants were assured that they could withdraw from the study at any time during the interview and could withdraw their interview data for up to seven days after their interview took place.

In order to withdraw during the interview, the participant was instructed to verbalize a statement such as "I would like to withdraw" or "I would like to stop." In this case, the audio recording would be stopped immediately, the participant would be directed out of the interview room, and all of their data (i.e., corresponding emails, audio recordings) would be destroyed within 24 hours. If the interview had already taken place, participants were instructed to send an email to the research team using the same email on the recruitment poster with the subject line: "Research Withdrawal." They were also instructed to provide the date and time that their interview was conducted to ensure the correct data would be destroyed as interviewees were given pseudonyms directly after the interview took place. Although we did not have any withdrawals, if a participant were to withdraw, their corresponding data would have been destroyed within 24 hours of the email being received.

We then allowed the participants to ask any questions and ensured that the participants were ready to start the interview. After these steps were completed, the interview and audio recording began. After the interview ended, we thanked the participants for their interest and involvement in our study. We then reiterated the withdrawal process and ensured they had the contact information for the McMaster Student Wellness Centre. This ensured participants had access to the appropriate resources if necessary.

No more than 24 hours after the interview, participants were sent an appreciation email thanking them for their participation and how they can obtain the study results. Due to the COVID-19 pandemic, our study results were displayed virtually rather than in-person. Thus, participants' were emailed about the alternative presentation format and directed to the virtual location.

All audio recordings were assigned a pseudonym after the interview was concluded and were transcribed within seven days of the interview. Audio recordings of the interview were not transcribed verbatim. Rather, edited transcriptions were used where we omitted parts of the audio recording such as pauses, background noises, and body language without changing the words spoken by the participant. This allowed for a cleaner and easier to read version of the interview for data analysis and presentation.

Data Analysis

Our steps for data analysis included establishing a set of questions and collecting, organizing, analyzing, and interpreting our dataset. We began our interview process by establishing a set of clear and concise questions. The interview questions exhibited lay terminology so that participants were able to effectively understand and answer each question. The questions reflected our research question, and were not biased, misleading, or overwhelming. Before data collection, we determined what type of information could potentially be collected from our interviewees by examining previous literature. A filing and naming system was established ahead of time to help keep all data organized and easily accessible to all group members through shared documents and files. An interview template was created to ensure consistency among each interview as well as to save time.

After data collection, we analyzed our data by manipulating it in several ways. Pseudonyms were used to replace the names of our participants to ensure anonymity. A table in Excel was created to sort data and find correlations between variables and to identify themes and sub-themes. While reviewing and interpreting interview

transcriptions, we used content analysis to analyze the meanings of certain statements and comments made by participants. This analysis process helped us to find trends, correlations, and irregularities that were present in our data and helped us to better answer our initial research question and discuss any discrepancies that may be present. Once our data was analyzed, we interpreted our results. While interpreting our results, we asked ourselves if the data answered our original questions, if the data helped us to defend against any objections to our research, and if there were any limitations to our conclusions. Once our results were interpreted, we were able to find correlations between our research findings and previous literature on this topic. After interpreting our results, we believed our data displayed a clear and accurate representation of our research questions and its relation to previous literature.

Challenges

Conducting semi-structured interviews brought some challenges to our study which included having a small sample size, issues acquiring participants, limited information, reliability of our research findings, authenticity of participants, and researcher bias. We had a relatively small sample size because of our choice of qualitative methodology, which may not prove generalizable to all first-year undergraduate students in STEM and Arts faculties at McMaster University. We also did not have a very diverse sample population which created difficulties surrounding generalizability. Our participants were predominantly female which caused a lot of our findings to be representative of the female population. The male participants who we interviewed were from Arts faculties so our findings did not possess the first-year undergraduate experiences of males in STEM faculties. Finding students that were inclined to discuss their personal opinions and experiences during a face-to-face 30-minute interview was extremely difficult. Since interviews were between 15-30 minutes long, it was hard to gather detailed information from the participants. Some interviews were shorter than others which restricted us from gaining more in-depth information. Another challenge is the reliability of our research. Researchers who wish to repeat our study on self-validation may not generate similar findings, which may be a barrier in regards to the advancement of our research in the future.

It was hard to recognize if participants were answering our research questions authentically. Participants may have been inauthentic when answering questions, especially if they were STEM students because of our research team's faculty affiliation in the Arts. As a result, there could also have been a researcher bias that stemmed from our thoughts and opinions of faculties that differ from our own. There may have been a researcher bias stemming from beliefs of existing literature related to our topic of study. Since we were interviewing participants in faculties other than Social Sciences, it was perhaps difficult for our research to not be influenced through bias towards faculties other than the Social Sciences. Being in a Social Sciences faculty gave us a clear bias towards our own faculty because we chose to pursue it for the entirety of our undergraduate career. Participants may have also carried a bias towards us due to our age and gender because we are all fourth-year undergraduate students who identify as female. Participants may not have taken our research seriously due to our age and gender, which could have jeopardized the authenticity of the participants' answers.

To overcome these challenges, we employed strategies which allowed us to conduct successful and unbiased interviews. For instance, although we did not specifically ask interviewees to recruit additional potential participants, some specified their own desire to do so, leading to an indirect snowball sampling technique. We refrained from comparing the experiences of our participants to the experiences of other students in the literature we reviewed to eliminate researcher bias. Rather than relating our participants' experiences to students studied in other research, we rejected any presumed thoughts we may have possessed and searched for new ideas that emerged from the data. Participants could have carried a personal bias in regards to us as a collective group enrolled in an Honours Social Psychology program, however, we were aware that their impressions of us and our program/faculty may not change.

Unfortunately, we were unable to overcome all the challenges we faced while conducting this study. Despite an indirect snowball technique, the sample size of participants recruited was small, which limited our research findings and generalizability of our research study. Although we were able to prompt interviewees for a more in-depth answer to our questions, it would be unethical to pry them for more information. Since it was infeasible to definitively determine the authenticity of participants' answers to the interview questions, it was critical to create a sense of trust and rapport between interviewers and interviewees. To completely replicate this study is unrealistic since participants involved in other studies may possess dissimilar first-year undergraduate experiences. However, by clearly outlining our methodology and research process, similar studies may be conducted at other universities and may yield similar results to aid in improving the self-validation of first-year undergraduate students.

Timeline

Description	Date
Soft Deadline for Research Project Proposal and Ethics Protocol	October 9, 2019
Deadline for Research Project Proposal and Ethics Protocol	October 23, 2019
Group Meeting with Dr. Clancy	November 1, 2019
Soft Deadline for Outline of Class Presentation of Research Plan	November 15, 2019
Deadline for Revisions of Research Project Proposal and Ethics Protocol	November 15, 2019
Tentative Recruitment Start Date (put up posters around campus, email faculty societies, and MSU Spark)	November 16, 2019
Class Presentation of Research Plan	November 22, 2019
Deadline for Recruitment	February 1, 2020
Deadline for Data Collection	February 7, 2020

Deadline for Interview Transcriptions (we will transcribe within seven days of each interview)	February 14, 2020
Deadline for Participants to Withdraw from Study (they will be able to withdraw within seven days of their scheduled interview)	February 14, 2020
Start Data Reduction, Coding and Analysis	February 15, 2020
Deadline for Data Reduction, Coding and Analysis	February 22, 2020
Start Date to Compile Findings	February 23, 2020
Deadline to Compile Findings	February 28, 2020
Start Date to Assemble Poster Content	February 29, 2020
Hard Deadline to Assemble Poster Content	March 4, 2020
Submit Rough Draft of Poster to Dr. Clancy	March 4, 2020
Conduct Poster Revisions	March 4-9, 2020
Deadline for Final Poster Edits	March 9, 2020
Deadline for Poster to be Ready to Print	March 10, 2020
Preparing for Virtual Poster Presentation	March 11 – 19, 2020
Virtual Poster Presentation	March 20, 2020
Soft Deadline for Final Thesis Paper	March 25, 2020
Read-through of Final Thesis Paper	April 8, 2020
Deadline for Final Thesis Paper	April 13, 2020

Weekly meetings occurred every Thursday from 3:00PM – 6:00PM from October 10, 2019 to March 12, 2020, excluding the month of December 2019. Due to COVID-19, our in-person meetings were suspended on March 15, 2020 and conducted virtually until April 8, 2020.

Soft Deadline: flexible deadline which allows for further revisions and edits.

Concluding Remarks

This section discussed the qualitative methodological approach we took to our research study. It outlined the research questions and the ethical considerations such as psychological and social risks along with the preventative strategies for these risks. It discussed the research process and data analysis procedures accompanied by a timeline and described the many challenges we experienced throughout the research study and means of mitigating them.

Results

Summary of Results

Variables	STEM students	Arts students
Social Validation	Mixed reasoning for faculty Majority reside on campus High external support from parents and peers	Mixed reasoning for faculty Majority reside on campus High external support from parents and peers
Efficacy in academics and confidence	High efficacy in STEM and Arts courses High confidence in future career paths	High efficacy in Arts courses & Low efficacy in STEM courses Moderate confidence in future career paths
Students' perception of faculty	High perceived prestige High sense of value	Low perceived prestige Low sense of value
Sense of connection	Moderate sense of community and belonging	Low sense of community and belonging
Changes to faculty	Desire moderate changes	Desire moderate changes
Overall university experience	Good (high) first-year experience	Mediocre (moderate) first year experience

Social Validation

    Social validation is associated with why students choose their faculty of study, whether they plan on remaining in this faculty of study, parental and peer support for their faculty of study, and their level of independence – which is associated with their housing situation (i.e., proximity to campus from September - April). Overall, STEM students reported a high sense of social validation and Arts students reported a moderate sense of social validation in relation to these variables.

Choosing A Faculty of Study

    The respondents in STEM chose their faculty of study based on personal interest, generalizability, and desired career path. For instance, Betty (STEM) explains, "I've always been interested in STEM and engineering. I was actually on my high school's robotics team and I wanted to go into the sciences, something in STEM." Similarly, Veronica's (STEM) high-school teacher recommended Veronica (STEM) to enter the Health Sciences due to enjoying "problem-based learning."

    However, it is evident that those in STEM also had external influences that led to their decision to enter their faculty. For instance, Maria (STEM) and Betty (STEM) were both encouraged by their parents to enter their faculty due to the perception that it results in a direct career path. Specifically, when Betty (STEM) was asked about what her parents think of what she is studying, she explains:

Uhm, they like it. They think that engineering is a good strong undergraduate degree. My dad is in fact an engineer, I have a lot of engineers in the family, so they do think that it's a strong career to be in.

Additionally, Sarah (STEM) explains that her family liked her decision to pursue a general sciences degree because it would help her grades/GPA throughout university. She discloses, "they also didn't want the whole general science thing cause like physics brings down your GPA and stuff so, but other than that they are okay with it." In this sense, along with interest, outside influences also played into the faculty decisions of STEM students.

All STEM students revealed that they plan to remain in their faculty of study and most desire to specialize in upper years. Some STEM students also chose their faculty based on generalization with the specific goal of specializing in upper years. As Lilac (STEM) explains:

Yeah so like first-year it's obviously pretty general and then the second-year you choose your specialization and from there it's like, like I'm probably going to choose x-ray so from there it's like really specific to x-ray and then in the summer of second-year I would go to a hospital and then start practicing.

When asked if she would stay in her faculty for the remainder of her undergraduate career, Maria (STEM) also states, "I guess as part of the sciences so, yeah, I'll still be in that, but I'm planning to like apply to bio, different bio programs next year instead of staying in chem phys." She later specifies her interest by explaining that she would like her specialization to be molecular biology and genetics. Going into a general program is, therefore, seen as temporary since most STEM participants planned to specialize in upper years.

Many first-year students who entered the Arts also chose their faculty based on interest, generalizability, and desired career path. Rob (Arts) expresses:

I chose social sciences because it's pretty broad. I wasn't 100% sure what I wanted to do. I really wasn't, I didn't feel certain enough to make that, you know, decision right away to go into business or engineering or anything like that. So, it's more broad I guess, to try a lot of different things.

Victor (Arts) indicates that he chose his faculty to help with his desired career path by saying, "I wanna go to law school so I feel like philosophy would help." Moreover, Cherry (Arts) clarified that her choice was based on interest by stating, "I'm in Poli-Sci and I've always been interested in Poli-Sci." Thus, the Arts faculty was appealing due to the ability to choose from a variety of pathways rather than a specific career path.

Despite the finding that the majority of Arts students plan on staying in the Arts for the remainder of their undergraduate career, they did not mention any plans to specialize in upper years. Outside influences and the ability to specialize is thus more strongly associated with how STEM students choose their faculty of study.

External Support

All STEM students reported receiving a high level of parental and peer support for their faculty of choice. As mentioned earlier, Betty (STEM) and Veronica (STEM) communicated that many members of their families were in STEM fields. With regard to support for school of choice, Sarah (STEM) mentioned that she received a high level of support from her parents for her decision to attend McMaster University explaining, "well they wanted me to go to like Waterloo or something but they like the campus here and they like the program here better than like the overall environment at other places." This indicates that both school of choice and faculty of study are important deciding factors for first-year undergraduate students.

In comparison to Arts faculties, Maria (STEM) explains, "my parents were, thought that like maybe like something like that which had more lab components and stuff like that could be better coming out of school than like maybe an arts program or something." Also, Lilac (STEM) disclosed:

> I kind of told my parents that I wanted to be a doctor, and I do, but uhm when I chose Med-Rad they were like 'well like how are you going to become a doctor through that?' because you come out an x-ray tech.

With that said, parental support is associated with career and job opportunities, which is viewed as more abundant with STEM degrees as opposed to Arts degrees. STEM degrees are also perceived to lead to direct career paths, rather than broader Arts degrees. The ability to go into a direct career path may thus explain why STEM students prefer to specialize in upper years.

STEM students also received high levels of support from their friends for their faculty of choice. Veronica's (STEM) friends support her interests, but acknowledge the difficulty of getting into the faculty as she tells interviewers, "they're pretty supportive, they knew that I really liked science from the start, so when I applied for the program, they were like 'oh, well I hope you work hard on your sup app and everything goes well." Similarly, Lilac (STEM) indicates that the subject she's studying is seen as positive among her friends saying, "well my friends actually think it's really cool, and so do I."

Most Arts students also reported receiving plenty of support from their parents when deciding their faculty. Although Rob (Arts) did not specify, he did mention that his parents supported his decision to further his education in general. Of the students who expressed receiving high levels of support from their parents, Cherry (Arts) indicated that she specifically received high support for her particular school of choice. However, she hesitated before telling interviewers, "Uhm, they're (her parents) happy with it uhm because I might go into law after so they're happy I'm getting a degree… yeah." In this sense, Cherry's parents are supportive of her getting an Arts degree as long as she has a specific career path in mind after graduating.

Although Lola (Arts) similarly reported that her parents and high school teachers supported her choice of faculty, she expressed that others assumed her parents would not be supportive. Lola (Arts) stated, "A lot of people around me, they were like 'how could you be doing Arts?' or 'how do your parents allow it?' and all those things, but I was very lucky to have supportive family and friends." In this regard, others perceived that her parents would not be supportive of her choice of schooling because she is pursuing an

Arts degree. When probed further, she indicated this was due to the perceived lack of job opportunities available to those with Arts degrees.

Although the majority of Arts students reported receiving support from their friends for their faculty of choice, their friends were uncertain about future careers that could be obtained with Arts degrees. As Cherry (Arts) explains, "most of them [her friends] are like pretty supportive, some people are like "uhhh, what are you going to be, a Political Scientist?" Like no haha, overall, it's okay but, yeah." On the other hand, other Arts students state that they are unsure if their friends are supportive of their faculty, but do believe they support the furthering of one's education. Specifically, Rob (Arts) says, "I'm not sure. I think they probably have respect for anybody who is in school and most of my other friends are students here as well so...." Therefore, Arts students reported a more mixed and moderate sense of support from their friends and parents in comparison to STEM students.

Housing
Most of the students in STEM and Arts faculties reside on campus (in residence), revealing that they are required to adjust to living on their own – many of them for the first time. For instance, Betty (STEM) travelled from Alberta to attend McMaster University. She reported that her parents were nervous at first about her moving far away, as she mentions, "I'm from Alberta, and they were worried about me going across country and that kind of stuff, but in regards to the program they think it's great." In this regard, our participants gained a sense of independence, as they began to learn to live and take care of themselves without parental supervision. We found that this variable was consistent across both STEM and Arts students.

Nevertheless, this transition is also perceived as difficult and stressful due to significant environmental changes. Most participants reported stressors including lower grades, moving from home, and the high expenses involved with being a university student. As Lola (Arts) explains:

> A lot of my friends feel like it's very hard to uhm afford… doing a part time job and also managing expenses for textbooks, food, finding a place for next year when you don't have a residence to live in. It's very hard.

She further expresses, "I feel like as a first year it's already very hard to transition into university …. especially being away from home, changing your whole environment… you feel that." Moreover, Sarah (STEM) denotes that her choice of school was based on proximity to home. Despite her desire to live in residence, she states, "I think I chose McMaster because I really like the campus and it was like close to home." Hence, while university may be a source of independence, all of our participants reported feeling difficulty with this transition. This variable was consistent across STEM and Arts students.

Self-Confidence and Self-Efficacy
Interviewers inquired about confidence by asking about the potential bird courses (i.e., easy electives) students would choose and classes they would avoid to gauge the area(s) of study they have a strong sense of efficacy in (i.e., something they have control over or is achievable). Additionally, they were asked about their future career plans and their

perception of their degree aiding them in these career paths. Overall, STEM students reported a high sense of self-confidence and self-efficacy in relation to these variables and Arts students reported a moderate sense of self-confidence and self-efficacy.

Bird Courses

Upon asking respondents about potential bird courses, it is evident that STEM students have a strong sense of efficacy within Arts faculties. For instance, when asked about the bird course she would take, Lilac (STEM) explains, "I would ask other people but probably not Science, because that's not going to be easy… so I would probably go for Humanities." This indicates that Arts courses are perceived to be easy.

Certain Art courses that require previous knowledge or certain skill sets are also viewed as difficult. As Betty (STEM) explains, she would stay away from "visual arts and media, that kind of stuff. I'm not good at painting, I'm not good at drawing so that would not be a course I'd be taking." Veronica (STEM) also indicates she is a poor writer and would stay away from any course with heavy writing. In this sense, although Arts courses are generally thought of as 'easy,' this perception varies by each student's ability and technical skills.

All the respondents in the Arts had efficacy in their faculty of study. Particularly, Rob (Arts) mentioned that the Humanities faculty has a lot of bird courses, explaining, "I took a class [in Humanities] last year and it was pretty easy." Lola (Arts) also made a statement about how others perceive Arts courses in general in terms of respect:

> uhm no they don't respect our faculty as much because one thing, how I know this is people say 'I'm taking a bird course, it's a geography course it's supposed to be easy and I'm taking sociology, it's supposed to be easy, I'm taking this… that'. No it's not supposed to be easy, you're supposed to work hard and that's the only way you're supposed to work hard and that's the only way you'll receive a good grade if that's what you're looking for but I don't think they see it as prestigious because I hate the title 'it's easy'…. It's not. Come to the real world and you'll see how hard it is to tackle these problems.

In this regard, perceived ease of a course may result in less respect for the adjacent faculty.

As STEM courses are perceived to be more difficult, many of the respondents chose to stay away from them when choosing a bird course. Specifically, the natural sciences are seen as most difficult. For instance, Cherry (Arts) explains that she would stay away from math and biology courses. Rob (Arts) also indicates that he stays away from, "anything chemistry, physics, one of the sciences, and if there was something related to engineering probably something like that."

Thus, while the majority of STEM and Arts students prefer to take bird courses in Arts faculties, the perception of Arts as easy varies by student ability. Despite this, Arts students in our study believed that STEM students think all Arts courses are easy, which is not the case.

Future Career Plans

In regards to career plans, while most STEM students did not have a specific plan for a future career, Betty (STEM) and Veronica (STEM) mention that they believe their faculties and degrees will help them in the job market. Betty (STEM) explains, "so with the career co-op services, especially in eng [engineering], there's a great amount of resources we have, so I really feel strongly supported in getting those co-op opportunities and getting into the workforce." Veronica (STEM) desires to pursue a career in medicine and when asked if there were resources available to assist in achieving this, Veronica (STEM) responded quickly "oh definitely." When asked if she believes her degree will help her in the future Sarah (STEM) proudly says, "oh ya for sure cause literally every single second in your specialization is like research intensive and helping you get out of classroom experience and stuff so I think that's good."

Although no participants were set on a specific career, many STEM students had a general understanding of the path they would like to pursue including, doctors, laboratory technicians, and radiologists. As mentioned above, many STEM students choose their faculties with a specific career path in mind. In this sense, there is a strong association with STEM faculties and perceived career opportunities, where STEM degrees are perceived to lead into more specific careers. There is also a large amount of resources readily available at McMaster University to assist STEM students in achieving their career goals.

Similarly, most Arts students also did not have a specific career in mind. For instance, when asked if he has any potential careers or career paths in mind Rob (Arts) explains, "uhm, not really, no. I'm sort of figuring it out, I guess." Others are exploring different avenues like Cherry (Arts) who explains she might switch her major "because I still don't know what I want to do after. I'm kind of interested in like working with like criminally insane people at the moment so I might switch it, but overall I do like Poli-Sci right now."

Lola (Arts) and Cherry (Arts) both believe that their faculty will help them to achieve some sort of career – although they are not certain what these are specifically. Lola (Arts) explains:

> I really like where I am and I have a bunch of things in mind, but I keep telling my parents that 'is it okay if I don't have a career because I love what I do' I want to just keep getting educated, more education, more education.

While none of our Arts participants discussed co-op or placement opportunities, some Arts students do have a set career path in mind and, like STEM students, believe their degree will help them achieve this. As Victor (Arts) explains, "I wanna go to law school so I feel like philosophy would help." In this sense, while Arts faculties are not generally understood as leading to a specific, set career, they are desired because of the ability to explore a variety of broad topics and develop general skill sets that can contribute to a wide variety of careers.

Students' Perception of Faculty

Students perception of their faculty is measured based on the perceived prestige of their faculty (i.e., if they believe others see their faculty as prestigious) and perceived value (i.e., if they feel their faculty is valued at McMaster University), which will be

analyzed in terms of perceived competition within faculty, allocation of funding, and research opportunities. Overall, STEM students reported a high sense of value and prestige and Arts students reported a low sense of value and prestige.

Perceived Prestige

General Perception of Prestige. In terms of prestige of one's faculty, those in STEM believe that their faculty is significantly more prestigious in comparison to others at McMaster University. With the presumptions in relation to how prestigious a faculty is, there is a perceived hierarchy at McMaster University. For instance, Sarah (STEM) explains that the natural sciences are more prestigious than arts.

Betty (STEM) further agrees by explaining that those in the Engineering faculty displayed overconfidence in their faculty as they stated that Engineering is more prestigious and difficult than other sciences. She also admits to a hierarchy of perceived prestige saying:

> You know engineering is pretty, uh, cocky, and others know that I think. But I also think, my roommate is in sciences, and I have another friend in humanities and they kind of had viewed eng [engineering] as a sort of a cocky, kind of overbearing faculty, but you know, talking one on one, they're fine with it. There's a balance I guess. (Betty, STEM)

Thus, Betty (STEM) understands STEM faculties as prestigious and acknowledges that others also perceive her faculty as prestigious.

Furthermore, Maria (STEM) and Lilac (STEM) explain that prestige is associated with difficulty and competition in one's faculty. Thus, the more difficult and competitive one's faculty appears to be, the more prestigious the faculty is perceived to be. As Betty (STEM) and Sarah (STEM) equated heavy workloads to prestige, they also believe that the sciences are more prestigious than Arts faculties. They also reveal an inter-STEM hierarchy as Sarah (STEM) explains:

> Other faculties, other like science-y faculties maybe not as much like I know there's that ongoing feud with like the health sci vs. the life sci or like the health sci people think they are all that and whatever but and then also engineers tend to take a lot more courses and stuff so I feel like in the science-y part maybe not as much but then with like commerce or the other programs I think people have mentioned like 'oh life sci is pretty hard' and stuff like that.

In this sense, the majority of STEM students were also highly self-aware in regards to how prestigious their faculty is. Perceived prestige is also attributed to the perceived difficulty of one's faculty which was attributed to a heavier workload. This variable will be discussed further below.

Maria (STEM), Lilac (STEM) and Veronica (STEM) also believe their faculty is perceived as prestigious to others, especially to those at McMaster University. For instance, Veronica (STEM) revealed:

During welcome week, whenever I talked to somebody and they were like 'what program are you in?', and I said 'health sci', they were like 'wow, so you must be smart'. Like uhh, um I guess?

As Veronica (STEM) is a member of the Health Sciences faculty, this quote reveals that others are impressed by those who are in Health Science as they equate STEM faculties with greater intelligence.

Allocation of Funding. Perception of allocated research funding is also linked to perceived prestige of one's faculty. For instance, Sarah (STEM) mentions McMaster University's science research reputation saying, "like every single time our professors or TAs talk about the science program they are like "McMaster is the most research-intensive program in all of Canada." In addition, although Betty (STEM) was not sure of the details, she assumes there is a lot of funding for STEM faculties based on the ample amount of resources, as well as the new buildings being built on campus. She states, "I think there's a fair amount, I would assume. Uhm, we have a lot of buildings and that kind of stuff. I'm not aware of the actual numbers but yeah." Although Maria (STEM) and Lilac (STEM) were unaware of funding within their STEM faculties, they also assumed there was a lot. For instance, Maria (STEM) says, "I'm not really aware of any funding or anything like that but I feel like it is pretty valued." This displays the ample amount of perceived funding in STEM faculties.

When asked about research opportunities Veronica (STEM) agrees by saying, "Yeah! Yeah, um, within my faculty, I don't know, cause, um, I'm not sure within the faculty, but I know within science in general there's a lot of research opportunities and grants, like NSRC." Betty (STEM) also indicates, "I actually came in with an undergraduate scholarship which came with a research grant for the summer, so I'll actually be working here at the university, doing research with a prof over the summer." The other three STEM participants were unaware of research opportunities in their faculty.

Participants in Arts faculties such as Lola (Arts) and Victor (Arts) view their faculty as prestigious. However, these respondents acknowledge that others do not view their faculty as prestigious due to certain presumptions. For instance, Victor (Arts) reveals that those higher up on the perceived hierarchy tend to look down on those who are on the lower end, revealing, "my friends in Life Science always make fun of Humanities." When probed further he indicated that this is because Humanities are not "science-y."

Victor (Arts), Lola (Arts), and Cherry (Arts) indicate that they are aware that STEM is viewed as prestigious at McMaster University, indicating that others hold it above other faculties hierarchically. After describing how a faculty is established as prestigious, it is evident that those in Arts faculties possess similar views to those in STEM. For example, Cherry (Arts) explains that a heavier workload is equated with prestige. Rob (Arts) also pinpoints how admission into Arts faculties are easier, as the acceptance rate is generally high. He mentions, "it's one of the easier one's to get into and it's probably more broad than most others." Rob (Arts) also explains that competition is associated with prestige and the natural sciences are more competitive in terms of admittance. These assertions link the difficulty of a faculty with its perceived prestige.

Despite revealing his views and stating that Arts faculties are not typically viewed as prestigious by others, Rob (Arts) acknowledged the prestige of McMaster as a University explaining that because McMaster University is ranked number four in Canada, he

recognizes that one should feel accomplished by solely gaining admittance to the institution. However, in relation to prestige at the institutional level, Cherry (Arts) explains "uhm… cause people… people think that… people who are here for math or becoming a doctor, whatever that especially maybe at McMaster because it is like a medical school… that's more valued and prestiged." In this regard, prestige is associated with the faculty when considering the schools reputation. In other words, STEM faculties may be viewed as more prestigious at McMaster University because it has a strong reputation as a medical and science focused institution.

In relation to funding, Victor (Arts) and Lola (Arts) appear to be unaware of funding within Arts faculties although they believe they do exist. Lola (Arts) also said that she believes that there is a lack of funding in comparison to the natural sciences due to a political hierarchy. As Lola (Arts) explains:

> I love McMaster, it's great but I often hear people say that there's a hierarchy, and I know that there's a hierarchy everywhere but it shouldn't be like that, but it's always like the sciences and one science at the top.

It is thus apparent that those who are in Arts place themselves below STEM students on the perceived hierarchy.

It is important to note that there was an interesting outlier that was found in this area of our research. While Arts and STEM faculties tend to have similar views in regards to perceived prestige of one's faculty, these perceptions may not always be accurate. For instance, when asked if she believes others see her faculty as prestigious, Maria (STEM) says, "maybe people who like aren't in it or like don't know about it, but I wouldn't say it's like too, more difficult than anything else, but I guess if you don't know too much about it, it could be." As a result, Arts students' perception of STEM faculties as prestigious may not be fully representative of the STEM experience. This variable requires further inquiry.

Workload. It is evident that those in STEM faculties report having a heavier workload compared to those in Arts faculties but report that it is manageable. As Betty (STEM) explains:

> It's a lot. We have 6 classes and yeah, it's rough. But I'm managing. And not particularly the profs, but the TAs and the IAIs, I definitely go to their office hours and they're really helpful with homework questions and anything like that.

Sarah (STEM) confirms saying her workload is, "pretty heavy but it's like manageable." Maria (STEM) denotes that her workload is dependent by saying:

> Yeah, I guess it depends on the course. I wouldn't say it's like completely overwhelming to be honest. I think it's fine, like the ones that obviously like for me like calculus and the math for me takes like a lot more, but like I don't think it's too bad.

Despite STEM students reporting a heavier workload, it is important to note that none of the respondents stated that they have an easy workload. In other words, although first-year undergraduate students in Arts faculties reported a moderate and/or less intense workload compared to STEM students, they did not say it was easy. Rob (Arts) explains:

Uh, it seems to be less so than, I have a lot less in class hours, but I'm definitely, I spend a lot more time like writing and you know, doing time-consuming things like that, but I would think in comparison to other programs it is probably smaller, probably just a couple hours a night.

Victor (Arts) and Cherry (Arts) also mention that, although the readings are heavy, they are manageable as long as one keeps up with it. Lola (Arts) further explains:

I feel like obviously every student has a breakdown, like 'oh I'm dying, I can't.' Uhm, but I guess I think that's part of every faculty. I'm not gonna say it shouldn't be like that, it should be like that.

In this sense, although STEM students report heavier workloads while Arts students' workload is moderate, both are manageable as long as they keep up with it.

Perceived workload was found to be strongly associated with the perceived prestige of one's faculty of study. STEM and Arts students associated a heavier workload with greater perceived prestige because they believed more work is associated with a greater difficulty. However, while all participants perceived that STEM students have heavier workloads in comparison to Arts, in reality, neither workload was reported to be easy. In this sense, while more work is associated with greater difficulty and therefore, greater perceived prestige, a lesser workload did not necessarily mean an easier workload.

Perceived Competition Within Faculty. STEM students reveal that their faculty is highly competitive in terms of admission, research positions, and post-graduate studies. Sarah (STEM), Betty (STEM), Lilac (STEM), and Veronica (STEM) disclose the different aspects within their faculty that tend to be competitive. For example, Betty (STEM) and Lilac (STEM) explain that their faculty is difficult to get into, as a high grade point average (GPA) is required for admission. Particularly, Lilac (STEM) explains:

Going into my application I knew I didn't want to do Life-Sci because there is a lot of competition and it's not easy and like I kind of wanted to do something like medicine and I knew it would be kind of hard if I did it through Life-Sci.

Betty (STEM) also indicates that her decision of which STEM faculty to enter was based on competition saying:

I figured that engineering was probably harder to get into but easier to drop out of and harder to get into if I went into science, and it be easier to move from engineering to science than from science to engineering.

In this sense, certain STEM faculties are seen as more challenging to get into and remain in than others.

Veronica (STEM) also states that there is competition within her faculty in upper-years, as students are preparing for admission to graduate level education, such as medical school. Veronica (STEM) explains:

Um, so I've heard that a lot of people are pretty competitive, especially towards upper years. Because um, I guess the majority of the people in my program want to go to med school and they know that there's only a limited amount of spots there? So, it's like any person that I'm better than in my program is just like… "I'm ahead of the competition" something like that.

Sarah (STEM) also reveals that while getting into postgraduate studies is competitive, she believes most of the competition is mental saying:

People like to exude that confidence all the time so I think that part makes it just a little more competitive like just mentally when you think about it. It's probably not as bad as everyone is saying it is but I think it is very competitive.

Regarding research/placement opportunities, Sarah (STEM) and Veronica (STEM) indicate that receiving a research position is limited due to the excessive number of applicants. Lilac (STEM) also explains, "the only thing that seems to be competitive is where you would get your placements, that's limited." Conversely, Betty (STEM) believes that research in co-op is not competitive, as there are many opportunities in the Engineering faculty. In this sense, larger faculties are viewed as having an abundance of opportunities at the undergraduate level. In regards to smaller faculties and competition for specializations, Lilac (STEM) explains:

Well it's not a big program and from what I've heard, like within your specialization usually people get into the specialization they want to. The only thing that seems to be competitive is where you would get your placements, because that's limited.

In this regard, while getting a desired specialization is not competitive in smaller STEM faculties, placements are more limited compared to larger STEM faculties.

Within Arts faculties, competition was perceived as low in terms of admission but high in terms of post graduate and job opportunities. Victor (Arts) and Lola (Arts) explain that their faculty was not as competitive for undergraduate admission as the required percentage for admission is significantly lower in comparison to STEM faculties. As a result, many participants explain that there is a stigma towards Arts students as people assume, they do not work as hard as individuals in STEM. For instance, Lola (Arts) explains:

I wish that the admissions or averages for the faculties were a little higher and it wasn't seen as something very easy because I feel like that's not portraying what the social sciences are because what students usually think is 'oh it's an easy course' but in the real world, solving a problem, it can be very challenging. So, I'm not saying to increase averages for admission to just make the life of the students hard, but I definitely think that there could be a higher standard.

When asked about the faculties he views to be competitive, Rob (Arts) reveals, "Life sci, engineering, health sci, that kind of stuff." When probed further as to why, he states:

Uhm, I had a friend in life sci, and I don't know, it seemed like they are really, I don't know it just, I don't know whether it's the content or maybe just the type of people who go into those programs, that they seem to be, especially if they're aiming towards law or med school or something like that then they are more competitive.

In this sense, perceived competition is associated with the perceived difficulty of course content, competition of future careers, and postgraduate programs.

However, not all respondents reported the lack of competitiveness within Arts faculties. For instance, Cherry (Arts) believes that her faculty is very competitive, and that achieving research positions is rather difficult. Similarly, Victor (Arts) and Lola (Arts) indicated that there is competition for academic job positions at the undergraduate level. Specifically, Lola (Arts) pinpoints how difficult it is to become a teaching assistant and to gain admission into a Master's program explaining:

I know I mentioned earlier that it's not very competitive… but there are some parts that are still competitive at the same time. Like maybe getting into a Master's program or I really wanna become a TA in my third or fourth year.

In this regard, competition in Arts is associated with opportunities within one's undergraduate degree (i.e., research and teaching assistant positions), post graduate work (i.e., masters programs, medical school), and future job opportunities.

Perceived Value

Value and perceived prestige were strongly related with many participants discussing them synonymously or in relation to one another. The majority of STEM students indicated that they do feel valued by McMaster University. Lilac (STEM), Betty (STEM), Sarah (STEM), and Maria (STEM) all conveyed that they feel valued due to the perceived prestige of STEM. For instance, when asked about if she feels like her faculty is valued, Sarah (STEM) indicated, "ya well like every single time our professors or TAs talk about the science program they are like "McMaster is the most research-intensive program in all of Canada" or something." In this sense, prestige of a faculty is strongly associated with value, which is associated with research and innovation. When asked if she felt valued, Betty quickly replied, "certainly!" Veronica (STEM) also replied, "Yes!" When probed further, both girls indicated that there is a lot of funding and research in STEM, which they also associated with perceived prestige.

Maria (STEM) also discussed the intersectionality of value and community in relation to being a female STEM student. When asked if she feels valued, she says she feels valued:

Especially being like a girl though there is a lot of like STEM, like functions you can go to as a girl and things like that so that it's more like they push it that way a little bit more.

In this sense, Maria (STEM) indicates that value is associated with the availability of faculty specific events, which is associated with a greater sense of community.

In comparison, most Arts students indicated that they feel less valued. Specifically, Lola (Arts) expressed that she does not feel like her faculty is valued at McMaster University, which she attributes to low prestige of Arts faculties. When asked if she feels her faculty is valued Lola (Arts) explains:

> Not as much, there could be a lot done because we are just as important and I feel like if we have that attitude of telling everyone it's not important, it does affect because psychological influences of others do impact how you see the world around you. So, it could definitely be more valued. There shouldn't be a hierarchy but it could be valued, and it should be valued because it is important.

When probed further she says, "I feel like a lot of people put the sciences and engineering, health-sci, life-sci at the top, and then for arts, it's not as valued as it should be." When Lola (Arts) discloses that value is associated with STEM faculties due to the perceived importance of the field, she says, "it's the nature of how people think or becoming a doctor or going in medicine is more important." She is also confused as to why Arts students are not valued as she states, "I think that we literally talk about problems that are everywhere, in every little place in our society, so how could we not be valued?" This conveys a direct comparison between STEM and Arts faculties, where Arts students perceive STEM faculties to be more highly valued because of perceived prestige and perceived importance.

Although many Arts students did not say directly that they are not valued in relation to their faculty, they were more hesitant and unsure than STEM students when asked if they felt valued. For instance, when Cherry (Arts) was asked if she feels the Arts are valued, she explains, "Uhm… yeah? Yeah. I mean McMaster… yeah sure. It's not even by the school but I don't know like maybe some people think it's like a waste, you know of a course. I don't know, I don't know." Rob (Arts) also reveals that because Arts faculties are so large, the revenue he assumes it brings to McMaster University contributes to its value, although he does not feel valued as an Arts student. Rob (Arts) explains, "I mean it's a big faculty and there's a lot of different programs. So, there's probably, I don't know, I'm sure it brings in quite a bit of revenue so I'm sure it's valued."

In relation to available funding for research in the Arts, Victor (Arts) further adds, "I mean I'm not aware of any but I feel like there would be some." In this regard, STEM students had a strong sense of value, which they associated with perceived prestige. Arts students also associated value with prestige and indicated that their faculty was less valued.

Sense of Connection

Sense of connection is measured based on a sense of community and belonging, which is evaluated based on event availability/attendance, peer relationships, and student-faculty relationships. It is important to note that participants often asked for clarification about the word 'belonging.' Interviewees explained this referred to feelings of being welcomed within their faculty. The terms 'Welcome' and 'belonging' were, therefore, used by participants interchangeably. Overall, STEM students reported a moderate sense of connection whereas Arts students reported a lower sense of connection in relation to the above variables.

Availability of Academic and Social Events

With regard to faculty events, Veronica (STEM) reported that there are many events available for students in her faculty to attend. In particular, Betty (STEM) and Veronica (STEM) mentioned that there are faculty-related workshops available specifically for career building. When asked if she attends faculty events Veronica (STEM) exclaims, "yeah, those are really fun!" Sarah (STEM) also mentioned that there are faculty-related seminars available to help students explore potential career paths. Sarah (STEM) further explains that there are a lot of STEM specific club events that are geared towards future career paths explaining:

> Some of the clubs like the pre-medical faculty or the club or pre-pharmacy club or whatever, they do big talks and presentations and stuff and meetings for people who are interested in that and then they will have like alumni come in and talk and teachers come in and talk.

Although Veronica (STEM), Sarah (STEM), and Betty (STEM) indicated that there are an adequate number of workshops and academically centred events, they also specified that there are limited social events. Sarah (STEM) explains, "it would be nice to have like a thing where you could connect with your professors more and then meet other people just not inside the classroom." This indicates that STEM faculties may place more importance on academic-related meetings rather than social events. While this increases the sense of community among students, social events are a necessary component of developing a strong sense of belonging (Araújo et al., 2014).

Event Attendance

In terms of attending faculty-specific events, the majority of STEM students attended those that were available or fit with their schedule. In terms of available events, Sarah (STEM) explains her faculty does "more symposiums and that kind of stuff, they are all like during really weird times so I haven't really gone to any of those" (Veronica, STEM).

Most STEM students also attended Welcome Week, which aided in the development of a faculty community and sense of belonging:

> Yeah, during welcome week we had like faculty chants and those are really nice cause you get to bond with other people in your faculty. Even when somebody like, so, they start with bleed blue, cause that's like the colour of our program. And then when anybody ever mentions the colour blue, everyone is like 'haha, we bleed blue' or something like that (Veronica, STEM)

Betty (STEM) further explains, "I definitely came to welcome week, I've been to a few events... there's a lot of them but I'd say I'd go to about 25 to 30% of them." Having a variety of faculty events at different times may, therefore, aid in the development of a strong sense of belonging and community among STEM students.

An interesting finding in this area is that Veronica (STEM) mentioned that she attends faculty events, but not social events – the opposite findings for other STEM and Arts students. Sarah explains that she desires to attend more events, despite already being

involved in clubs, displaying the range in which students desire to be involved in their faculty. These variables require further inquiry.

Arts students did not report participating often in faculty centred events but desired to do so more, with the exception of Welcome Week. Most Arts students stated that they attended Welcome Week. For Instance, Rob (Arts) explains, "I did all the welcome week events, but I haven't gone to anything really since regarding my faculty." When the interviewer inquired as to the reason why Arts students did not attend more faculty events, Lola (Arts) said, "Uhm I did attend welcome week. I also attended one of my geography's faculty night. The other ones… I didn't really hear about them, but I would love to attend if they come."

Although the majority of Arts students attended Welcome Week, they tend to be less engaged in faculty-specific events in comparison to STEM students. Rob (Arts) and Victor (Arts) simply stated that they do not attend faculty events. On the other hand, Cherry (Arts) and Lola (Arts) desire to attend more events and mentioned that they are unaware of the events taking place in the Arts faculties. In this regard, both STEM and Arts students enjoy Welcome Week as it provides a greater sense of community and belonging among them. However, Arts related faculty events may require more advertisements to allow students the opportunity to attend, and to have a range of time slots to accommodate students' schedules.

Peer Relationships

The responses of STEM students varied greatly regarding whether these individuals had friends in their faculty. For example, Betty (STEM) and Veronica (STEM) explained that most of their friends are in their faculty. Betty (STEM) states, "I do find that I stick with my faculty for social groups outside of school. So, you know, if I'm going to a party, I'll go with a couple of eng [engineering] kids." Veronica (STEM) also explains her relationships are "really good! Everybody is pretty supportive of what I've seen in my program, but I've heard some pretty negative stereotypes that it can get pretty competitive, but I haven't experienced that personally." In this regard, perceived competition, which is closely related to perceived prestige, may lead to the development of negative stereotypes that may be a hindrance to the sense of community and belonging within one's faculty.

Although Lilac (STEM) also explained that she had friends in her faculty, she prefers to have a small group of friends. Sarah (STEM) also explained that she made friends in her faculty, but due to the size of her faculty, she sticks to a smaller group of people explaining:

> In the faculty, like I have my own group of friends but ya we don't really go out much like make the effort to talk to like a lot of other people cause there's like a thousand people in life science and then some of them you just you know don't vibe with.

In this regard, the size of faculty may hinder the development of large-scale connections within one's faculty, which may lower the overall sense of community.

Despite stating that her peers are friendly, Maria (STEM) did not make friends in her faculty explaining, "most of my friends aren't actually in my faculty, but I feel like everyone I talk to is pretty nice." STEM students also made friends outside of their faculty through extra-curricular activities and clubs, which are popular sources of student relationships.

As Sarah (STEM) says, "the friends I'm making, most of them are in life science but like I've done clubs and stuff so they are kind of all over the board." In this sense, STEM students displayed a range of responses regarding relationships with those in their faculties, which contributes to a moderate sense of community and belonging among them.

Similarly, Arts students displayed a variety of responses regarding whether they had friends in their faculty. Victor (Arts) stated that he has some friends in his faculty, whereas Cherry (Arts) and Rob (Arts) did not make many friends in their faculty, rather they made most of his friends in residence explaining, "I really don't know any of my peers. Most of my friends I've met through residence or from something else prior. I don't really know anybody in my faculty actually." Cherry (Arts) also explains, "I have like a few friends in most of my classes, but I usually hang out with people on my floor more, so yeah."

Rob (Arts) further states that he does not feel welcomed due to the challenges associated with connecting with others in his faculty. For instance, he explains that it is harder to connect with individuals because the Arts faculties are too broad, class sizes are too large, and peers tend to have different interests. Rob (Arts) explains "yeah, it's a little bit isolating I would say overall." When probed further he says this is because:

> Everybody in social sciences, there is such a broad range of things that everyone is doing so it's hard to, you know, find a group. Where my roommates in engineering, he's with the same people all the time between classes and they are almost all the same courses and what not.

When asked if he feels like he belongs (i.e., is welcomed), Rob (Arts) adds:

> Uhm, yeah I guess welcomed wouldn't be the word though, I don't see that, there's not really, there's not as much of a support system as there are for maybe smaller faculties, like I have a friend in art sci and if he doesn't show up, his professors, they know him by name. Or even in engineering, there is probably more like within peer groups there is more support than probably in social sciences.

In this regard, size of faculty is associated with a sense of community and belonging, as peer groups are perceived to be able to interact on a more individual level when classes are smaller. Smaller faculties are also associated with greater support, which Rob (Arts) attributes to the overall sense of community. Cherry (Arts) further indicates the lack of peer relationships, as she reveals that people in her faculty are not very good at socializing. Thus, she desires smaller class sizes to get to know peers on an individual basis. Lola (Arts) also indicates:

> I do feel welcomed in my faculty but I do understand that as a first year, it can be challenging to make friends no matter from where they come. But definitely in terms of how profs treat you, how your peers are, in terms of the course, and in terms of discussing stuff in the course, yeah. But I obviously feel like transitioning into university is a little bit of a challenge for everyone. But faculty, yeah.

Thus, while some participants discuss community and belonging as distinct variables, most understand and acknowledge them as synonymous.

Victor (Arts) believes that he belongs in his faculty, as he is pursuing his interests by studying philosophy. When asked about his sense of belonging Victor (Arts) replies, "yeah, I feel like it's a good match." Thus, Victor (Arts) possesses feelings of belongingness due to his interest in Humanities.

Lola (Arts) also recognized that there is a strong sense of belonging within Arts faculties, specifically Social Sciences, explaining:

I love my faculty because it's very open and I respect everyone for who they are and I think Social Sciences is one of those faculties where you can actually talk about the things that other faculties or people would avoid, like you can talk about your emotions. You can express your emotions, no one is going to judge you for who you are, everyone's welcome.

In this regard, Rob (Arts), Lola (Arts), and Cherry (Arts) associate belonging with peer relationships and faculty support as well as general feelings of acceptance within their faculty. In comparison to STEM students, Arts students reported having a moderate to low sense of community and belonging within their faculty.

Student-Faculty Relationships

After interviewing students in STEM and Arts faculties, it is apparent that, although all participants attend lectures and participate in tutorial regularly, the majority of STEM students do not have strong relationships with their professors. For instance, when asked what her relationships with her professor were like, Sarah (STEM) laughed and stated, "non-existent." When probed further, Sarah (STEM) adds:

Ya so a lot of the times after lectures [professors] will be bombarded with people lining up to talk to them but I know so that's like usually pretty good, but then I know a lot of my friends went to some professors' office hours to ask about some questions on our midterms and they just like they just didn't want to answer it, like they either didn't know the answer or like just were super closed-off about it.

Lilac (STEM), Betty (STEM), and Veronica (STEM) all agree, saying that their professors generally seem very busy and do not appear to be interested in developing relationships with students.

However, Betty (STEM) and Veronica (STEM) also explain that some professors were responsive and friendly. Veronica (STEM) states:

I see them walking around a lot between MDCL [Michael G. DeGroote Centre for Learning and Discovery] and HSC [Health Sciences Centre] and um, I see a lot of first years stop them sometimes and ask them some course related questions and they're always happy to chat.

Despite being available to talk, Veronica (STEM) explains that the relationships she has with her professors are not strong, she says, "I've talked to a couple of them in office

hours, or before or after class, but it's not like, it's not like they know my name." When probed further, Sarah (STEM) states that it is not about professors' personalities, rather, their teaching style is difficult. She explains, "they are great people, it's just really hard sometimes that they forget like we are literally new at this." In this sense, experience with professors is mixed among the respondents.

Maria (STEM) explains that large lectures may hinder the fostering of their relationships with professors, as having more students prevents the professor from getting to know students on an individual basis. Betty (STEM) agrees as she states, "I would say because of the size of the engineering classes, I don't have, uh, a very personal relationship with the professors, uh just because the class sizes are so large." Sarah (STEM) adds:

I guess is kind of hard because literally everyone in first year has to take chemistry so give us more time to like talk in smaller groups, talk to upper years or something because like the material they teach is really hard and then it's kind of hard to like stick your hand up and talk to your fellow professors among 400 people.

In this sense, large lectures may be hindering the academic experience, as students are uncomfortable participating in this environment.

Although many students recognize that there are opportunities to connect with their professors during office hours, they do not attend. Rather, they prefer talking with teaching assistants about course related content. They explain that they only talk with professors if it is necessary. For example, when asked if she attends her professors office hours Sarah (STEM) says:

Not my professors, but like my TAs I go and then I think for professors it's more like when I need something like if there was like a wrong grade on my midterm then I'll go to office hours, but like I don't go to them if I have a question or something.

When probed further she explains this is because:

There are a lot of students in science and everyone says go make a relationship with your professor but some of them just get the vibe that like the professors don't really care that much or don't have the time so in first year I'm just kind of like whatever I'll just make them teach it to me and then I'll talk to my TAs and stuff more.

However, most students desire to develop stronger relationships in the future. For instance, when asked about developing relationships with her professors, Maria (STEM) explains, "Yeah, that's the goal. I always think I will and I try to go to office hours and stuff, but I don't. Yeah, like I would like to, but yeah, not at this point." As a result, students may attempt to develop stronger relationships with professors during their upper years rather than in first-year.

The relationships between students and professors vary for students in Arts faculties. Students disclose that many of the professors in Arts faculties are available during office hours, which provides students the opportunity to connect with them. As Cherry (Arts) explains, "My Poli-Sci prof, I met with him once to ask about an essay. He's a super funny guy to talk to. Other than that, though I don't really know any of my profs quite well."

However, despite their availability, many students, including Victor (Arts) and Rob (Arts), do not attend office hours. Rob (Arts) displays feelings of insignificance as he discloses, "I don't think they know that I am there. Like if I'm not, if I didn't show up, they wouldn't have any idea." He also adds that professors appear to be too busy to interact with students explaining, "yeah, most of them provide office hours, but I understand that their schedules are also, they are probably also really busy, teaching a lot of courses." Cherry (Arts) also explains her experiences with professors are mixed. She states, "I can tell that some of my profs are like "don't talk to me" and others are like "oh ask me anything!" so it depends." Rob (Arts) also solidified this saying, "I've had some good ones and I've had some bad ones. It's hard to, it's really case to case."

Yet, all Arts students explain attending tutorials as they give students an opportunity to interact and engage with teaching assistants. Teaching assistants are closely linked to professors, as they assist professors with teaching important content and grading. For instance, Rob (Arts) and Cherry (Arts) reveal that teaching assistants are extremely helpful, as they provide more support outside of the classroom. As Rob (Arts) explains, "I find the TA's, there is always something available if you do need, you know some kind of support." When probed further, Rob (Arts) reveals that larger class sizes may be the reason for poorly developed relationships with professors, explaining:

> I would try and find some way to have smaller lecture halls and smaller groups to work with more often cause that's really where I think probably most people do their best learning as opposed to when you, most of my classes have like three to five-hundred people so it's hard to feel like a personal connection with the professor or anything like that.

Cherry (Arts) furthers this sentiment when asked about participation in lectures explaining, "so I pretty much always attend my lectures. I don't really ever participate in my lectures but I participate in my tutorials so yeah." Smaller learning environments, like tutorials may, therefore, be the reason for stronger relationships with teaching assistants as opposed to professors.

However, an outlier in our sample was Lola (Arts) who expressed that she has a good relationship with professors, as she constantly attends office hours and engages in conversations with them. She explains, "sometimes I feel like I'm overdoing it but I just love what I do but yeah I take chances as much as I can to talk to the profs after lectures, in their office hours, whenever it's possible." She further states that she does this because:

> They are open to questions and that's why uhm I mentioned in the interview that I talk to my professors because they let me talk cause they're very passionate about it but sometimes I feel like there are certain issues.

In regards to furthering these relationships she explains, "I hope that I can build that relationship up as well." She also explains that these relationships are important in upper years, which may explain why first-year students have not taken a large initiative to develop strong relationships with their professors. Veronica (STEM) agrees explaining that these relationships are important in upper years as professors act as mentors and

become more impactful in terms of post-graduate opportunities (i.e., writing recommendation letters).

Outliers

An interesting outlier in terms of sense of connection was Maria's (STEM) association between faculty competition to feelings of connection, as she discusses that she does not have a strong sense of belonging to her faculty, as she does not believe that she is as academically driven as others. When asked if she feels like she belongs she explains:

Sometimes, to be honest like not all the time. Like I feel like a lot of people, but this is probably every faculty maybe I'm just not like driven, I don't know, I feel like a lot of people, put a lot of pressure on themselves and their grades and stuff, I don't really feel the same.

In this regard, she perceives other individuals within her faculty to be more academically competitive, which she associates with feelings of belonging. Thus, while sense of value, perceived prestige, faculty events, peer relationships and student-faculty relationships are associated with a sense of community, they do not necessarily result in feelings of belonging, which may be driven more by internal mechanisms like perceived academic drive.

Changes to Faculty

Concerning what STEM students would like to change within their faculty, many opinions arose. Sarah (STEM) and Betty (STEM) express that they would like smaller class sizes, if feasible. Lilac (STEM) does not convey this concern, as she states that her class sizes are generally small as she is in a relatively small faculty. Sarah (STEM) would also like more community-building events to connect with professors and peers outside the classroom. This suggestion indicates that Sarah (STEM) would feel a greater sense of community and belonging if she had the opportunity to connect with her professors and peers in social settings. Maria (STEM), Betty (STEM), and Veronica (STEM) communicate their desire for a wider range of courses. These respondents would like more available courses outside of their major, to gain knowledge outside of their area of study. For example, Veronica (STEM) would prefer more specialized courses to choose from. She reveals that she would appreciate the opportunity to have courses that gage a psych-neuroscience background, rather than general science courses. She explains:

Um, so they recently got rid of a uh, psycho-bio course, because I think that the professor that taught it left, but bringing that back would be nice, especially because we don't have that psychology or neuroscience background anymore, it's just straight cell bio? So, I guess I'm kind of just missing that aspect.

Similarly, Betty (STEM) also expresses the desire for more courses within the Engineering faculty, explaining:

So eng [engineering] is very 'this is what you're taking, here you go' which I do like, I appreciate that because I had no idea what I wanted to do I got to university but I would

have appreciated maybe a difference between things, or maybe something more like one or the other so I could have a bit more options.

Betty (STEM) also makes an interesting suggestion, as she is dissatisfied with the professors in her faculty. She explains that most professors tend to be focused on one specific area rather than focusing on the broader aspect of a course. Lilac (STEM) stated that she would not change anything in her faculty, as she is quite satisfied with the Medical Radiation program. Therefore, while those in STEM express a variety of opinions regarding what they would like to change within their faculty, the main focus is surrounding class sizes, course options, and community events.

Similarly, respondents in the Arts request for a wider range of course selections within their faculty. Specifically, Victor (Arts) explains the lack of course selection for specialized courses in first-year, while Cherry (Arts) desires more courses outside of her major. Victor (Arts) states "I would probably add a few more courses in philosophy. I feel like there's not enough in first-year." Rob (Arts) would like smaller class sizes but does not believe that achieving this would be realistic due to how large the Social Sciences faculty is. Lola (Arts) expresses a unique concern, as she would like more opportunities to get involved within the faculty due to biased decisions. Particularly, she talks about her experience applying for a role in the McMaster Social Sciences Society. Lola (Arts) discloses:

I was someone who tried to achieve a role in the start of my first semester, to be a representative for social sciences in first year and I feel like… and I'm not the only one… I'm not going to name anyone else obviously, I definitely feel like the McMaster Social Sciences Society, the student one, is not very fair uhm from what I have observed. I feel like we see a lot of the same people and a lot of people might think that it might be those who are in charge, favouring their friends, which I feel like it's not fair … I feel like other people should also get an opportunity.

Lola (Arts) also makes other suggestions, as she would prefer more job opportunities on campus to be available due to the financial stressors that students experience when transitioning into university. She also proposes the idea of having more research opportunities for students in first year, as this will help them prepare for future research in one's academic career.

Although STEM and Arts students possess a wide range of opinions, they generally have similar concerns regarding their faculties and what they would like to change including those focused on class sizes, community building, and course selection.

Discussion

In this section, we will discuss the major findings of our study that contributed to substantial differences in self-validation among STEM and Arts students. We will discuss these variables, connecting them to our theoretical frameworks and previous literature developed in this area of inquiry. We will also comment on the broader significance of the research and how it contributes to the existing pool of data. While the other variables we discussed in our results are important, we did not find a great difference between STEM and Arts students' experiences in relation to them, nor did they have a substantial impact on students' level of self-validation and will therefore not be discussed further.

Overall, we found that self-validation is greater in STEM students in comparison to Arts students. We found that a greater sense of self-validation in STEM students is the result of greater perceived prestige and value of STEM faculties, a greater sense of community among STEM faculties, and stronger sense of academic efficacy and confidence in STEM students compared to Arts students. We will discuss each of these variables below in more detail.

Perceived Prestige and Value

Participants viewed STEM faculties as more prestigious than Arts faculties. This prestige was attributed to heavier workloads, greater assumed difficulty of academic material in STEM faculties, greater perceived competition for jobs, and research opportunities/post-graduate programs. STEM students were also found to have a greater sense of value in comparison to Arts students. Value was attributed to perceived allocation of funding and availability of research opportunities in one's faculty. Both prestige and value significantly contributed to a higher sense of self-validation in STEM students.

STEM faculties were perceived to be more prestigious than Arts faculties due to the perception of heavier and more difficult workloads in STEM courses. Our study found that the workload for STEM courses was perceived to be heavy by STEM and Arts students but it was reported as manageable by STEM students. Whereas the workload of Arts faculties was perceived to be low by STEM students and moderate – yet also manageable – but not necessarily easier by Arts students. Our findings thus indicate that STEM faculties are considered to be more prestigious than Arts faculties because the majority of STEM and Arts students associated heavier workloads with difficulty and thus more prestige. This finding is important as perceived prestige was found to impact students' sense of value within their faculty, which in turn, impacted their overall sense of self-validation.

Participants in our study linked the perceived difficulty of STEM courses to faculty prestige. They did so through their assessment of bird courses, which is discussed in more detail below. When asked about bird course selection, most participants reported that they would stay away from taking STEM courses, as these courses are perceived to be difficult. Participants also often linked difficulty with prestige, which is in line with previous research findings that relate the difficulty of courses taught in a particular program to higher levels of prestige (Euster, 1980). Specifically, this study outlines that natural science-based faculties – those more in line with STEM – are seen as more difficult and more prestigious than social work – an Arts based course. In short, findings indicate that the more difficult a faculty is perceived to be, the higher its prestige. Therefore, the findings of our study confirm and expand previous research by associating a greater level of perceived difficulty of STEM courses and faculties in general with a high level of perceived prestige in comparison to Arts courses and faculties.

In addition, Svalastoga (1975) finds that one of the most crucial factors in assessing occupational prestige is the difficulty of the job itself. Paired with job responsibility, job difficulty accounts for approximately 90% of the variance of occupational prestige (Svalastoga, 1975). This is in line with our findings as STEM and Arts students perceive STEM faculties as more prestigious because of the perceived difficulty of their workload. Although we did not account for responsibility felt by students in their programs, having a

heavier and more difficult perceived workload may relate directly to STEM students' perception of responsibility (i.e., they have more work to get done and thus more responsibility), which Svalastoga (1975) explains contributes to a greater level of prestige.

Our findings fill a void in current literature, as there are no recent research studies that link the perceived workload of *STEM and Arts programs* to the level of prestige associated with each faculty. Our study is, therefore, beneficial as it adds to the pool of existing literature by revealing how the prestige of academic faculties remains partially dependent on the perceived difficulty of the workload in these faculties. This perception is true for both STEM and Arts students.

In STEM faculties, prestige was also associated with perceived competition within one's faculty including competition for research opportunities, post-graduate programs, and jobs. In Arts faculties, prestige was also associated with competition for research and job opportunities but Arts faculties were seen as moderately competitive when compared to STEM faculties. Tucker and Sloan (1964) suggest that competition in undergraduate studies is due to limited space in graduate schools for students desired programs. Graduate schools recruit students based on their academic potential (i.e., publications, profits, recognition) (Tucker & Sloan, 1964). Competition for grades and research opportunities at the undergraduate level may, therefore, be explained due to limited spots at the graduate level (Tucker & Sloan, 1964). This is consistent with our study as most STEM and some Arts students reported a desire to continue on to the post-graduate level pursuing studies in mainly law and medical sciences. STEM students specifically reported that competition for medical school is high resulting in competition for research and grades. Although STEM students reported high competition even at the first-year level, they reported opportunities were readily available. This is likely the same mechanism associated with perceived competition for jobs – limited spots and recruiters desiring the most qualified candidates (Tucker & Sloan, 1964) – as graduate programs lead to additional job opportunities in the future.

Misra et al., (2000) find that that competition and stress varies in undergraduate students across academic years, typically increasing in upper years of study. Our research confirms this finding, discovering that while Arts students reported less competition for research opportunities at the first-year level, they also explained that they believed competition would increase in upper levels as people become more 'serious' about graduate school. In opposition to first-year STEM students, Arts students also explained that research opportunities were scarce, potentially leading to increased competition in upper years. A follow up study of fourth-year undergraduate students in STEM and Arts programs who are applying to postgraduate studies can confirm the actual rather than perceived increase in competition and stress in upper years.

While competition is perceived to be higher in STEM faculties, Arts students also report competition and both report stress related to this variable. Lola (Arts) specifically noted that stress is something she finds difficult to cope with in her transition to university. Stress was not a significant focus of our study, however, additional research into the impacts of stress in relation to competition in STEM and Arts students is required as academic stress related to grades and research positions in both undergraduate and graduate level studies is proven to lead to negative effects such as poor wellbeing, poor work/life balance, a breakdown of interpersonal relationships, and stimulant use to improve grades (Bruyn et al., 2019; Bergmann et al., 2018;). It is suggested that coping skills and stress

management need to be taught at the early undergraduate level to make the transition to post-graduate and work environments easier (Bruyn et al., 2019).

In terms of value, students were asked about their perceived allocation of funding in their faculty, which is found to be directly associated with the availability of research opportunities. Perceived prestige and value were also strongly related, often being discussed by participants interchangeably. As a result, we believe that prestige and value are seen as similar variables that, therefore, have a similar degree of impact on STEM and Arts students' sense of self-validation.

Although none of our participants knew exactly the amount of funding allocated to their faculties or specific programs, STEM students had the perception that funding for STEM faculties was high. They attributed this to the new and maintained buildings on campus and the availability of research opportunities for STEM students. In their responses, they were very quick to discuss funding and very sure that it was high. Whereas most Arts students reported that they did not know the exact amount of funding allocated to Arts faculties but believed there must be "some" funding available. Most Arts participants were unsure in their answers and one participant, Lola (Arts), reported that she believed the allocation of funding was low in Arts faculties.

The literature regarding the allocation of funding in STEM and Arts faculties aligns with our participants' perceptions as it suggests that Liberal Arts faculties are underfunded in comparison to STEM faculties (Jones and Hearn, 2018; Robbins, 2017). This has forced a lot of Arts programs to shut down because of a lack of funding (Jones and Hearn, 2018). In the United States where university program funding is heavily split between private and state level, STEM programs are typically more funded than Liberal Arts programs (Jones and Hearn, 2018; Robbins, 2017). Some studies find that 90% of government grants are allocated to STEM faculties (Miles, 2016). This displays the value and prestige allocated to STEM faculties in direct comparison to that of Arts faculties. These findings are consistent with the perceptions of participants in our study as they show that STEM and Arts students perceive that STEM faculties are more highly funded and thus valued in comparison to Arts faculties.

Many studies have found that the allocation of funding in universities can be explained by the increasing competition for prestige at the institutional level (Robbins, 2017; Miles, 2016; Jones and Hearn, 2018; Zerquera, 2018). Prestige is associated with research production status, which directly relates to the allocation of funding for different departments (Robbins, 2017; Miles, 2016; Jones and Hearn, 2018; Zerquera, 2018). In other words, the more research a department turns out, the more prestigious the institution becomes and the more funding is allocated to research intensive programs.

Funding is also shown to be allocated based on the "return" of the investment. In other words, programs that tend to make the state and the institution more money are seen as more valuable and, therefore, more highly funded (Jones and Hearn, 2018). While we, as researchers, do not have access to information regarding the actual allocation of funding, the above studies suggest that STEM faculties are more highly funded in comparison to Arts faculties. Although this research is based on American universities, funding in Canada is also based on provincial, federal, and private grants (Statistics Canada, 2017). This suggests that the allocation of funding to STEM and Arts faculties in Canada is similar and based on the profit these programs provide.

Collectively, these studies display the link between the allocation of funding and research – and thus research opportunities for undergraduate STEM and Arts students – as a mechanism to achieve institutional prestige. All of which results in an unequal distribution of value between STEM and Arts faculties. However, research that displays the impact perceived prestige and value has on self-validation in STEM and Arts students does not exist. Our study thus provides a link between perceived prestige, value, and self-validation as it relates to the allocation of funding and research opportunities. Our study also outlines the impact of self-validation on students' university experience, displaying the importance of equitable funding allocation and research opportunities for both STEM and Arts faculties in a Canadian context.

Although there are few specific studies that confirm/challenge or explain the mechanisms behind our findings regarding perceived prestige and value of STEM and Arts faculties, broader theoretical frameworks can be used to further interpret these findings. They can also be used to provide possible explanations for these findings, as well as the impact of greater perceived prestige and value in STEM faculties in comparison to Arts faculties.

In regards to Schema Theory (Bartlett, 1932), our study finds that students store general categorical schemas related to their faculty. In other words, they store cognitive classifications of others based on their position in a STEM or Arts faculty. We also found that students categorized themselves based on characteristics of their faculty that they have internalized based on both personal perceptions and assumptions made about them by others. This provides confirmation that participants use self-schemas as a means of developing self-concepts as STEM or Arts students (Fong & Markus, 1982).

In terms of STEM students, general schemas include characteristics like being "smart," which arise from the perception that they have a difficult workload – as previously discussed, STEM courses are seen as difficult courses that students tend to avoid – and a heavy school schedule. Both of which contributed to an increased perception of STEM as a prestigious faculty. However, although our STEM participants reported that others often referred to them as smart, STEM students did not refer to themselves as smart but were aware of the stereotype others held of them. STEM students also had a higher overall sense of value, which was associated with characteristics they attributed to themselves such as an ample amount of opportunities in terms of research, high allocation of funding, a lot of intra-group competition for postgraduate programs (i.e., medical school), and direct future career paths – discussed further below. Both perceived prestige and value contributed to STEM students' overall higher levels of self-validation.

In contrast, overall Arts participants reported a low sense of value and prestige. Although Arts students believed that their faculty should be viewed as more prestigious, they were aware of the perceptions of others, who they reported viewed their faculty as less prestigious in comparison to STEM faculties. They reported that their courses are seen as bird courses and that others view their workload as light and thus "easy." Although Arts students did view their workload as light in comparison to other programs, they asserted that this does not necessarily mean it is easy, rather it is challenging but manageable. Arts students also had a lower overall sense of value, which was attributed to lower allocation of funding and fewer research opportunities in comparison to STEM faculties. Both prestige and value contributed to Arts students' overall lower levels of self-validation. In this regard, both STEM and Arts students hold various prototypical

categories of themselves and their out-groups based on assumptions/stereotypes of their faculties.

This finding is in line with previous studies that report junior and senior students in majors like marketing, acquire role-identities throughout their undergraduate career based on their program of study (Kleine, 2002). In this regard, like STEM and Arts students in our study, they come to understand themselves as "marketing students" and internalize roles and identities around this category of self-conception (Kleine, 2002). Our study, therefore, confirms this finding, displaying that STEM and Arts students come to understand and internalize the characteristics attributed to the category of a STEM or Arts student, which is influenced by the courses they take, their behaviours, their aspirations, and the people they associate with (Kleine, 2002). Our study also adds to this research showing that STEM and Arts students also develop faculty-based identities in relation to their perception of prestige and sense of value within their faculty. This is important as previous studies have shown that positive identity development is a strong predictor of degree persistence, especially in STEM students (Perez et al., 2014).

In addition, because Schema Theory and Self-Schema Theory assert that the internalization of general categorical schemas impact the way individuals think, feel, and act (Fong & Markus, 1982), we assert that the internalization of positive categorical schemas in relation to prestige and value, therefore, increase their sense of self-validation. Whereas the perceived misrepresentation of Arts faculties leads to the internalization of negative categorical schemas of Arts faculties, leading to a lower overall sense of perceived prestige and value among Arts students. This in turn, lowers their sense of self-validation. As Perez et al. (2014) suggests, this may lead to lower degree persistence in Arts students. Although we do not know which participants will actually remain in their program of study, all STEM and Arts students report that they plan to persist in their studies for the remainder of their undergraduate careers.

When framed in terms of Symbolic Interactionism (SI), this finding suggests that the prototypical categorization of STEM and Arts students is given hierarchical meaning and value (Blumer, 1969). This attribution and internalization occur on an individual and social level as students in STEM and Arts faculties internalize the meanings attributed to their faculty, which are created and ranked hierarchically in social interactions (Blumer, 1969). This is displayed when STEM and Arts students report knowing how others view their faculty and what this means in terms of its perceived prestige. This perception of prestige is accompanied with variables that influence students' own perceptions of their faculty, which then becomes internalized and socially ranked, affecting students' sense of value and impacting their self-validation. In this regard, as an extension of SI, Cooley's (1902) concept of 'the Looking Glass Self' can be used to explain how STEM and Arts students internalize perceptions of others' perceptions of them, influencing their thoughts, feelings, and behaviours towards their faculty and, in turn, their self-validation.

As a result of the unequal perception of prestige and value among STEM and Arts students, our study found that inter-faculty hierarchies are developed, where STEM faculties are viewed as more prestigious and more highly valued than Arts faculties, resulting in a higher rank. Tajfel & Turner's (1979) Social Identity Theory (SIT) can be used to explain the mechanisms behind and impact of these inter-faculty hierarchies. For instance, in addition to categorization and social identification, SIT outlines the concept of social comparisons (i.e., weighing one group against another). Our study finds that the

categorization of STEM and Arts students into groups, results in the development of in-group and out-group mentalities (Allport, 1958; Tajfel & Turner, 1979). Along with this, because of the unequal perceived prestige and value among STEM and Arts faculties, students made upward and downward social comparisons between STEM and Arts faculties (Tajfel & Turner, 1979). As outlined above, some Arts students made downward social comparisons between Arts and STEM faculties, asserting that they had less research opportunities, lower allocation of funding, less competition, and fewer direct career paths. Yet, other Arts students reported believing that their faculty is prestigious but understood that others do not view it as such. As a result, although some Arts students believe their program is prestigious, they perceive others as making downward social comparisons between STEM and Arts faculties, which was internalized. The imbalance between perceived prestige of Art and STEM faculties was found to contribute to inadequate feelings of value among Arts students, which lowered their overall sense of self-validation.

In terms of STEM students, Tajfel & Turner (1979) suggest that feelings of superiority that result from upward social comparisons between the in-group and out-group result in prejudice and discrimination. However, although STEM students were aware of and internalized the perceived prestige and value of STEM faculties, only a few of our STEM participants outwardly reported making upward social comparisons between STEM and Arts faculties. While we assumed this was because the researchers are in an Arts faculty, leading to potential report bias, only one Arts participant in our study reported experiencing prejudice for being an Arts student, explaining that his friends made fun of him for being in an Arts faculty. While this finding may be the result of a low sample size, it suggests that our initial belief about upward social comparisons leading to a sense of superiority among STEM students and resulting in cross-faculty prejudice was incorrect. Therefore, while it is apparent that in-group and out-group mentalities exist among STEM and Arts students and some STEM students make upward social-comparisons while some Arts students make downward social comparisons between STEM and Arts faculties, there is little inter-group prejudice occurring between these groups.

However, as Lytle (2018) suggests, making upward social comparisons, and thus viewing one's in-group as superior, may be more beneficial on the individual/in-group level as a means of elevating one's self-esteem. This does not require outwardly prejudicial behaviours (Lytle, 2018). In other words, the internally held belief that the in-group is better than the out-group is substantial enough to sustain and maintain a positive view of the in-group without the need to be outwardly discriminatory (Lytle, 2018). This may explain why so few STEM students made overtly upward social comparisons between STEM and Arts faculties and why Arts students do not report experiences of prejudicial or discriminatory behaviour – as it is not required for STEM students to feel a sense of superiority or to maintain a positive view of themselves (Lytle, 2018). Yet, this does not explain why one Art student reported being discriminated against for being in an Arts faculty. The mechanisms behind this finding, therefore, require further research.

Despite requiring more research regarding the occurrence of inter-faculty hierarchies and their impact on STEM and Arts students, our study did find that there was an intra-faculty hierarchy with overt prejudice occurring within STEM faculties. Specifically, our study found that smaller speciality sciences (i.e., health sciences, engineering) were viewed as harder and more prestigious than general sciences (i.e., life science, biology).

STEM students in our study also reported that speciality STEM programs displayed an overt sense of superiority over general STEM programs. This displays the presence of an intra-faculty hierarchy with clear upward social comparisons being made between STEM programs.

While no research exists that looks specifically at the mechanisms behind intra-faculty hierarchies, a related study looks at the development of inter-faculty hierarchies among educators of different academic disciplines (Euster, 1980). This study finds that STEM programs are viewed as more prestigious due to variables such as perceived course difficulty, allocation of funding, and research opportunities (Euster, 1980). However, this study does not explain why these hierarchies exist nor does it explain the degree of prejudice displayed across faculties. In this regard, our study contributes to existing literature, revealing that inter-group hierarchies are carried out into the first-year undergraduate level and also exist between programs in the same faculty. Our study also provides an updated data set, confirming that inter-group hierarchies are still prevalent today.

There is no literature that we know of that focuses on the development of intra-faculty hierarchies. However, because of the known negative outcomes of prejudicial attitudes and perceived superiority in different contexts such as a breakdown of unity and group relationships, avoidance, and in extreme cases, violence towards the person and/or property (Allport, 1958; Lytle, 2018), we suggest further inquiry into the mechanisms that result in the development of intra-STEM hierarchies and the impact (if any) of these hierarchies on variables such as self-validation. If these results are found to have substantially negative impacts, additional studies to test intervention strategies based on theories such as Interpersonal Contact Theory (ICT) to lower their effects will be required. ICT states that both groups must have equal status, similar/superordinate goals and interpersonal contact that allows them to work together to achieve these goals, and the contact must be supported by a legitimate authoritarian figure (Allport, 1958). Allport (1958) also entails that interpersonal contact must be informal in nature and must not be forced by outside sources in order to operate successfully. Employing an intervention strategy based on ICT will likely decrease the sense of superiority felt by students in specialized STEM programs, improving the relationships and reducing the hierarchies within STEM faculties.

Sense of Community and Belonging

STEM students were found to have a moderate yet overall stronger sense of community and belonging than those in Arts faculties who had a low overall sense of community and belonging within their faculty. A strong sense of community and belonging was found to be significantly higher in speciality STEM programs because of smaller class sizes, as there is a better ability to develop interpersonal relationships with peers and professors. This finding is associated with a stronger sense of connection felt by STEM students to their faculty, which ultimately led to a greater sense of self-validation among STEM students in comparison to Arts students. Sense of connection was associated with event availability, event attendance, peer relationships, and faculty-student relationships. While we initially expected that event availability and attendance was linked to perceived value in one's faculty, with additional analysis, we discovered that this variable was more strongly associated with community and belonging.

In terms of faculty-student relationships, our research aligns with previous findings that show the importance of formal and informal interactions with peers and professors as they add to the university experience (Komarraju et al., 2010). STEM and Arts students in our study reported weak relationships with professors due to feelings of anonymity and discomfort in larger class sizes, which they reported hindered their overall sense of community and belonging in their faculty. However, both STEM and Arts students reported stronger relationships with TAs because of the more intimate setting of tutorials. A strong sense of community and belonging was especially true for the overall experiences of students in specialty STEM programs (i.e., Medical Radiation) as their core lectures are reported to be smaller than average first-year STEM classes, which works to facilitate the development of faculty-student relationships. Implementing smaller class settings into courses – such as having mandatory tutorial hours or multiple core lectures per week to lower class sizes – may, therefore, help foster the building of student-faculty relationships.

Previous research reveals that validation from faculty-student interactions are particularly beneficial for minority students (Hurtado et al., 2018; Baker & Griffin, 2010). For instance, faculty-student interactions that create an inclusive environment amplify students' sense of belonging within their institution, especially for students who are likely to experience racial and ethnic discrimination (Hurtade et al., 2018). Studies also suggest that planned mentoring between faculty members and minority students can help decrease college dropout rates among this group, as planned mentoring improves academic retention, and in turn, academic success (Redmond, 1990). In this regard, we assert that acknowledging barriers to integration in first-year will help both STEM and Arts students develop a stronger sense of community and belonging within their faculty, which will aid in academic achievement and degree persistence, especially for minority students.

While office hours are meant for one on one time to build relationships with professors and gain knowledge about course content, both STEM and Arts students reported that they did not attend their professors' office hours. We believe this is due to the perception students have of their professors. For instance, STEM students reported mixed experiences with professors – perceiving some as cold and distant and others as open and knowledgeable but busy. While Arts students perceived their professors as open and willing to help, similarly to STEM students, they perceived them to be intimidating and busy.

In alignment with the perception of professors, some studies suggest that low office hour attendance is due to misinterpretation or inaccurate meaning attached to the purpose of office hours among first-year students (Smith et al., 2017). Guerrero & Rod (2013) discover that this low engagement in office hours becomes a circular issue as both professors and students have a negative association with office hours. Students do not attend for internal and external reasons (i.e., not having questions, hours not fitting into their schedules, not understanding the purpose of office hours) (Guerrero & Rod, 2013). As a result, professors become discouraged by low turnout and do not reach out to students, who in return, develop poor perceptions of their professors and thus do not put effort into developing these relationships (Guerrero & Rod, 2013). In this regard, communicating the purpose of office hours and increasing engagement encouragement

may increase office hour attendance and help to build stronger faculty-student relationships.

We believe it is possible to increase the fostering of these relationships as both STEM and Arts students reported a desire to develop stronger relationships with their professors. This displays their willingness to form such relationships but a lack of action towards pursuing them. While our study reveals some mechanisms associated with the pursuit of these relationships for STEM and Arts students, there is a lack of literature that focuses on the internal and external mechanisms associated with pursuing such relationships. Thus, predictors of relationship formation among STEM and Arts students require further inquiry. We suggest a comparative study between the development of relationships with teaching assistants vs. professors to gauge the predictors of relationship pursuit, formation, and longevity as STEM and Arts students both reported stronger relationships with their teaching assistants.

This research is important as a large amount of literature has proven the benefits of faculty-student relationships, such as higher rates of information retention, academic success, sense of belonging, confidence, efficacy, community, degree persistence, and pursuit of future career goals (Komarraju et al., 2010; Lundberg & Schreiner, 2004; Araújo et al., 2014; Kift, 2009; Thomas, 2012; Redmond, 1990), especially among minority students and students with varying abilities (Hurtado et al., 2018; Baker & Griffin, 2010). Research shows that teaching habits demonstrating clear expectations, detailed feedback, and collaborative learning lead to a greater sense of motivation, self-confidence, responsibility, self-validation, and intention to complete one's degree (Colbeck et al., 2001). For these reasons, the lack of developed student-faculty relationships impact student attitudes, interests, and values, which leads to a weaker sense of belonging within the institution – findings that are all consistent with our results.

We propose that as well as improving faculty-student relationships in general, professors should also ensure they are providing clear expectations and detailed feedback to students as well as promoting collaborative learning, as this is found to increase student information retention and engagement (Zimmerman et al., 2014). As Colbeck et al. (2001) finds, among other things, these practices directly promote higher self-validation among students.

In terms of peer-to-peer relationships and event availability and attendance, STEM students reported higher levels of academic and social event availability and attendance in comparison to Arts students. STEM students also reported having more peer relationships in their faculty in comparison to Arts students, both of which negatively impacted their sense of belonging and community within their faculty and institution.

These results may be explained by the natural transitionary period first-year students report experiencing as they enter university. To explain this further, Araújo et al. (2014) propose the "Belonging Model" in which they assert that students develop a sense of community and belonging across their four years of undergraduate studies. The first year is categorized as program/academic specific where students integrate themselves in the curriculum rather than the social aspects of university. In the second year, they develop a grounded place in their community cohort. In the third and fourth years, they expand and apply their knowledge in a global context (Araújo et al., 2014). As a result, weak faculty-student and peer-to-peer relationships may be associated with this natural transitionary period.

As the model suggests, being a first-year student may explain why both STEM and Arts participants did not experience a higher sense of community and belonging, as they are becoming more situated in the academic aspect of university life, rather than establishing strong community ties and interpersonal relationships, which the model suggests does not occur until the second year of study (Araújo et al., 2014). As a result, as students move through their undergraduate career, they will likely develop stronger peer-to-peer and faculty-student relationships that will aid in a stronger sense of community and belonging.

Even so, STEM students experience a higher sense of community and belonging in their first-year, which they associate with the availability of many academic events that cater to future career paths and social events that foster peer-to-peer relationship development. These events were not as readily available to first-year Arts students. As the Belonging Model suggests, an important aspect in creating this strong sense of community and belonging is available social events, strong peer-to-peer relationships, and strong student-faculty relationships that work to build confidence and efficacy in one's interests and future career goals (Araújo et al., 2014; Kift, 2009; Thomas, 2012). As a result, the greater availability and attendance of social and academic events by STEM students may explain why their sense of community and belonging was overall higher than those in Arts faculties.

Consistent with the Belonging Model, our research finds that social events that encourage peer-to-peer relationships are important for first-year students as they ground students in the social community of their program and institution (Araújo et al., 2014). These events include things like Welcome Week and Meet the Profs Night, which both STEM and Arts students in our study reported that they attend, enjoy, and desire more of, as they allow them to develop strong social relationships outside of the classroom setting. Mixed method studies further confirm the importance of these events as university adjustment for first-year students is made easier when strong friendship networks are established (Buote et al., 2007). Buote et al. (2007) explain that social networks outside of a classroom setting increase students' self-validation and self-efficacy. Settling into the university community and developing early support systems also aid in degree persistence (Harrison, 2007). These social networks do not only include close friends but may also arise from programs like peer mentoring, which help to establish a strong sense of belonging and aid in the adjustment and, in turn, the academic success of first-year students (Yomtov et al., 2015). In this regard, our study confirms the findings proposed by the Belonging Model and related research on the degree of belonging among first-year undergraduate students as our participants' sense of community and belonging in our study was reflected by similar variables.

Our study also confirms the connection between faculty-student and peer-to-peer social networks and increased self-confidence. For instance, those with stronger reported relationships (STEM students) also had a stronger sense of self-confidence, while those with weaker reported relationships (Arts students) had a weaker sense of self-confidence in relation to relevant variables. This ultimately impacted their sense of self-validation (Hyde & Gess-Newsome, 2000). Overall, the factors associated with self-validation include study groups, peer mentors, faculty encouragement, support systems (i.e., family and friends) and self-confidence, all of which have been shown to lead to a greater degree of persistence, especially among female STEM students. Huang & Brainard (2001)

confirm this finding by stating that outside sources such as friendship networks greatly impact self-confidence and self-validation levels for female students. Self-confidence will be discussed further below.

Although both STEM and Arts students plan on staying in their program for the remainder of their undergraduate career, a sense of belonging is also a predictor of persistence, especially for minority students (Wright et al., 2012; Marra et al., 2009; Marra & Bouge, 2007; Hausmann et al., 2007). Persistence for women in STEM is also strongly associated with a sense of belonging in STEM culture and the extent of peer-to-peer and social connections (Shapiro & Sax, 2011). We found that female STEM students in our study had a moderate sense of community and belonging, and that increasing the variables that impact sense of community and belonging will likely aid in degree completion among STEM and Arts students, especially for minority students and women in STEM.

Furthermore, findings associated with community and belonging can be explained using Tajfel & Turner's (1979) Social Identity Theory. For instance, with regard to the cognitive processes that aid in the development of in-group and out-group membership, as discussed above, categorization (i.e., sorting of characteristics or traits into groups) was consistent with the experiences of STEM and Arts students as they often referred to themselves as members of their faculty. In other words, they saw themselves as a STEM or Arts student. Social identification (i.e., developing a sense of belonging to a group) was weak among STEM and Arts students but especially among those in Arts faculties, which decreased their overall sense of community. Specifically, Arts students reported that although they felt like they belonged, they did not feel welcomed in their faculty, resulting in lower identification in comparison to STEM students. This is consistent with a lack of social and academic events and poor faculty-student and peer-to-peer relationships among Arts students.

Tajfel & Turner (1979) establish that group membership solidifies an individual's sense of belonging within society. In line with this, Kleine (2002) also explains that a student's program helps to define him or her because it influences the classes they take, their behaviours, their aspirations, and the people they associate with. These variables thus explain the moderate community attachment felt by STEM students and the low community attachment felt by Arts students, as they have not developed strong social identification. In this sense, the experience of low self-validation among Arts students, may be the result of lower group ties in comparison to STEM students, which is caused by the various variables discussed above.

Moreover, consistent with SI (Blumer, 1969), our study also adds to research on community and belonging, suggesting that adequate physical and linguistic symbols of belonging (i.e., faculty merchandise and Welcome Week chants) also work to enhance a perceived sense of community and belonging among both STEM and Arts students. STEM students specifically reported that having and identifying with these symbols made them feel welcomed. Increasing physical and representative symbols may, thus, act as a means to enhance identity development among STEM and Arts students and increase their sense of community and belonging.

When framing these findings in terms of SIT, SI, and previous studies, we suggest that increasing the meaningful, representative symbols that promote identity development, increasing social events that promote a sense of community and belonging and confirm

one's in-group identity in the first-year – rather than waiting until this naturally occurs in upper years (Araújo et al., 2014) – may, therefore, aid in the university transition. This is because feelings of belonging in one's faculty and institution allow students to ground themselves in the university community.

Academic Efficacy and Confidence

Overall, STEM students were found to have higher levels of self-efficacy and confidence than Arts students. Both STEM and Arts students were found to have high efficacy in Arts courses, while only STEM students were found to have high efficacy in STEM courses, which increased STEM students' confidence. Our research also found that Arts students had low efficacy in STEM courses, which decreased their sense of confidence. A strong sense of efficacy in Arts courses from both STEM and Arts students contributed to the perceived ease of Arts programs. Although, STEM students reported having low efficacy in Arts courses that required previous knowledge or a certain skill set (i.e., drawing, painting, music), this did not impact their sense of confidence. As discussed above, a stronger sense of self-efficacy was also linked to a greater sense of community and belonging and prestige.

A strong sense of confidence among STEM students was attributed to future career paths, as STEM students were more certain about potential career options than Arts students. This is because STEM courses are perceived to lead directly to specific careers (i.e., doctor, medical radiation technician), which gives STEM students a greater sense of stability after their degree completion. Whereas Arts students have broader career options in mind, which results in a lower sense of stability. STEM students also expressed a strong belief that their degree would help them in the pursuit of their desired career, whereas Arts students expressed the belief that their degree would help them in the job market in general but most did not have a specific career path in mind. STEM students also reported having more co-op and placement opportunities in comparison to Arts students, which contributed to the higher level of confidence among STEM students as they reported that these experiences will aid in their future career paths. A stronger sense of self-efficacy and confidence ultimately indicates higher levels of self-validation among students in STEM faculties in comparison to those in Arts faculties.

Our study does not align with previous research that indicates a drop in self-confidence among female STEM students in the first-year of their program (Brainard & Carlin, 1998). This drop in confidence has been linked to a low sense of community and belonging as female STEM students have associated a lack of self-confidence with feelings of not being accepted in their faculties, which results in barriers to degree persistence (Brainard & Carlin, 1998). This lack of self-confidence has been consistently reported by more than one-fourth of first-year female STEM students, which is shown to increase over time (Brainard & Carlin, 1998).

In contrast to Brainard & Carlin (1998), we found that female STEM students experienced high levels of self-confidence despite experiencing a moderate sense of community and belonging. Instead, our research findings reveal that first-year female STEM students possess a high level of confidence due to a high level of certainty in future career paths, and more co-op/placement opportunities, which they reported will help them achieve their future career goals. As confidence is directly associated with high self-efficacy, STEM students also possess a high level of confidence due to efficacy in their

abilities to excel in both STEM and Arts courses. In this regard, due to a lack of literature in this area of inquiry, our study adds to the pool of data by outlining aspects of the first-year experience that contribute to STEM students' level of confidence, which we assert contributes to increased levels of self-validation among STEM students in comparison to Arts students.

Our research also fills the gap in current literature, as there are no similar research studies that link potential career paths of first-year STEM and Arts students to self-confidence. Our findings are, therefore, beneficial to the pool of existing literature, as they reveal how self-confidence among first-year students is affected by their anticipated career paths. We assert that having clear career goals increases STEM students' levels of self-confidence and leads to a rewarding outcome in the form of higher levels of self-validation. As reported in other studies, this will likely increase degree persistence (Marra et al., 2009; Marra et al., 2012). However, further longitudinal versions of our study are necessary to confirm the likelihood of degree persistence among STEM and Arts students.

With regard to self-efficacy, our research aligns with previous findings that indicate a high level of self-efficacy among STEM students (specifically female engineering students) is positively related to students' sense of belonging and community within their faculty and specific program (Marra et al., 2009). As discussed above, our study found that STEM students had a moderate yet greater sense of community and belonging than those in Arts faculties, which likely contributes to why they also experienced a greater sense of academic self-efficacy.

Our study also expands on the work of Marra et al., (2009) as it not only confirms that self-efficacy is associated with a strong sense of community and belonging among female engineering students, but also among STEM students more generally. Our study finds that this research is also applicable to Arts students as they reported having a lower overall sense of self-efficacy in comparison to STEM students, which is correlated with a low overall sense of community and belonging (Marra et al., 2009). As discussed above, community and belonging can be explained by various premises of SI (Blumer, 1969) and SIT (Tajfel & Turner, 1979). In this regard, feelings of being welcomed in one's faculty are linked to a greater sense of self-efficacy while lower levels of community and belonging are linked to lower levels of self-efficacy, which impacts self-validation.

Marra et al. (2009) conducted a longitudinal study, which holds that these findings are consistent overtime. As a result, we believe that increasing both STEM and Arts students' sense of self-efficacy via greater community and belonging in first-year will carry over into upper years of study. This is important to address as self-efficacy, which is also a measure of self-confidence, is found to be especially low among women of colour when compared to their male counterparts (Marra et al., 2009). Increasing self-efficacy is also important as it is a strong predictor of academic success, positive university experiences, and degree persistence (Hyde & Gess-Newsome, 2000; Marra et al., 2009; Marra et al., 2012; Marra & Bouge, 2007). Thus, the mechanisms discovered in our study may point to ways in which self-efficacy and confidence can be improved among Arts students and maintained in STEM students, which will likely result in positive outcomes in relation to the above variables.

Marra et al. (2012) also find that difficulty of material is a factor in leaving STEM programs. While STEM students in our study plan to remain in their program throughout

their undergraduate careers, this may influence their actual degree persistence, especially for women and minorities in STEM programs (Griffith, 2010). This also impacts women's persistence in future STEM careers (Buse et al., 2013). As a result, focusing on variables that foster a greater sense of self-efficacy is critical, especially in women and minority groups (Marra et al., 2009).

There is no literature that discusses the perceived ease of STEM courses in comparison to Arts courses and how this relates to academic self-efficacy and confidence. However, this finding aligns with Schema Theory and SIT, as it explains that certain faculties hold categorical schemas of students in other faculties (Bartlett, 1932). This leads to the development of stereotypes that result in in-group and out-group mentalities among STEM and Arts students (Tajfel & Turner, 1979). As mentioned previously, predominantly, our study found that Arts students hold the stereotype that STEM courses are more difficult and STEM students are thus "smarter." In line with this, our findings also show that students have internalized schemas about how others judge their program (Bartlett, 1932). For example, our study found that Arts students internalized the perceptions of others – predominantly that their courses are easy – which led to a lower sense of self-efficacy and prestige and thus, self-validation among them.

Our research also found that Arts students have low efficacy in STEM courses due to the perception that they are difficult. However, while Arts students were aware of the perception that Arts courses are seen as "easy" and did contribute to this perception by acknowledging that they would take Arts courses as easy electives, Arts students did not view their courses as easy; rather, they viewed them as "easier" in comparison to STEM courses. In this sense, although Arts students had high self-efficacy in Arts courses, because of the perception of their faculty as "easy" and their experience of lower self-efficacy in STEM courses, this led to a lower sense of self-validation among them in comparison to STEM students, who had high efficacy in both STEM and Arts courses. Thus, our research fills a void in current literature, as there are no similar research studies that link levels of self-efficacy among first-year STEM and Arts students to bird course choices. Furthermore, our research findings highlight how students possess varying levels of efficacy in courses both in and outside of their faculties.

Addressing lower self-efficacy in Arts students is important as it has been linked to predictors of stress levels, physical and emotional health, personal satisfaction, academic achievement, and adjustment to university life (Chemers et al., 2001). All of which impact whether students continue to pursue a degree (Chemers et al., 2001). Along with this, there is also substantial literature that displays the impact of low self-efficacy among STEM students (Hyde & Gess-Newsome, 2000; Marra et al., 2009; Marra et al., 2012; Marra & Bouge, 2007). As a result, we assert that these effects will likely also impact Arts students as they are similarly impacted by other variables such as community and belonging and perceived prestige and value.

Research is required to confirm the negative effects of low self-efficacy and confidence among Arts students in relation to STEM students. If the consequences are substantial, additional research into intervention strategies that raise the self-efficacy of Arts students will require further inquiry.

Concluding Remarks

More broadly, this research is important as the above variables intersect to impact the level of self-validation among STEM and Arts students. We found that STEM students had a better overall sense of self-validation in relation to relative variables in comparison to Arts students. Understanding the mechanisms that contribute to the occurrence of each variable and their relation to self-validation aid us in understanding how these variables impact the overall first-year undergraduate student experience. Although we did not look specifically at academic achievement, a better overall university experience is linked to higher academic achievement (Hyde & Gess-Newsome, 2000). In relation to these findings, we suggest subsequent research and further inquiry into intervention strategies that aid in reducing the unequal distribution of self-validation among first-year undergraduate students in STEM and Arts faculties.

Conclusion

Summary of Results and Findings

Overall, our research found that STEM students had a higher sense of self-validation in comparison to Arts students. This was the result of many intersecting factors that led to the uneven distribution of self-validation between students in STEM and Arts faculties. These variables include perceived prestige and value, sense of community and belonging, and academic efficacy and confidence. From our research we were able to conclude that STEM students tended to have higher levels of self-validation in comparison to those in Arts faculties.

Focusing on perceived prestige and value of one's faculty, these two variables were heavily intertwined and contributed to levels of self-validation. Prestige was attributed to heavier workloads, greater assumed difficulty of courses in STEM faculties, greater perceived competition for jobs, research opportunities, and post-graduate programs. STEM students were also found to have a greater sense of value in comparison to Arts students. Value was attributed to perceived allocation of funding, and the availability of research opportunities. Arts students acknowledged the perception that many believe their faculty is not prestigious but did report that their faculty should be viewed as more prestigious.

In terms of sense of community and belonging, our findings show that STEM students experienced a moderate sense of community and belonging whereas Arts students experienced a low sense of community and belonging. This was related to availability and attendance of academic and social events, the degree of faculty-student relationships, and peer relationships. All of which contributed to differing levels of self-validation.

Furthermore, our study found that self-validation is strongly related to self-efficacy and confidence in STEM and Arts students. STEM students were found to have higher levels of academic efficacy and confidence than Arts students, who experienced a low level of academic efficacy and a moderate sense of confidence. Significant predictors of self-efficacy were academic efficacy and the perception of Arts courses as easy, which contributes to the general perceived ease of Arts faculties. A strong sense of confidence was attributed to certainty in future career paths and the belief that students' degrees will help them achieve this. This was also linked to the availability of more research and co-op opportunities.

Overall, we found that the higher levels of perceived prestige and value, community and belonging, and self-efficacy and confidence were all strong predictors of self-validation among STEM and Arts students. Ultimately, the degree of self-validation was higher among STEM students in comparison to Arts students, which resulted in differing undergraduate university experiences.

Limitations

With designing and executing our research study, there were various limitations that we encountered. To begin, time constraints placed on this project for data collection ultimately limited our sample size. Since semi-structured interviews were conducted over a short window of time, we were only able to recruit nine participants for data collection. Considering our interviews were advertised as taking approximately a half an hour to conduct, this could have deterred more participants from joining due to the greater time commitment.

Furthermore, only having nine participants takes away from the generalizability of our sample population. While being limited to first-year undergraduate McMaster University students, there was a lack of ethnic diversity within our population as well as an overrepresentation of female participants. Of the nine participants, only two were male and both belonged to Arts programs. With the absence of male participants in STEM programs, we are unable to account for gender differences in self-validation within STEM faculties. Although all participants were first-year undergraduate McMaster University students, the data collected from this sample may not be generalizable or representative of the entire first-year cohort, especially those in faculties outside of STEM and Arts. This data may also lack generalizability as our results are specific to the McMaster University population and experience.

Moreover, an issue that we encountered during the recruitment process was gaining permission to post our recruitment poster in McMaster University affiliated Facebook groups. While we did reach out to various faculty specific groups such as McMaster Biology Society, the McMaster Social Sciences Society, and first-year oriented services like MSU Spark, we were limited in responses we received granting us permission to post. Although we attempted to gain permission from many different groups, only the McMaster University class of 2023 Facebook page responded and allowed us to post our recruitment poster. As a result, this likely hindered our ability to recruit more participants as we were only able to advertise on this single approved Facebook page in addition to posters displayed around campus.

All researchers involved in this research project belong to the faculty of Arts-based program of Honours Social Psychology. As a result, participants may have been influenced by social desirability bias when asked about potentially sensitive topics relating to their programs such as perceived prestige and value. There is also a potential researcher bias in favour of Arts participants. While those conducting interviews and coding actively sought to remain neutral, such bias may be unconscious, resulting in an inability to mitigate it. As a result, there is no means of confirming how this may have affected our research process and results.

Another limitation of our methodology is that due to the face-to-face nature of the interviews, participants may not have felt comfortable in answering certain questions honestly. As a result, negative opinions or perceptions may have been omitted from

participant responses in order to avoid potential judgement from the researcher. While crucial steps were taken to ensure participants privacy and anonymity, participants may still desire to adhere to social norms and expectations, limiting or altering their responses.

While steps were taken to avoid other potential limitations, those discussed were ultimately out of the researchers' control.

Significant Insights

We learned a substantial amount in conducting this research. Predominantly, we learned about our group members' interest in our research topic and overall process. We learned about the highs and lows of conducting qualitative research from start to finish. For example, the excitement of the interview process and getting to know the experiences and viewpoints of our participants – all of whom taught us valuable lessons about how to build a strong rapport and how to conduct ourselves in an interview setting. Although we learned that we all despise the transcription and coding process, it showed us the value of reflecting on the information we have been given to develop strong insights and connections between past research, theoretical frameworks, and new variables. All of which resulted in a deeper respect and admiration for the research process.

Having the opportunity to conduct a research study on students allowed us as researchers to look into the experience of first-year undergraduate students at McMaster University and highlight potential areas of their experience that can be improved upon. With previous research done on students in their first year of undergraduate study, we had expected similar outcomes that can be used to inspire change. It was found that STEM students experience a decreasing sense of self-validation as a result of the stress and demands of their program – which were often factors that increased dropout rates (Perez et al., 2014). Bringing awareness to factors that make students want to leave post-secondary education can potentially reduce the overall dropout rate if appropriate changes and support are established.

In general, we found that students belonging to STEM faculties have higher levels of self-validation than those in Arts faculties. Students in Arts faculties have often been ignored in research with more of an emphasis on students in STEM faculties and their experiences. Our research on the student experience of those in Arts faculties and how validated they feel within their faculty brings valuable insight into potential changes McMaster University can make. For example, we found that students in Arts faculties had a lower sense of community in comparison to STEM. McMaster University can improve on this particular issue by providing more arts-based workshops and facilitating more community events within arts faculties. Furthermore, providing material symbols of belonging, like faculty merchandise, could improve how connected arts students feel to their faculty and peers. In previous literature, programs such as peer mentoring were found to increase student's sense of belonging and aided their adjustment into university, overall increasing their academic success (Yomtove et al., 2015). For students struggling in their transition to first year and have little connection to their faculty and a lower sense of self-validation, implementing programs such as peer-mentoring can potentially increase their connection to their faculty and improve their overall university experience.

The overall goal of this research was to highlight any discrepancies in student levels of self-validation while trying to uncover potential factors leading to these results. By recognizing certain aspects of inequalities leading to differing levels of self-validation, it

provides valuable information that McMaster University can use to improve on any discrepancies and increase students' levels of self-validation. Because we conducted our study qualitatively, our results also allow us to propose solutions grounded in the first-hand first-year undergraduate student experience. As a result, we believe our findings and subsequent variables discovered in our study can lead to decreased dropout rates, an increased sense of community and belonging, self-confidence, self-efficacy, and academic success among first-year undergraduate students in STEM and Arts faculties.

In turn, we believe this will facilitate the adjustment of first-year undergraduate students to university life and better the overall experience of first-year undergraduate students.

Concluding Thoughts

Through our research, we were able to conclude that first-year STEM students at McMaster University tend to have higher levels of self-validation in comparison to Arts students. Overall, we believe this research is necessary because it provides significant insights into the self-validation of undergraduate students in STEM and Arts faculties. Increased self-validation is shown to decrease dropout rates, increase sense of community and belonging, self-confidence, self-efficacy, and academic success among first-year undergraduate students. This is also shown to improve the adjustment process to university life and the overall university experience. While our research reveals that STEM students have higher levels of self-validation, it is clear McMaster University must do more to facilitate self-validation within Arts students.

Implementing participant suggestions such as expanding the options of first year courses would overall be beneficial for both STEM and arts students. Conducting this research qualitatively provided humanistic and inductive insight into the experiences of first-year undergraduate students, allowing first-year students to have a voice in this process and influence change in their academic experience.

Acknowledgments

References

Allport, G. W. (1958). The Nature of Prejudice. Garden City, NY: Doubleday

Araújo, N., Carlin, D., Clarke, B., Morieson, L., Lukas, K., & Wilson, R. (2014). Belonging in the first year: A creative discipline cohort case study. *The International Journal of the First Year in Higher Education*, *5*(2), 21–31. https://fyhejournal.com/article/download/240/247

Bartlett, F. C. (1932). Remembering: A study in experimental and social psychology. New York, NY, US: Cambridge University Press.

Bergmann, C., Muth, T., & Loerbroks, A. (2019). Medical students' perceptions of stress due to academic studies and its interrelationships with other domains of life: a qualitative study. *Medical Education Online*, *24*(1), 1-11. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6493308/

Blumer, H. (1969). Symbolic Interactionism: Perspective and Method. Berkeley: University of California Press.

Brainard, S. G., & Carlin, L. (1998). A Six-Year Longitudinal Study of UndergraduateWomen in Engineering and Science. *Journal of Engineering Education*, *87*(4), 369–375. https://onlinelibrary.wiley.com/doi/abs/10.1002/j.21689830.1998.tb00367.x

Bruyn, S. D., Wouters, E., Ponnet, K., & Hal, G. V. (2019). Popping smart pills in medical school: Are competition and stress associated with the misuse of prescription stimulants among students? *Substance Use & Misuse*, *54*(7), 11911202. https://pubmed.ncbi.nlm.nih.gov/30892122/

Buote, V., Pancer, M., Pratt, M., Adams, G., Birnie-Lefcovitch, S., Polivy, J., & Wintre, G. (2007). The Importance of Friends: Friendship and Adjustment Among 1st Year University Students. *Journal of Adolescent Research, 22*(6), 665-689. https://www.researchgate.net/publication/240277005_The_Importance_of_FriensFrie n ship_and_Adjustment_Among_1st-Year_University_Students

Buse, K., Bilimoria, D., & Perelli, S. (2013). Why they stay: women persisting in US engineering careers. *Career Development International*, *18*(2), 139–154. https://www.researchgate.net/publication/275404574_Why_they_stay_Women_persi sting_in_US_engineering_careers

Chemers, M. M., Hu, L.-T., & Garcia, B. F. (2001). Academic self-efficacy and first year college student performance and adjustment. *Journal of Educational Psychology*, *93*(1), 55–64. https://pdfs.semanticscholar.org/9ddc/a7c27f179aae376ea8016b984421aea31d6a.p df

Colbeck, C. L., Cabrera, A. F., & Terenzini, P. T. (2001). Learning Professional Confidence: Linking Teaching Practices, Students Self-Perceptions, andGender. *The Review of Higher Education*, *24*(2), 173–191. https://www.researchgate.net/publication/236717082_Learning_Professional_Cnfiden c_Linking_Teaching_Practices_Students'_Self-Perceptions_and_Gender

Cooley, C. H. (1902). *Human nature and the social order*. New York: Charles Scribner's Sons.

Dingwall, R. (2001). Notes Toward an Intellectual History of Symbolic Interactionism. *Symbolic Interaction*, *24*(2), 237–242. https://onlinelibrary.wiley.com/doi/abs/10.1525/si.2001.24.2.237

Euster, G. L. (1980). The Prestige of Social Work Educators in the University. *Journal Of Education For Social Work*, *16*(3), 13-20. https://www.tandfonline.com/doi/abs/10.1080/00220612.1980.10672025

Fong, G. T., & Markus, H. (1982). Self-Schemas and Judgments about Others. *Social Cognition*, *1*(3), 191–204. https://psycnet.apa.org/record/1983-12676-001

Goodolf, D. M. (2018). Growing a Professional Identity: A Grounded Theory of Baccalaureate Nursing Students. *Journal of Nursing Education*, *57*(12), 705–711. https://www.researchgate.net/publication/329405720_Growing_a_Professional_Identi ty_A_Grounded_Theory_of_Baccalaureate_Nursing_Students

Gormally, C., Marchut, A. (2017). "Science Is Not My Thing": Exploring Deaf Non Science Majors' Science Identities. *Journal of Science Education for Students with Disabilities*, *20*(1), 1–15. https://files.eric.ed.gov/fulltext/EJ1169376.pdf

Griffith, A. L. (2010). Persistence of women and minorities in STEM field majors: Is it the school that matters? *Economics of Education Review*, *29*(6), 911–922. https://www.researchgate.net/publication/50922753_Persistence_of_Women_ad_Minories_in_STEM_Field_Majors_Is_it_the_School_That_Matters

Guerrero, M., & Rod, A. B. (2013). Engaging in Office Hours: A Study of StudentFaculty Interaction and Academic Performance. *Journal of Political Science Education*, *9*(4), 403–416. https://www.tandfonline.com/doi/abs/10.1080/15512169.2013.835554

Harrison, N. (2007). The impact of negative experiences, dissatisfaction and attachment on first year undergraduate withdrawal. *Journal of Further and Higher Education*, *30*(4), 377- 391. https://www.tandfonline.com/doi/abs/10.1080/03098770600965383?journalCode=cjfh20

Hausmann, L., Schofield, J., & Woods, R. (2007). Sense of belonging as a predictor of intentions to persist among African American and White first year college   students. *Research in Higher Education, 48*(7), 803–839. https://link.springer.com/article/10.1007/s11162-0079052-9

Huang, P. M., & Brainard, S. G. (2001). Identifying Determinants Of Academic Self Confidence Among Science, Math, Engineering, And Technology   Students. *Journal of Women and Minorities in Science and Engineering*, 7(4), 1   24. https://www.researchgate.net/publication/234178373_Identifying_Determinants_of_Acaemic_Selfconfidence_among_Science_Math_Engineering_and_Technology_Stdents

Hurtado, S., Alvarado, A. R., & Guillermo-Wann, C. (2018). Creating Inclusive Environments: The Mediating Effect of Faculty and Staff Validation on the Relationship of Discrimination/Bias to Students' Sense of   Belonging. *Jcscore*, *1*(1), 59–81. https://journals.shareok.org/jcscore/article/view/8

Hurtado, S., Cuellar, M., & Guillermo-Wann, C. (2011). Quantitative measures of students' sense of validation: Advancing the study of diverse learning environments. *Enrollment Management Journal: Student Access, Finance, and Success in Higher Education, 5*(2), 53-72. https://www.heri.ucla.edu/ford/downloads/Students_Sense_of_Validation.pdf

Hyde, M. S., and Gess-Newsome, J (2000). "Factors That Increase Persistence of Female Undergraduate Science Students." In J. Bart (Eds.), *Women Succeeding   in the Sciences: Theories and Practices Across Disciplines* (pp. 115-139). West Lafayette, Ind.: Purdue University Press. https://docs.lib.purdue.edu/purduepress_ebooks/14/

Jones, N. B., & Hearn, J. C. (2018). Under Siege: The Future of the Liberal Arts at State U. In Blanchard. J. (Eds.), *Controversies on Campus: Debating the Issues Confronting American Universities in the 21st Century* (pp. 162-176). ABC-CLIO. https://publisher.abc-clio.com/9781440852206/

Kift, S. (2009). *Articulating a transition pedagogy to scaffold and to enhance the first year student learning experience in Australian higher education: Final report for ALTC senior fellowship program.* Strawberry Hills, Australia: Australian Learning and Teaching Council.

Kleine, S. S. (2002). Enhancing Students' Role Identity As Marketing Majors. *Journal of Marketing Education*, *24*(1), 15–23.

https://www.researchgate.net/publication/247753149_Enhancing_Students'_Rol_Ide
ntiy_As_Marketing_Majors

Komarraju, M., Musulkin, S., & Bhattacharya, G. (2010). Role of Student–Faculty
Interactions in Developing College Students' Academic Self-Concept, Motivation, and
Achievement. *Journal of College Student Development*, *51*(3), 332–342.
https://www.researchgate.net/publication/236712875_Role_of_StudentFaculty_Iterac
tions_in_Developing_College_Students'_Academic_SelfConcept_Motivatio_and_Ach
ievement

Lundberg, C. A., & Schreiner, L. A. (2004). Quality and Frequency of Faculty-Student
Interaction as Predictors of Learning: An Analysis by Student Race/Ethnicity. *Journal
of College Student Development*, *45*(5), 549–565.
https://www.researchgate.net/publication/236711437_Quality_and_Frequency__Facu
lyStudent_Interaction_as_Predictors_of_Learning_An_Analysis_by_Studnt_RaceEth
niciy

Lytle, A. (2018). Intergroup Contact Theory: Recent Developments and Future
Directions. *Social Justice Research*, *31*(4), 374–385.
https://link.springer.com/article/10.1007/s11211-018-0314-9

Marra, R., & Bogue, B. (2007). Self-efficacy in women engineering students: Three
years of data at U.S. institutions. Paper presented at the American Society for
Engineering Education, Honolulu, HI.

Marra, R. M., Rodgers, K. A., Shen, D., & Bogue, B. (2012). Leaving Engineering: A
Multi-Year Single Institution Study. *Journal of Engineering Education*, *101*(1), 6–27.
https://onlinelibrary.wiley.com/doi/abs/10.1002/j.2168-9830.2012.tb00039.x

Marra, R. M., Rodgers, K. A., Shen, D., & Bogue, B. (2009). Women Engineering
Students and Self-Efficacy: A Multi-Year, Multi-Institution Study of Women
Engineering Student Self-Efficacy. *Journal of Engineering Education*, *98*(1), 27–38.
https://onlinelibrary.wiley.com/doi/abs/10.1002/j.2168-9830.2009.tb01003.x

Miles, E. W. (2016). Prestige and Prestige-Seeking in Universities. *The Past, Present,
and Future of the Business School*, 51–61.
https://link.springer.com/chapter/10.1007/978-3-319-33639-8_7

Misra, R., McKean, M., West, S., & Russo, T. (2000). Academic Stress of College
Students: Comparison of Student and Faculty Perceptions. *College Student Journal,
34*(2), 236.
https://www.researchgate.net/publication/209835949_Academic_stress_of_college_s
tudents_Comparison_of_student_and_faculty_perceptions

Newton, J. M., Kelly, C. M., Kremser, A. K., Jolly, B., & Billett, S. (2009). The
motivations to nurse: an exploration of factors amongst undergraduate students,
registered nurses and nurse managers. *Journal of Nursing Management*, *17*(3), 392–
400. https://pubmed.ncbi.nlm.nih.gov/21456319/

Nora, A., Urick, A., & Cerecer, P. D. (2011). Validating students: A conceptualization
and overview of its impact on student experiences and outcomes. *Enrollment
Management Journal: Student Access, Finance, and Success in Higher Education,
5*(2), 97–119.
https://www.academia.edu/2843242/Validating_Students_A_Conceptualization_nd_O
v rview_of_Its_Impact_on_Student_Experiences_and_Outcomes

Perez, T., Cromley, J., Kaplan, A. (2014). Supplemental Material for The Role of Identity

Development, Values, and Costs in College STEM Retention. *Journal of Educational Psychology 106*(1), 315-329. https://www.researchgate.net/publication/256112544_The_Role_of_Identity_Deelop m nt_Values_and_Costs_in_College_STEM_Retention

Redmond, S. P. (1990). Mentoring and Cultural Diversity in Academic Settings. *American Behavioral Scientist*, *34*(2), 188–200. https://journals.sagepub.com/doi/10.1177/0002764290034002007

Robbins, T. (2017). *In Pursuit of Prestige*. Routledge.

Rotter, N. G. (1982). Images of engineering and liberal arts majors. *Journal of Vocational Behavior*, *20*(2), 193–202. https://psycnet.apa.org/record/1982-13055-001

Shapiro, C. A., & Sax, L. J. (2011). Major selection and persistence for women in STEM. *New Directions for Institutional Research*, *2011*(152), 5–18. https://onlinelibrary.wiley.com/doi/abs/10.1002/ir.404

Smith, M., Chen, Y., Berndtson, R., Burson, K. M., and Griffin, W. (2017). "Office Hours Are Kind of Weird": Reclaiming a Resource to Foster Student-Faculty Interaction. *InSight,12*(1), 14-29. https://files.eric.ed.gov/fulltext/EJ1152098.pdf

Statistics Canada. (2017, July 13). Financial information of universities and degree-granting colleges, 2015/2016. https://www150.statcan.gc.ca/n1/daily-quotidien/170713/dq170713c-eng.htm

Svalastoga, K. (1975). The Determination of Occupational Prestige. *International Journal Of Comparative Sociology*, *16*(1-2), 114-118. https://brill.com/view/journals/ijcs/16/1-2/article-p114_9.xml

Syed, M. (2010). Developing an integrated self: Academic and ethnic identities among ethnically diverse college students. *Developmental Psychology*, *46*(6), 1590– 604. https://pubmed.ncbi.nlm.nih.gov/21058834/

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-47). Monterey, CA: Brooks/Cole.

Thomas, L. (2012). Building student engagement and belonging in higher education at a time of change: Final report from the What Works. *Student Retention & Success programme.* London, UK: Higher Education Academy. https://www.phf.org.uk/wp-content/uploads/2014/10/What-Works-report-final.pdf

Tucker, A., & Sloan, L. (1964). Graduate-School Talent: Sold to the Highest Bidder. *The Journal of Higher Education*, *35*(1), 12-18. https://www.tandfonline.com/doi/abs/10.1080/00221546.1964.11774338

Williams, M. G., & Burke, L. L. (2015). Doing Learning Knowing Speaking: How Beginning Nursing Students Develop Their Identity as Nurses. *Nursing Education Perspectives*, *36*(1), 50 -52. https://pubmed.ncbi.nlm.nih.gov/29194158/

Wright, S. L., Jenkins-Guarnieri, M. A., & Murdock, J. L. (2012). Career Development Among First-Year College Students. *Journal of Career Development*, *40*(4), 292 310. https://journals.sagepub.com/doi/abs/10.1177/0894845312455509

Yomtov, D., Plunkett, S. W., Efrat, R., & Marin, A. G. (2015). Can Peer Mentors Improve First Year Experiences of University Students? *Journal of College Student Retention: Research, Theory & Practice*, *19*(1), 25–44. https://www.researchgate.net/publication/283662885_Can_Peer_Mentors_Imprve_Fi r ear_Experiences_of_University_Students

Zerquera, D. (2018). Prestige-Seeking Across Urban-Serving Research Universities. *International Journal of Leadership and Change, 6(1), 31-42.* https://digitalcommons.wku.edu/ijlc/vol6/iss1/5/

Zimmerman, T., Schmidt, L., Becker, J., Perterson, J., Nyland, R., & Surdick, R. (2014). Narrowing the Gap between Students and Instructors: A Study of Expectations. *Transformative Dialogues: Teaching & Learning Journal, 7*(1), 1-18. https://www.kpu.ca/sites/default/files/Transformative%20Dialogues/TD.7.1.8_Zimeran_etal_Narrowing_the_Gap.pdf

Varsity Student-Athletes Perspectives on Accessing Social Support Resources at McMaster University

Rose Adusei[1], Shanya Aguilar-Andrade[1], Karmen Chazi[1], Tiah Di Benedetto[1], Elias Srouji[1]

Abstract

The focus of this research is on the duality of the student-athlete lifestyle among varsity student-athletes at McMaster University regarding the social support services being offered on campus. Our study sought to examine the awareness, knowledge, and perceptions of the student-athlete population regarding social support resources that are offered to them on campus. We collected a sample size of 75 McMaster varsity student-athletes. Using an anonymous online survey, we collected opinions and perceptions from 75 self-identified varsity athletes at McMaster University. Our findings indicated that McMaster University varsity student-athletes do not hold a negative perception of accessing social support services on campus. However, the findings suggest a lack of awareness among the study population regarding the social support services available for student-athletes. Our research suggests there is a need for greater visibility of available services as well as promotion of help-seeking behaviours as student-athletes were found to be more willing to use services when recommended by athletic faculty members and staff. We hope that the collected data will help to provide feedback about the perceptions of social services on campus within the McMaster University athletic community.

Introduction

The interest around studying a student-athlete's mental health is growing rapidly, which sparked our inclination to study this matter (Egan, 2019). Our understanding of a student-athlete is based on a student who participates in full-time studies and full-time athletic commitments. The duality of the student-athlete dynamic has instigated a healthy conversation regarding the social support services offered to these individuals. On one hand, student-athletes have a support network of teammates, coaches, certified athletic trainers, sports nutrition staff, and other support staff (Egan, 2019). On the other hand, these students have extra pressures as they balance their academic identity with their athletic identity (Egan, 2019).

Student-athletes have expectations from parents, coaches and peers to win, as they are often placed in the spotlight (Egan, 2019; Gulliver, Griffiths & Christensen, 2012). Balancing training schedules, competition days, exams, assignments, peer relationships, family, and more, can have a major impact on one's mental health (Egan, 2019). Previous

[1]Undergraduate Student, Honours Social Psychology Program, Faculty of Social Sciences, McMaster University, Hamilton, Ontario, Canada

research has discovered that exercise and setting reachable goals are also shown to act as a protective factor against poor mental health (Egan, 2019). Thus, we do not aim to dismiss this notion that there are tremendous benefits to being a student-athlete.

Our study sought to examine if the student-athlete population are aware of the social support resources that are offered to them on campus, as well as perceptions of these services, including access and availability. Our findings indicated that there was a need for improvement in the area of awareness promotion. We hope that the data that we collected through the online anonymous survey would help us to provide feedback about the perceptions of social services on campus within the McMaster athletic community. Overall, our thesis results indicated that there was a need to look into awareness promotion, mobilization of help-seeking behaviours amongst student-athletes, and the incorporation of specialized services for student-athletes within the McMaster athletic department itself. Notably, we faced contradictions which will be expanded on in the work to follow.

Literature Review

Stigma

Stigma is defined as "negative thoughts, feelings, and behaviors toward individuals or groups that possess characteristics or engage in behaviors that are viewed by the larger society as unacceptable and/or inadequate" (Wahto, Swift & Whipple, 2016, p. 87). In this case, having a mental health concern or a mental illness can be a reason as to why student-athletes refrain from accessing social support services offered on campus. Hilliard, Redmond & Watson (2018) examined the differences between stigma in help-seeking behaviors towards the counseling of student-athletes and non-athletes. Student-athletes are often indicated as a vulnerable population as they balance academic and sport-performance pressure, along with injury and interpersonal relationships (Hilliard et al., 2018). Researchers suggest that a long history of stigma around mental illness has impacted negative attitudes about counselling (Hilliard et al., 2018). A possible explanation is the nature of the athletic culture that is stereotypical in masculine orientation, which can cause athletes to view help-seeking behaviours as a weakness (Hilliard et al., 2018). Knowing more about the levels of stigma that student-athletes face compared to non-athletes can help identify an appropriate intervention for the student-athlete population (Hilliard et al., 2018). It is important for researchers to find effective interventions against stigma as stigma is highly associated with attitudes (Hilliard et al., 2018).

Traditionally, the well-being of student-athletes has only been regarded in relation to physical health and the influence on their performance in sports and academics (Watson & Kissinger, 2017, p. 153). For instance, in the National Collegiate Athletic Association (NCAA), division levels were viewed as impacting the degree of comfort a student-athlete would have in accessing mental health services (Moore, 2017). Furthermore, Division 1 athletes felt significantly less comfortable seeking mental health services in comparison to Division 2 or 3 athletes (Moore, 2017). This could be due to athletes in a higher division wanting to maintain a higher status in their respective sports and would not want to jeopardize their label by being associated with having a mental illness. A longitudinal survey study found that student-athletes experienced most changes in their mental health during the peak of their competition season (Sheehan, Herring & Campbell, 2018). In

general, university students are susceptible in their mental health due to the transition from their at-home lives to university life (Gavrilova & Donohue, 2018, p. 285).

Student-athletes were found to have differences in mental health compared to non-athletes during their athletic season (Sheehan et al., 2018). The demanding lifestyle of student-athletes means they may be more at risk for disturbed moods, depression and anxiety, and insomnia (Sheehan et al., 2018). There are numerous barriers that student-athletes face for not seeking treatment which includes stigma, a lack of time, and a less favourable attitude towards help-seeking when compared to non-athletes (Bird & Chow, 2018, p. 348). As a result, Gavrilova & Donohue (2018) recognize that "sport culture and social stigma often perpetuate mental health as a sign of weakness, which causes athletes to avoid seeking mental health providers" (p. 284). In comparison, Bird & Chow (2018) add that student-athletes are under-reporting ill-being symptoms due to the stigma associated with mental illness.

With these kinds of attitudes and norms, it has fostered the underutilization of counseling services by NCAA student-athletes. According to Moore (2017), "there are concerns about whether or not college athletes feel comfortable seeking help for a behavioral health problem" (p. 132). It is evident that there is a fear of seeking mental health services and also the fear of teammates discovering that they are in treatment. Hence, the fear of being considered weak continues to prevent student-athletes from seeking assistance (Van Slingerland, Durand-Bush & Rathwell, 2018). For example, Canadian university football players unanimously reported that mental illness is perceived as a reflection of weakness, and showing compassion or understanding for a teammate with a mental illness will put athletes at risk of being viewed by their peers as "weak-minded" (Van Slingerland et al., 2018, p. 162). The challenge here is that mental health is not openly discussed within this population due to its associated stigma.

Self-Stigma

Self-stigma is the "negative attitudes toward oneself for engaging in a certain behavior, has been hypothesized to be the result of internalizing perceptions of public stigma" (Wahto et al., 2016, p. 87). Consequences of self-stigma may include "a diminished self-esteem, self-efficacy, and overall confidence in one's future" (Bathje & Marston, 2014, p. 1714). Nikolaus A. Dean (2019) spoke of feeling a sense of defeat in relation to not being able to play on his athletic team following an invisible head injury. Dean (2019) identified his athlete title was his master status and with that stripped from him, his well-being was jeopardized. This of course could not be a circumstance that has only affected one athlete. According to the United States National Institute of Mental Health, "stigma is the primary impediment to seeking treatment for mental illness" (Kaier et al., 2015, p. 736). Bird & Chow (2018) explain in broader terms that self-stigma is the result of an individual labeling themselves as socially unacceptable, which leads them to avoid accessing social services. Bird & Chow (2018) and Bathje & Marston (2014) have both recognized that self-stigma and public perceived stigma are interrelated. For instance, Bathje & Marston (2014, p. 1713) identify that self-stigma exists within the context of public stigma. In comparison, Bird & Chow (2018, p. 347) mention how "stigmatization from others is a significant positive predictor of self-stigma". It is evident that self-stigma stems from what occurs from the public perceived stigma. If there is a negative association with accessing

mental health services on campus, student-athletes may internalize the stigma of mental unwellness and avoid seeking help.

To highlight, Bird & Chow (2018) touch on self-stigma being negatively associated with attitudes towards counselling, and positively related to willingness to seek help. The problem this presents is that self-stigma is said to be primarily holding back student-athletes from seeking mental health services. In order to rectify the self-stigma that student-athletes endure, there must be change in terms of how the public perceives mental unwellness and the accessing of social services. Van Slingerland et al. (2018) recognizes the importance that more work must be done to normalize the conversation of mental struggles and treatment in student-athletes. Furthermore, post-secondary institutions should consider mental health screening as part of their pre-season examinations (Van Slingerland et al., 2018).

Public-perceived stigma (stigmatization by others)

Public stigma refers to "the negative attitudes that one believes others will hold toward them for engaging in a certain behavior" (Wahto et al., 2016, p. 87). Public stigma also influences attitudes around help-seeking behaviours (Hilliard et al., 2018). Psychology has focused on mental illness from more of a negative perspective, emphasizing that mental health services are for individuals with a mental illness (Gavrilova & Donohue, 2018). This is problematic as it may cause individuals to stay away from such services. Public stigma around help-seeking behaviour infers that society holds perceptions, stereotypes and negative beliefs about people who seek out social support services (Hilliard et al., 2018).

Help-seeking behaviors that are associated with negative stereotypes have been found to influence negative attitudes in student-athletes (Hilliard et al., 2018). Hence, when public stigma is internalized by the individual, the individual will develop a stigmatized idea of the self (Bird & Chow, 2018). For example, stigma coming from coaches and teammates can act as a barrier for student-athletes when seeking professional psychological help (Wahto et al., 2016). Specifically, female participant's scores represented "less perceived public stigma compared with male participant's scores" (Wahto et al., 2016, p. 90). However, the results from our study contradicted these statements. The participants were asked in the survey, "Is there a negative perception associated with student-athletes who access social support services?", and 82% of them disagreed that there is a negative perception with accessing social support services. Evidently, public stigma is not always a prevailing matter affecting student-athletes and how their peers identify them.

In order to prevent public stigma, Van Slingerland et al. (2018) and Gavrilova & Donohue (2018) mentioned implementing programs focused on promoting positive mental health and stigma-reducing strategies. Although Van Slingerland et al. (2018) mention that programs should be in place to reduce the mental illness stigma within the athletics community, there are no recommendations on how these programs will run or even work in promoting mental health for student-athletes. Nonetheless, it is apparent that public criticism has a large impact on how student-athletes will utilize social support services offered to them on campus.

Facilitators and barriers to help-seeking

Theories around competitive sports often focus on the influence of motivation, specifically on intrinsic and extrinsic motivation (Sheehan et al., 2018). Motivation suggests individuals have a need to satisfy their basic psychological needs, such as autonomy and social relatedness (Sheehan et al., 2018). Motivation is heavily influenced by social-environmental conditions (Sheehan et al., 2018). Athletes have been found to be motivated to maintain their dual identities, and motivation has been linked to long-term mental health outcomes (Sheehan et al., 2018). Internal and external motivation can also help researchers to better understand and predict student-athletes help-seeking behaviours.

External stressors

There are several factors that come into play when student-athletes seek social support services including gender, stigma, peer norms, and privacy (Moreland et al., 2018). In order to understand how student-athletes decide whether or not they will use social services, it is important to look at their social environments. Using the socio-ecological framework, "individuals make health decisions and enact health behaviours inside a complex social environment; the social environment influences these individuals and they, in turn, affect their social environment" (Moreland et al., 2018, p. 59). Thus, the opinions and sociocultural views on mental health shared by a student-athletes social environment can either facilitate or barricade one's decision to use such services. Moreland et al. (2018) identify how stakeholders, specifically, influence the decision-making process student-athletes undergo. Stakeholders include "athletes, parents, coaches, teammates, athletic trainers, administrators and the collegiate sporting environment facility" (Moreland et al., 2018, p. 65). Moreland et al., (2018, p. 65) found in their systematic review that some athletic trainers "lacked a formal referral process inside their athletic department". This becomes problematic when student-athletes are unable to follow up with mental health concerns due to lack of information that should be provided by trusted sources. Athletic administrators have a significant amount of control and input regarding the variety of mental health services available to their students (Moreland et al., 2018). This systematic review highlights the importance of stakeholders in student-athletes' ability and choice to accessing social services.

Student-athletes often encounter demands and expectations that are unique to their experience as student-athletes as compared to non-athletes (Gavrilova & Donohue, 2018). For instance, student-athletes are often "restricted to social and occupational opportunities due to training commitment and travel, scheduling and time constraints" (Gavrilova & Donohue, 2018, p. 286). Their commitments consist of physical sports training, maintaining superior fitness for better performance, maintenance of multiple relationships within or outside the team, restricted financial opportunity and avoiding injury (Gavrilova & Donohue, 2018). In addition, monitoring their nutrition and body composition and coping with physical fatigue is often unavoidable (Van Slingerland et al., 2018). These components would then affect a student-athletes academic, emotional, and personal goals (Van Slingerland et al., 2018).

Consequently, a student-athlete's stress levels can be affected both physically and mentally. The problem here is that student-athletes are so constrained with what they are expected or allowed to do, that their mental health or accessing mental health services is

not considered a part of their duties for better sport performance. With such strict schedule demands, this can result in athletes believing that disclosing a behavioural health risk could result in loss of playing time, loss of scholarships, risk of damaging relationships with teammates, and cause disappointment in the eyes of a coaching staff and their informal support network (Moore, 2017, p.133). Hence, an athlete's mental health could potentially deteriorate over time if their busy schedule does not allow for personal time. Our study looks at how much time is spent with sport affiliated activity in relation to stress management.

Another external stressor that a student-athlete may face is the relationships they have with their teammates, family, or peers. Poor relationships are found "to interfere with sport performance and the overall well-being in athletes" (Gavrilova & Donohue, 2018, p. 287). Negative feedback can induce negative emotions. For instance, negative feedback from teammates has been shown to induce negative emotions and perceived stress in athletes (Tomalski et al., 2019). To add, negative feedback from family and lack of understanding of one's suffering can lead to depression in student-athletes (Dean, 2019). Another form of feedback may come from coaching staff, and "non-supportive coaching behaviors have been associated with athletes' negative self-talk" (Gavrilova & Donohue, 2018, p. 287). As student-athletes are also young adults, they are going through the development of their identity via "life events such as leaving home, establishing independence (i.e. living on their own), and beginning romantic relationships" (Tomalski et al., 2019, p. 122). Positive-peer support often results in positive mental health outcomes (Tomalski et al., 2019).

Consequently, "due to having inadequate support networks or possessing insufficient coping skills, many young adults will struggle in relation to these events and endure various forms of psychological distress (i.e. anxiety)" (Tomalski et al., 2019, p. 122). With regards to student-athletes in post-secondary, "their risk for such distress may be elevated due to a variety of unique environmental and developmental factors they encounter" (Tomalski et al., 2019, p. 122). These results suggest that coaches, teammates, family members, and friends should be strongly considered when supporting the mental health of student-athletes.

Spotlight (lack of privacy)

Another common variable in student-athletes help-seeking behaviors is their lack of privacy (Lu et al., 2016). It is common for student-athletes to hold a great sense of pride for their respective sport (Lu et al., 2016). Often, individuals who are recruited into post-secondary varsity athletics are generally held to a high level of expectation in relation to execution of performance styles. Being a student-athlete has its advantages and disadvantages, but with regards to accessing mental health support, it becomes an enormous disadvantage creating a major barrier (Lu et al., 2016). Not only do student-athletes have to be concerned with how the culture of sport portrays their need for accessing mental health resources, but they are also aware of how others could respond (Lu et al., 2016). As a result of being involved with varsity athletics, the majority of student-athletes "are often well known on campus, hence, may not have privacy if seen walking into campus counselling" (Kaier et al., 2015, p. 736). If student-athletes are "seen at a mental health clinic, they may be labeled as mentally ill and stigmatized" (Kaier et al.,

2015, p. 736). The aforementioned is of importance and should be kept in mind in relation to our upcoming findings.

Lu et al. (2016) conducted a study in which they discovered that pressure from the public and media is a significant source of stress. This is something that further increased our interest on this subject as it is imperative that such stress be aimed towards reduction. Student-athletes have their pictures posted around campuses and are often seen in uniform which puts them in a public spotlight (Lu et al., 2016). This produces difficulties to seek out any social support resources on campus, as student-athletes are more identifiable than the non-student-athlete population (Lu et al., 2016). Behaviors could include avoidance or paranoia in seeking out the resources available to students (Lu et al., 2016). Being in the spotlight as a varsity student-athlete creates a major barrier to accessing mental health support due to the lack of privacy.

Most Prevalent Internal Mental Health Stressors Amongst Varsity Student-Athletes

Mental well-being and its indications have become researched since mental illness diagnoses continue to climb (Ryan et al., 2018). The American Psychiatric Association (APA, 2018) defined mental illness as any changes regarding one's actions, thoughts, or emotions which can cause harm to the individual and their function during routines in their daily lives (Ryan et al., 2018). Approximately 19.4% of young adults in America live with mental unrest, often in the form of depression and/or anxiety (Ryan et al., 2018, p. 67) and student-athletes face a higher risk of dealing with mental illness such as these and more (Ryan et al., 2018). Student-athletes have additional stressors in comparison to their non-athlete peers, such as the stress to win their matches, as well as the pressure to excel in their academic careers while partaking in a sport sector that has become increasingly commercialized; college sports (Ryan et al., 2018, p. 71). These external stressors could cause an athlete's existing mental unrest to worsen or may even act as a catalyst to a new psychological disturbance on the individual (Van Slingerland et al., 2018, p.151). Stress is inevitable when it comes to playing competitive sports however, chronic stress that athletes experience is harmful to student-athletes and could lead to burn out (Lu et al., 2016).

According to Smith's (1986) Cognitive-Affective Model of athletic burnout, burnout is noted as the result of chronic stress (Lu et al., 2016). The model suggests burnout is broken into 4 stages; Situational which denotes conflicting demands, over training, and parental/peer expectations, Cognitive which denotes interpreting demands, access to resources, and potential consequences, Physiological which denotes responses like anxiety, insomnia and illness and Behavioural which denotes withdrawal and decreased performance (Lu et al., 2016). In other words, stress contributes to the physical and mental well-being of individuals (Gavrilova & Donohue, 2018), which in turn can also contribute to them experiencing mental health illnesses such as anxiety, depression, substance abuse and depression which are the four most prevalent among student-athletes (Ryan et al., 2018). In comparison to our study, 65% of participants strongly agreed that varsity student-athletes have an added stress to their daily lives and believe it could even affect them in some academic years versus others. These results confirm that stress could be affecting the student-athletes' physical and mental health.

Depression is a major source of mental illness amongst student-athletes according to the American Psychological Association in 2017 (Ryan et al., 2018). It is a medical illness

that negatively impacts one's feelings, thought process and actions (Ryan et al., 2018). An individual is diagnosed with depression when a depressive state endures for a minimum of two weeks (Ryan et al., 2018). Nearly 1/4th and higher in Division 1 and football athletes in all divisions report being mentally strained or exhausted from the pressures associated with their sport (Ryan et al., 2018, p. 68). In comparison, Van Slingerland et al. (2018) reported that approximately 30% of student-athletes felt exceedingly overwhelmed in the last 12 months by "feelings of depression and would even have difficulty functioning" (p. 151). Athletes that experience depression face symptoms such as lack of or uncontrollable sleep patterns, lack of concentration, low self-esteem and self-worth, feelings of guilt, weight instability, low energy levels and fixation on death and/or suicidal thoughts (Ryan et al., 2018). In consequence, stress may profoundly affect both the physical and mental health of a student-athlete, leading to the development of depression (Gavrilova & Chow, 2018).

Anxiety is another source of mental illness that is increasing among student-athletes (Ryan et al., 2018). An NCAA study indicated that more than 85% of student-athlete trainers felt that anxiety is a problem among student-athletes (Ryan et al., 2018, p. 70). Likewise, Gavrilova & Donohue (2018) indicate that elite athletes and their coaches ranked anxiety as the most prevalent mental health concern experienced by student-athletes. Furthermore, the 2015 NCAA GOALS survey data indicates that about 30% of student-athletes self-report insurmountable levels of anxiety felt within the last month (Ryan et al., 2018), or 47% within the last twelve months (Van Slingerland et al., 2018). It is characterized by intense worrying or fear of one's future that can impact one's ability to effectively function in their day to day activities (Ryan et al., 2018). It can lead to problems regarding an athlete's appetite, sleep pattern, heart rate, feelings of unease, dizziness and sudden perspiration (Ryan et al., 2018).

There are different elements of anxiety that may affect a student-athlete. They can endure such anxieties as competitive or performance anxiety, which is when one's anxiety is onset by competition or performance (Gavrilova & Donohue, 2018). In addition, "one of the most common anxiety disorders in athletes is generalized or social anxieties (i.e. excessive worrying about everyday things)" (Gavrilova & Donohue, 2018, p. 287). According to Gavrilova & Donohue (2018), generalized or social anxieties are experienced by approximately 6% of student-athletes (p. 287). Anxiety can also root from a student-athlete's living situation that indicates that around "80% of student-athletes consumed alcohol within the last year, with 44% of them (males) partaking in binge drinking (i.e. consuming five or more drinks in one sitting)" (Ryan et al., 2018, p. 71). Hence, "alcohol use in athletes has been found to be positively correlated with illicit drug use" (Gavrilova & Donohue, 2018, p. 288), which go hand-in-hand with mental illness (Ryan et al., 2018). Thus, the fact that student-athletes are more likely than non-student-athletes to partake in these abusive behaviours is very problematic. Another problem that may arise is that marijuana may become increasingly complex because it is now legal in Canada (Gavrilova & Donohue, 2018). Furthermore, in an NCAA participant survey of 21,000 student-athletes, 16% used medication for ADHD, however only half of them had a prescription for it (Ryan et al., 2018). Pain medication follows a similar pattern with 25% of the athletes indicating use of pain medication, many without prescription (Ryan et al., 2018). With the amount of injuries that could occur in a sport, the implications are very

worrying as student-athletes are more likely to be prescribed pain medications such as opioids and/or narcotics versus non-athletic students (Ryan et al., 2018).

The above notations of mental health issues that student-athletes may face, gives an indication of how important it is that student-athletes are made aware of mental health social aids around McMaster University. This not only verifies that student-athletes face mental stressors, but that they may face it more than other students. Furthermore, some of the most prevalent cases that are still faced among student-athletes include sexual violence, bullying, hazing, discrimination and more (Ryan et al., 2018). Thus, implementing measures that address mental health needs in a way that cuts through barriers faced when accessing them is strongly recommended.

Canadian vs. American Sports

Canadian and American undergraduate student-athletes undergo a fairly similar schedule of sports, academics and trying to make enough time for their social life (Moore, 2017). However, the stigma associated with mental health may or may not be the difference between both countries and how they handle or perceive mental health (Moore, 2017). USports is the national sport division for sports in Canada, while the National College Athletic Association (NCAA) is an organization that regulated American College sports teams. Van Slingerland et al. (2018) focused on the levels and prevalence of mental health functioning in Canadian university student-athletes. When assessing the levels and prevalence of mental health for Canadian student-athletes, the "time of year and individual differences (i.e. living situation, substance abuse, year of study, type of sport) were found to have effects on a student-athlete's mental health" (Van Slingerland et al., 2018, p. 150). In comparison, the NCAA recognizes that the mental health of American student-athletes has been "a growing area of concern" (Ryan et al., 2018, p. 76). Therefore, their goal is to promote positive mental health for American college athletes who "deal with stress and other mental well-being issues" (Ryan et al., 2018, p. 75). This would suggest that gaining insight in both mental wellness and mental illness could assist in better understanding the overall functioning of the student-athlete (Van Slingerland et al., 2018).

On the contrary, Gavrilova & Donohue (2018) understand that college athletes are at risk of mental health concerns, therefore, try to understand an athlete's willingness to seek help and examine the levels of comfort in accessing mental health resources as it is considerably important. Gavrilova & Donohue's (2018) focus on the level of competitive sport and its impact on accessing these mental health resources on campus.

In Canada, readily available mental health interventions have been underutilized by student-athletes (Gavrilova & Donohue, 2018). Consequently, this population of students is at a greater risk of experiencing mental illness (Van Slingerland et al., 2018). In contrast, researching comfort with seeking behavioral health services has already been a growing importance in the National College Athletic Association (NCAA) in America (Moore, 2017). Thus, American colleges have placed mental health as the number one health concern student-athletes face (Moore, 2017). The NCAA cares about increasing the comfort levels of student-athletes accessing services to improve their mental health. This is an attempt to avoid untreated mental health concerns that can impact athletic performance, or the development of unhealthy coping strategies (Moore, 2017). However, the Van Slingerland et al. (2018) study argues that "the mental health and well-being of

Canadian student-athletes is understudied, and this can be due to mental health challenges not being openly discussed" (p. 150).

Although the mental health of Canadian university student-athletes remains unexplored, American student-athletes continue to face their own struggles with mental illness and their comfort levels when accessing mental health resources due to stigma (Van Slingerland et al., 2018). As previously mentioned, the college athletes believe that disclosing a behavioural health risk could result in loss of playing time, loss of scholarships, loss of a relationship with teammates, and being the focus of disappointment in the eyes of the coaching staff and their informal support network (Moore, 2017; Leimer et al., 2014). In addition, there is a contrast in comfort levels between high profile and low-profile sports (Moore, 2017). College athletes in high profile sports, like Division 1 sports where one usually holds strong fan-base support, increased media attention, and higher rates of athletic department funding, often feel the pressures and feel discomfort seeking help for a behavioral health risk (Moore, 2017). As a result, American student-athletes are put under pressures that make them feel that their athletic and academic success is more important than their mental health (Van Slingerland et al., 2018).

The Van Slingerland et al. (2018) study was not aimed at identifying in-depth concerns of student-athletes and their overall mental health. Rather, it looked at mental health functioning in USport categories that student-athletes partake in to help further promote the investment of "mental health policies and important standards of practice in Canadian Universities" (Van Slingerland, 2018, p. 153). However, Gavrilova & Donohue (2018) argue in contrast to that idea that focusing on functional levels are indeed unreasonable in assessing forms of mental health treatment. American College sports recognize that college athletes do not feel comfortable seeking behavioral health services (Moore, 2017). Therefore, it is imperative that colleges and universities explore strategies for encouraging college student-athletes to disclose the challenges they are facing and seek the services available to them for those challenges (Moore, 2017). For example, Moore (2017, p. 137) stated that one form of improving the current state of social services would be providing more occupancy for social workers as they are a strong fit for understanding environmental and internal stressors of student-athletes. Similarly, our study found a strong desire for specialized support through trained sport psychologists and services.

Interventions

The struggles faced by student-athletes are unique to them compared to that of the average student (Tomalski et al., 2019). Beyond academic commitments, student-athletes must also schedule time for team practices, training, games, injuries, and team events (Tomalski et al., 2019). Studies have shown this to take up the majority of a student-athlete's free time with over 20 hours a week being attributed to it amongst other things (Tomalski et al., 2019). With added external and internal pressures, student-athletes are more likely to experience anxiety and depression than non-athletes (Sudano et al., 2017). In order to combat this, research provided by the NCAA suggests that there is a need for an integrated health care model to target the specific needs of student-athletes. Sudano et al. (2017) share three aspects to this model, which are designated as clinical, operational, and financial approaches. The clinical aspect focuses on combining mental health and medical care by requiring a mandatory intake form be filled

out regarding questions involving mental health (Sudano & Miles, 2017). The questions indicated on these forms seek to find out if one has experienced mental health issues in the past and the treatment, they found most beneficial to them (Sudano & Miles, 2017). A similar set of questions are utilized in a screening process that has been enacted by the NCAA for certain departments of student-athletes and will hopefully be dispersed among all (Tomalski et al., 2019). Our findings to come further substantiate that such a method would be of value.

The operational aspect delves into the "how" and asks how to best provide mental health services, what improvements are needed and the effectiveness of each service (Sudano et al., 2017). By mandating specific expectations for how services should be run and who runs them, organizations such as the NCAA will be better able to serve their athletes. As found by Gavrilova & Donohue (2018, p. 284), athletes who mentioned "they did not pursue mental health treatments, believed the providers of these services were not familiar with their culture, and that the interventions would be ineffective" within mental health counselling centers. Thus, a strict protocol which ensures services are not only provided but are also properly informed and vetted would enable students to feel more confident in their choice to use such services when needed.

The NCAA has implemented trained psychologists for certain levels of varsity teams in an effort to provide better, more targeted mental health care as there are instances where budget affects the quality of training that is affiliated with Sport Psychology Management teams (Tomalski et al., 2019). Another idea for improving the current state of services would be the utilization of sport social workers (Moore, 2017). The values and ethics of the social work profession are a strong fit for understanding the environmental and internal stressors impacting college athletes' safety and well-being (Moore, 2017). Sport social workers would have the competency needed to address the unique needs of each college athlete, which includes competition level and other demographic criteria (Moore, 2017). The goal in implementing highly trained professionals in some areas is to promote more confident health-seeking behaviours and to aid in the reduction of mental health suffering amongst student-athletes (Tomalski et al., 2019). The eventual hope is for there to be such professionals attending to all levels of sport-culture due to positive outcomes (Tomalski et al., 2019). Our findings to come also substantiated this with there being a call for more specialized incorporation within the faculty pertaining to mental health.

Finally, the financial aspect of the integrated care model seeks to address mental health gatekeepers, specifically the athletic department, to invest in their social services (Sudano et al., 2017). Departments who invest in these services and follow a more comprehensive health care model will be better able to provide for their student-athletes (Sudano & Miles, 2017). Studies such as these are essential to improving "the mental health services provided to student-athletes [by improving access and likelihood of seeking care]" (Sudano & Miles, 2017, p. 266). Gavrilova & Donohue (2018, p. 285) found that "NIMH website indicated that out of 100 research funding opportunities, only 17 of these projects focused on prevention of problems and none focused on wellness". The NCAA and the National Athletic Training Association which provides frontline aid for physical and psychological health has noted that the identification of mental health ailments, referral to a mental-health professional by coaches and teams, and the treatment for at-risk student-athletes is very important (Tomalski et al., 2019). However, this is not what often takes place within sport culture making it evident that more research

is needed on solutions that provide better access and ease when students are seeking social services (Tomalski et al., 2019). Furthermore, training of faculty and the awareness-breeding of such issues needs to be more intensely enacted.

Theory

Everett Hughes - Master Status

The American sociologist Everett C. Hughes is known for his work defining 'master status' and his focus on race among other social identities. Hughes (1971, p.132) shares that "status assigns individuals to various accepted social categories; each category has its own rights and duties". Thus, we can assume that a student-athlete's status as such provides them their own rights and duties. He describes master status as a defining characteristic or label of an individual's social identity (Hughes, 1971). This status and social identity define individuals in social environments and can influence their behaviour in front of others and is reinforced by an individual's "consistent conception of himself in relation to other people" (Hughes, 1971, p.132). Thus, the student-athlete can be said to be influenced by the status that they hold, which then can affect behaviors akin to help-seeking. Hughes (1971) describes a master status as a social label and not a personal choice. A social label of which individuals have little control over. These statuses are often determined by the social groups that the individual surrounds themselves with (in-group) as well as those outside their group (out-group) (Hughes, 1971). Pertaining to the student-athlete, the in-group could be considered their team-mates and faculty members, where the out-group could be considered anyone outside of that realm. Individuals statuses are further constituted when their actions fall in line with assumed social practices (Hughes, 1971). Master status is important and essential to this project as it influences all aspects of one's life and behaviour (Hughes, 1971).

In order to better understand student-athletes, one must understand how their master status can influence their social environment, behaviour and ideals. This can include how they identify in front of their peers, teammates, coaches, and parents. If participants identify as a student-athlete, there are many roles and responsibilities that come with it (Dean, 2019). In light of our research project, identifying an individual's master status helped to determine whether it influenced their decision to access social support services or stray away from the discussion of mental health in general.

In order to operationalize Hughes master status, we asked participants how strongly they identified with their 'student-athlete' status, if at all. If a correlation was found between their student-athlete status and personal identity, we could then identify the role master status plays in the individual's lived experiences.

Howard Becker - Deviance and Labeling theory

Howard Becker is a sociologist who has contributed great insight to the theoretical framework of deviance. Becker (1963) is the author of the "Outsiders" which has served as a guidebook of deviance and an introduction to labeling theory. Becker (1963, p. 4) had defined deviance as "anything that varies too widely from the average". The average is subjective, a process of meaning making that is not universal. A deviant label is applied to "particular acts or people" (Becker, 1963, p. 4), and the deviant behaviour is calculated by "the distance of the behaviour involved from the average" (Becker, 1963, p. 5). Therefore, if an individual ignores those guidelines then they are failing to obey the social

norms and thus become deviant (Becker, 1963). This is a notion that we believe can be attributed to the reality of a student-athlete who may be seen as falling outside of the athletes' norms were they to express what may be viewed as weakness. Social interactions are imperative for labelling to take place, although it is not an individual's intention nor objective to be labelled (Becker, 1963). Becker (1963, p.3) had mentioned that a deviant act only occurs when there are certain characteristics of the person that makes it necessary. Thus, implicating that anything outside of their expectations is considered rule-breaking (Becker, 1963).

When analyzing student-athletes and perceptions of accessing social support resources on campus, we should understand how the deviant label is applied, and how that label influences a deviant behaviour to occur. Social interactions are a necessary component of deviance as a student-athlete's peers, teammates, coaches and parents each have a particular expectation of them (Becker, 1963). As mentioned, anything outside the norm is rule-breaking (Becker 1963). If an individual within the sport culture discovers that a student-athlete is seeking help or is reaching out to someone about their mental health, the help-seeker is often then placed at a risk of being considered deviant amongst their community (Becker, 1963). Therefore, there is the risk of being labelled due to the act being considered deviant. However, keep in mind that this is dependent on how everyone else around them reacts to it (Becker, 1963). The student-athlete becomes an "outsider" when they are judged by others as deviant and stand outside their sports circle as a "normal" member of the group (Becker, 1963). For some, accessing support services may not be considered a social norm, and for that reason, a label is attached to student-athletes who choose to access social support services (Becker, 1963).

Becker (1963, p. 32) pointed out that when you are recognized as being deviant in society there are consequences for the individual's self-image and social standing. Therefore, a varsity athlete may choose to accept their label as 'deviant' by privately accessing social support services, or accessing the services knowing their teammates are labelling them (Becker, 1963). In a situation where the team knows the student-athlete is deviant, the deviant can then accept their label and become involved with an organized deviant group (Becker, 1963, p. 37). In this case, the organized deviant group would be composed of other student-athletes or non-student-athletes who access the social support services on campus. With this movement, Becker (1963, p. 38) recognized that the individual has the ability to have a positive and powerful conception of the self and a sense of common fate in the deviant group. The only problem that may arise is the discrimination from the team when discover that a teammate is associated with an organized deviant group (Becker, 1963). In which case the individual may reconsider their associations with the deviant group or the normative one (Becker, 1963).

In correspondence to our research project, one of our goals was to identify the deviant labels that are attached to seeking out social support services. Deviance and labeling theory were important to incorporate in our research study because it applies to the labels internalized by student-athletes when contemplating the accessing of social support services.

To operationalize Becker's (1963) ideas of labeling theory, our survey questions tested what student-athletes believe is a deviation from the "norm" in terms of socially created norms of behaviour. We specify in our questions what types of labels the student-athletes may have internalized. From these results, we engaged in determining whether the

internalization of labels is associated with accessing social support services. Once we had collected our data, we could then quantify whether labelling is strongly or poorly correlated with student-athletes seeking social support health services or at the very least gain interest into the relationships that exist between these two phenomena.

Goffman - Presentation of the self

Erving Goffman's (1959) main interest was to analyze the variety of ways individuals presented themselves in everyday social interactions (Goffman, 1956). He coined the term "dramaturgy" in which he discloses his belief that each individual in a given social interaction puts on a performance (Goffman, 1956). Individuals hold several roles in their everyday life, causing them to manipulate how they act in certain environments (Goffman, 1956). Goffman believes that each individual in any interaction performs on two stages: the front stage and the backstage (Goffman, 1956). Goffman defines the front stage as "that part of the individual's performance which regularly functions in a general and fixed fashion to define the situation for those who observe the performance" (Goffman, 1956, p. 22). Athletes face pressure from society in a variety of ways which can affect their psychological health because "social pressures that are placed on athletes to present themselves as stoic and strong- pressures that directly contradict societal views of mental health problems and help-seeking as a sign of weakness" (Wahto et al., 2016, p. 87). Dean (2019) was a Canadian student-athlete who wrote about the personal mental health and physical health challenges faced when it came to a serious head injury and the fact that he felt the need to play the stoic athlete in light of his silent suffering. He states that the athletic identity is one that is socially put in place onto student-athletes and becomes socially and psychologically bound to them, shaping their perceptions and their sense of self (Dean, 2019). Often, student-athletes are pressured to achieve excellence in stoicism which causes their psychological stress to increase (Dean, 2019) and leads to, "college athletes underutilizing psychological services as it may be a corollary of athletics culture that emphasizes self-reliance, and prioritizing the team over self" (Kaier et al., 2015, p. 735). This is problematic in the instances where student-athletes may need help in terms of wellbeing but are unable to seek it due to the above-mentioned.

As mentioned, Dean (2019) was injured and dealing with psychological distress due to his injury. Consequently, he was not able to play the sport in which he deemed the purpose of his life. He would often tell coaches and teammates that he was ready to play, although this was contrary to the doctor reports which revealed that his injury was severe (Dean, 2019). Dean (2019) behaved this way due to fear of tarnishing his athletic identity and not being allowed back in the game (Dean, 2019). Studies have shown that sport culture normalizes, down-plays and romanticizes risk, pain and injury (Dean, 2019). This is an ideology that varsity student-athletes are living up to and this can cause more harm than good, especially in a scenario where harm must be immediately dealt with, whether physical or psychological and the problems begin to snowball (Dean, 2019). As Goffman indicates, "the front region is where the performance is presented, but the back region is where the performance is prepared" (Goffman, 1956, p. 238). This indicates that those who are constantly in the front stage, like that of student-athletes, may not be getting the help they may need to deal with the issues that they face in the backstage and this is problematic.

The backstage holds a uniquely significant amount of meaning for the performer in comparison to the front stage (Goffman, 1956). Goffman (1956, p. 112) designates the backstage to be "relative to a given performance, where the impression fostered by the performance is knowingly contradicted as a matter of course" and "the place where the performer can reliably except that no member of the audience will intrude". The backstage includes one's own beliefs and thoughts, such as internalized negative attitudes toward social aid services (Wahto et al., 2016, p. 86). The backstage is where an individual's internal self can be seen (Dean, 2019). Behind closed doors, Dean (2019) was dealing with a loss of identity, low self-esteem, a shunning of loved ones, and a lack of drive due to his front stage being jeopardized by an injury that he could not hide from other athletes and coaches due to Doctor involvement. The very involvement which he initially tried to neglect because he perceived the doctor as the cause of his inability to play the role that he loved (Dean, 2019). This speaks to the belief that is held among many student-athletes; when individuals help-seek for mental health reasons, they are weak and oftentimes individuals in the sport-culture will attribute this to themselves (Wahto et al., 2016, p. 87).

Furthermore, it is common for most individuals within sport culture to admire athletes that they aspire to become one day during the beginning stages of shaping their athletic identity (Dean, 2019). Individuals in this situation often look at traits such as the level of performance, passion, and their commitment to their respective sport and mimic it (Dean, 2019). Goffman (1956, p. 35) refers to this idea of idolization as a way of one's socialization and being "molded and modified to fit into the understanding and expectations of the society in which one is presented". Hence, athletes hold a large commitment to their sport and push hard to enhance their performance to reflect their idols persona, which in itself is stress-inducing if one feels that they are lacking (Dean, 2019). Due to high sport-culture expectations, athletes tend to reject the idea of receiving mental-help and social support to help minimize the chances of others portraying them as worthy of the "athlete" label (Dean, 2019).

The majority of student-athletes classify their athletic team as a second family yet cannot readily go to them for mental-health help. In comparison, Dean's (2019) teammates would make remarks about him being well enough to get back into the game without regard for his mental state. Additionally, the coach would make Dean (2019) feel as though he were a bother when he went to inquire about getting back in the game, hinting at the fact that Dean (2019) had become out of shape during his time in recovery and smelled of alcohol. This exemplifies the idea of harm being down played in sport culture and the insensitivity to the silent struggles of an athlete who no longer fits the ideal. As athletes continue to aspire to achieve greatness, one must realize that their mental health is just as important as their performance. At the time when athletes start to experience high levels of psychological distress, often the technique of impression management is practiced all the more (Goffman, 1956).

Goffman (1956, p. 113) outlines impression management as that realm where "the passage from the front region to the back region". is kept closed-off to the audience or the instance where the back-stage in totality is hidden from the audience Furthermore, impression management is often performed by individuals in, "a social establishment in any place surrounded by fixed barriers to perception in which a particular kind of activity regularly takes place" (Goffman, 1956, p. 239). This social environment for athletes can

be seen as any space where they are visually designated as athletes, especially in the midst of their team, which is often the majority of the time as athletes tend to internalize their title. Most athletes hold a fear of being stigmatized by coaches, teammates, student peers, and fans so they manage how they present themselves to those groups and anyone affiliated with those groups (Wahto et al., 2016, p. 87). As athletes continue to use impression management repeatedly, it then becomes a natural routine for them and makes it harder for them to begin help-seeking behaviour (Goffman, 1956). This may explain a section in our findings where we met a contradiction between a positive perception of social support services and actual mobilization of help-seeking behaviours. Goffman's (1956) concept of, dramaturgical discipline, illustrates how varsity student-athletes may be dealing with behind closed doors. Therefore, it illustrates the need for interventive measures to cut through help-seeking barriers of today as those silent sufferings lead to severe mental-health complications. There is no surprise that there is a high prevalence of mental health concerns among varsity student-athletes that are often not addressed (Dean, 2019).

To operationalize Goffman's concept of impression management in the Front and Backstage, we incorporated survey questions that tested for one's identity affiliation and whether or not their sport culture attitudes on perception aligns with their actual lived experiences. Once we had collected and analysed the data collected quantitatively, we then were able to see whether our hypothesis regarding help-seeking behaviours being impacted by stigma held a positive correlation or at the very least, gained interest into the relationships that exist between these two phenomena.

Methodology

Our research was quantitatively based and focused on understanding student-athlete perceptions on seeking social support services regarding mental unwellness. Specifically, our research question was *what perceptions do McMaster University varsity student-athletes hold toward social support services on campus?* The research was approved by the McMaster Research Ethics Board (MREB#: 0327, 2012 67). After we received ethics approval from the McMaster Research Ethics Board (MREB) we began the primary research process. The research utilized an anonymous online survey hosted on the MREB approved platform, LimeSurvey. We used convenience and snowball sampling to gather our data and focused on variables such as awareness, identity perception, help-seeking, well-being, relationships and accessing of social support services among varsity student-athletes. The survey included multiple choice and Likert scaled questions, and the likert scale used ranked responses from 1-5. These responses corresponded with the answers (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) strongly agree. We chose to focus on the varsity athlete population at McMaster University as their time commitments and social pressures seemed to be more elevated than their non-athlete counterparts. In the end, we collected a sample size of 75 McMaster varsity student-athletes.

The research process took an eight-month commitment which began in mid-September 2019 and lasted until mid-April 2020. The first step we took was choosing a topic of interest and determining a research question from that topic. We decided our topic would be about McMaster varsity student-athletes and their utilization of social support services on campus. We then decided to do a content analysis of research

previously done and picked peer-reviewed articles that shed light on our topic. From there we began our literature review by determining what themes were most prominent throughout the research. These themes included stigma (self-stigma and perceived public stigma), facilitators and barriers to social support services (external and internal stressors), Canadian versus American sports, and intervention. Afterwards, we divided sections of our Ethics Proposal to meet each member's strengths and submitted our proposal October 23rd, 2019. We made several revisions to our proposal and were granted Ethics approval on November 13th, 2019.

We began data collection on November 15, 2019. In order to get in contact with student-athletes, we contacted coaches via email which is provided by McMaster's Department of Athletics and Recreation Staff Directory (https://marauders.ca/staff.aspx). We also retrieved publicly available contact information of team captains of their respective sports. We shared the survey information with each captain and asked that they share the survey with their teams. We also used posters with quick response codes (QR codes) that were computerized through the online website QR generator (www.qr-code-generator.com). This allowed student-athletes to easily engage and access the poster through various online methods, quickly and discreetly if necessary. The posters were posted in the Student Centre and the David Braley Athletic Centre. We obtained permission and approval stamps from McMaster Student Union (MSU) and the MREB to post in said areas. In order to maintain anonymity, students were not asked their names or any truly identifying characteristics. The online survey prompted participants to check a box stating that they were consenting to anonymously participate in the survey. Participants were free to withdraw from the study before submitting the survey online; after submitting respondents could not be withdrawn. We met our target of 75 participants on December 16th, 2019 and ended data collection promptly thereafter. We removed all posters in the student Centre and David Braley Centre the following day.

On February 2nd, 2020 we began our data analysis using LimeSurvey and the Statistical Package for the Social Sciences referred to as SPSS. This software was available to us through computer labs on campus which we met at weekly. Due to our limited knowledge on SPSS, we attended a workshop for clarification and met with Data Analysis Support Hub (DASH) services for tutorials in navigating the software. In SPSS, we cleaned the data and looked at descriptive statistics to analyze our findings. It allowed us to customize variable names, types, titles, graphs and identify trends that in turn helped us form conclusions. We concluded data analysis on February 28th, 2020 to begin our poster. We recreated graphs from SPSS into Excel to achieve a more appealing aesthetic. Our poster included an introduction/topic of interest, research question, research methods, four graphs, discussion/significant insights and a summary.

We began our final essay on March 18th, 2020 and divided the discussion sections into different themes relevant in our findings. These themes included student-athlete's relationship to athletic faculty, awareness, specialized services, identity salience, athletic and academic demands, perception, stress. In these sections, we discussed our findings in relation to previous studies and our literature review. In the results section. Due to the university closure, we were unable to continue our work on SPSS and transfer our statistical findings from there to our paper. Despite this, we carefully analyzed our already-available findings and discussed them in-depth in the results and discussion section. Our final research paper included an introduction, a literature review, a methodology section,

a results section, a discussion, significant insights and a conclusion. We submitted our final paper on April 8th, 2020.

There are some ethical concerns that we noted for participants partaking in the survey including psychological and social risks. Psychological risks included participants feeling embarrassed, worried or upset after answering questions in the survey. These risks were minimized by ensuring that all questions were broad and unidentifiable when answered. We avoided using terminology that might be seen as triggering or stressful. We also provided information for those seeking follow-up support. Social risks were present when participants engaged with our posters on school premises. By engaging with posters, individuals risked being seen by others in their sport-community. There was a possibility of students being stigmatized or frowned upon for interacting with our poster and study. Our research presented no physical risk as the survey was online and did not involve any opportunity for injury or physical harm. Individuals had the opportunity to take the survey at the time and place of their choosing. This allowed for increased anonymity and privacy when taking the survey, which also reduced psychological risk.

We prepared for the challenge of self-reported bias, as we were aware of the possibility of inaccurate assessments respondents could have about themselves and the questions they were answering. In order to avoid this, we made our questions very clear and focused. We defined all lay terms and were descriptive when necessary. We also ensured anonymity by allowing the survey to be done on the respondents' own time and location of their choice so that respondents felt at ease when answering questions about themselves.

In addition, a member of our group, Elias Srouji, is involved within the McMaster athletic department which could have indicated researcher bias or participant bias due to the athletic department being familiar with him. In order to avoid this bias, our group members ensured Elias was not involved in the recruitment of participants in any form. He did not send emails to coaches nor set up posters in the McMaster University Student Centre or David Braley Athletic Centre. This was done as a preventative measure to ensure respondents were not influenced or persuaded by his role in the athletic department.

In summary, our goal with the methodological approach was to be as detail-oriented and thorough as possible. Using an anonymous survey, we were able to collect all 75 respondents' answers confidentiality. The research process took eight months, involving a proposal, ethics board approval, data collection, and data analysis, resulting in a final paper. Overall, all the necessary ethical risks were accounted for and prevented to the best of our ability. The section that follows includes results and discussion.
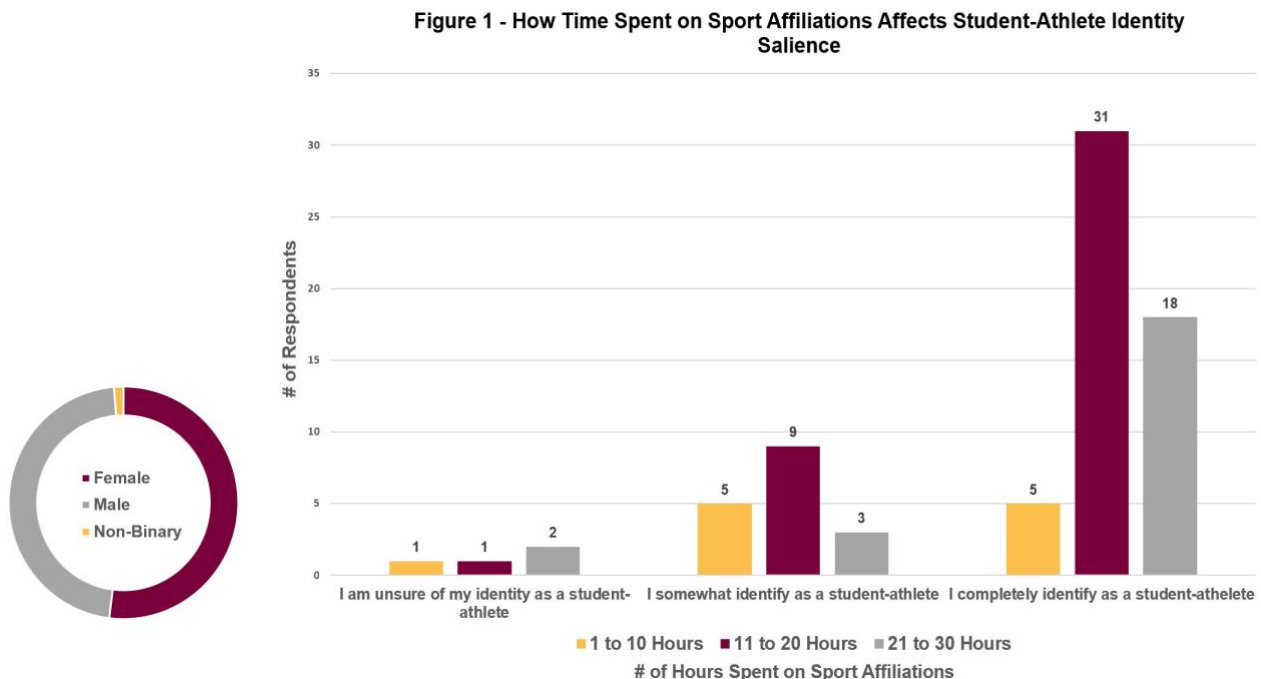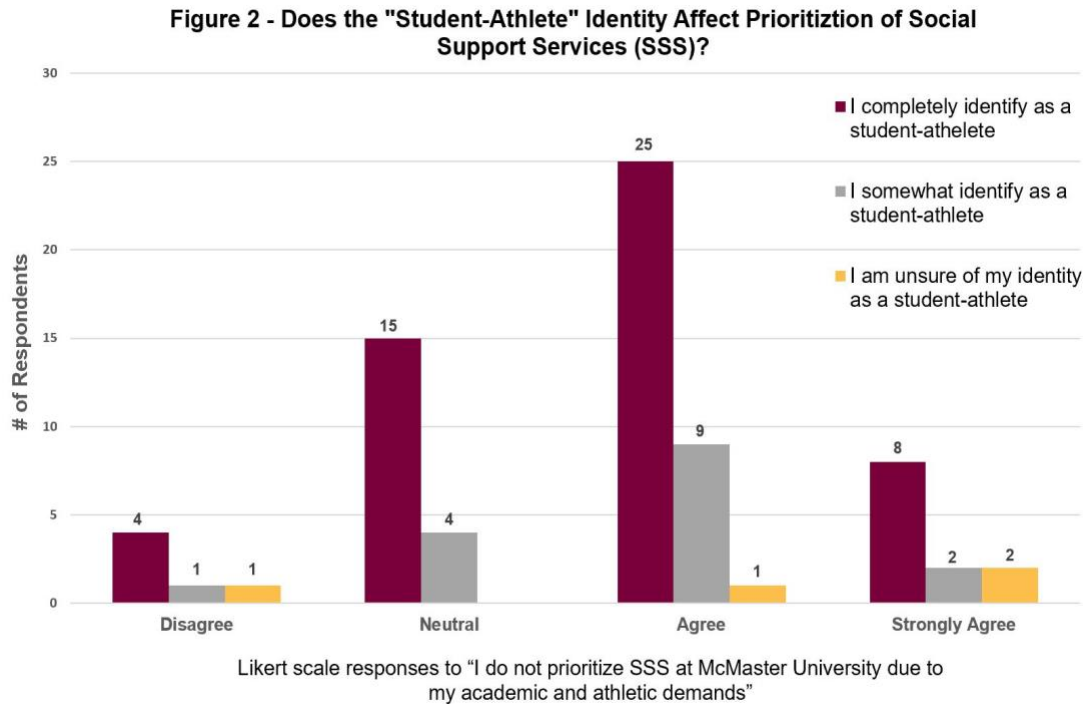
Results

Survey Demographics

In total, 75 varsity student-athletes at McMaster University, 18 years of age and older, responded to 27 online survey questions about their perceptions of accessing social support services on campus. When asked to self-identify in terms of one's gender identity, participants identified as follows: female (n=39); male (n=35); non-binary (n=1) as depicted in Figure 1. Based on the age range of participants in our sample, 24% (n=18) were 18 years old, 21.33% (n=16) were 19 years old, 24% (n=18) were 20 years old, 18.67% (n=14) were 21 years old, 9.33% (n=9) were 22 years old, 1.33% (n=1) was 24 years old and n=1 participant chose not to answer. Our sample population of athletes

consisted of 29 (38.67%) participants only in the Ontario University Athletics (OUA), 44 (58.67%) participants in OUA and USports, and 2 (2.67%) participants belonging to neither conference. Of our sample 14 (18.67%) participants play individual sports (i.e. wrestling) and 61 (81.33%) participants play on a team (i.e. football).

Figure 1 - Student-athlete participants were asked in question 3, "How much time on average in a week do you spend with your varsity team (i.e. practice, games, travelling, etc.)?". The results showed that 14.67% (n=11) answered "1-10 hours", 54% (n=41) answered "11-20 hours", and 30.67% (n=23) answered "21-30 hours". Participants were asked in question 4 "How strongly do you identify with the level 'student-athlete' (i.e. being a full-time student and full-time athlete is part of your identity)?". The response "I do not identify as a student-athlete at all" was eliminated from the graphing analysis as no participants selected it. The results showed that 73% (n=55) of participants answered, "I completely identify as a student-athlete", 21.33% (n=16) answered "I somewhat identify as a student-athlete" and 5.33% (n=4) answered "I am unsure of my identity as a student-athlete". Figure 1 compares questions 3 and 4, to answer the question of how time spent on sport affiliations affects Student-athlete identity salience. The findings found that student-athletes who spend 11-20 hours a week on sport affiliated activities maintain a stronger sense of identity. Majority of respondents completely identified as a student-athlete despite the number of hours spent on sports affiliations.
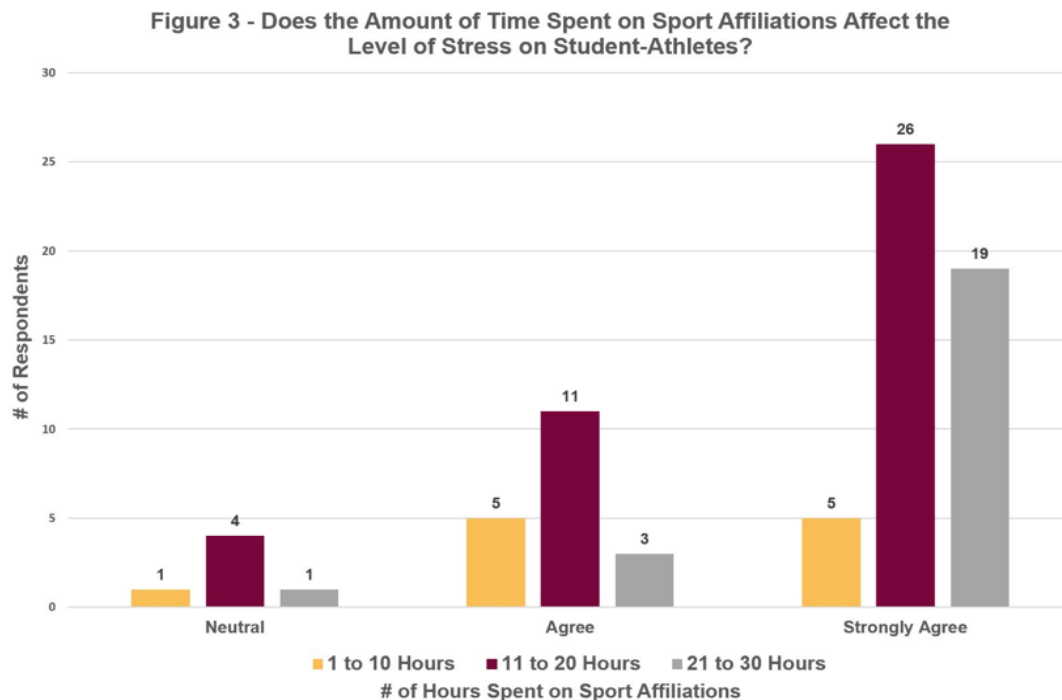
Figure 2 - Participants were asked in question 4 "How strongly do you identify with the label 'student-athlete'" (i.e. being a full-time student and full-time athlete is part of your identity). The results showed that 73% of participants (n=55) answered, "I completely identify as a student-athlete", 21.33% (n=16) answered "I somewhat identify as a student-athlete" and 5.33% (n=4) answered "I am unsure of my identity as a student-athlete". The

Figure 1 - How Time Spent on Sport Affiliations Affects Student-Athlete Identity Salience

Figure 2 - Does the "Student-Athlete" Identity Affect Prioritiztion of Social Support Services (SSS)?

response "I do not identify as a student-athlete at all" was eliminated from the graphing analysis as no participants selected it. In question 5 participants were asked to rate their level of agreement on a 5-point Likert scale to the prompt "I do not prioritize social support services at McMaster University due to my academic and athletic demands". The results showed that 8% (n=6) of participants responded "Disagree", 25% (n=18) participants selected "Neutral", 48% (n=36), 16% (n=12) selected "Strongly Agree", and 4% (3=n) selected the "No Answer" option. The response "strongly disagree" was not included in the graphing analysis because it was not selected by any participants. Figure 2 compares questions 4 and 5 to study if the student-Athlete identity affects prioritization of social support services. The results found that a student-athletes identity influences their prioritization of accessing social support services at McMaster. Students who completely identified as student-athletes indicated they did not prioritize social support services at McMaster due to academic and athletic demands. The results infer that increased internalization of the student-athlete identity reduces prioritization of accessing social support services at McMaster University.

Figure 3 - Student-athlete participants were asked in question 3 "How much time on average in a week do you spend with your varsity team (i.e. practice, games, travelling, etc.)?". The results showed that 14.67% (n=11) answered "1-10 hours", 54% (n=41) answered "11-20 hours", and 30.67% (n=23) answered "21-30 hours". In question 7 participants were asked to rate their level of agreement on a 5-point Likert scale with the statement "Students who participate on varsity teams have an added stress to their daily lives". The result showed 8% (n=6) of participants selected "Neutral", 25.33% (n=19) selected "Agree", 65.33% (n=49) selected "Strongly Agree", and 1.33% (n=1) selected "No answer". "Strong Disagree" and "Disagree" were eliminated from the graphing

Figure 3 - Does the Amount of Time Spent on Sport Affiliations Affect the Level of Stress on Student-Athletes?
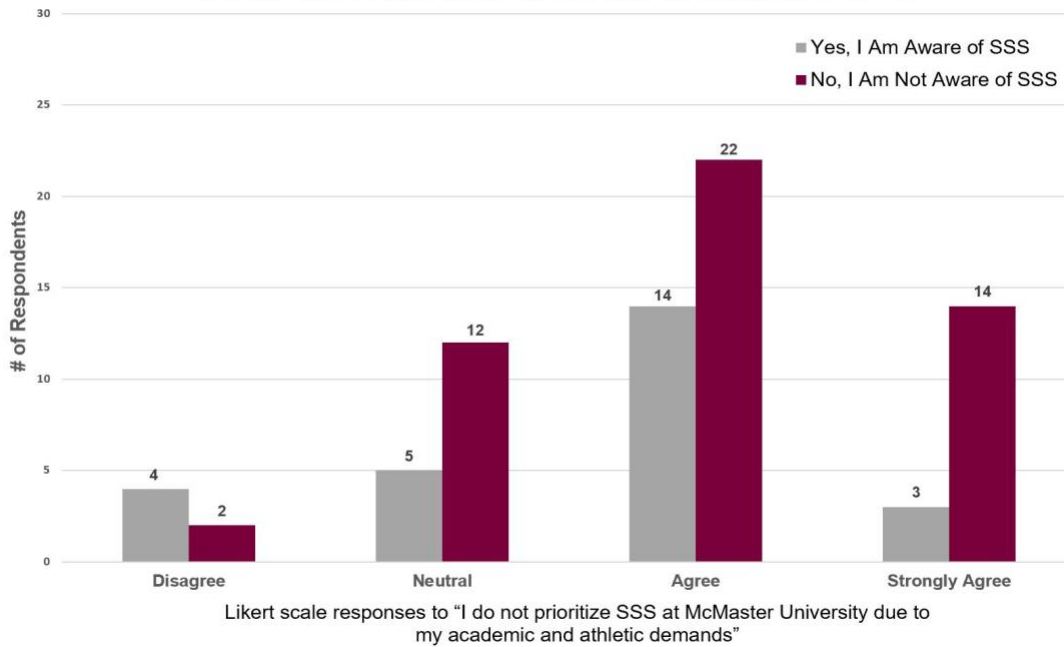
analysis as they were not selected by participants. Figure 3 compares questions 3 and 7 to examine if the amount of time spent on a sport affiliation affects the level of stress on student-athletes. From the results, all respondents stated that there was some added stress to their well-being since none of the participants selected neither disagreement options. The majority of respondents "agreed" or "strongly agreed" that the number of hours spent on sport affiliations impacts their stress levels. Student-athletes who spent about 11-20 hours experienced the highest levels of stress compared to students-athletes participating in their sport for 1-10 hours. This indicates a connection between hours spent on sport affiliation and elevated stress levels.

Figure 4 - Student-athlete participants were asked question 5 which prompts "I do not prioritize social support services at McMaster University due to my academic and athletic demands". The participants were to answer the question based on their level of agreement via a 5-point Likert scale. The results showed that 8% (n=6) of participants responded "Disagree", 25% (n=18) participants selected "Neutral", 48% (n=36) participants selected "agree," 16% (n=12) selected "Strongly Agree", and 4% (3=n) selected the "No Answer" option. The response "strongly disagree" was not included in the graph analysis because it was not selected by any participants.

In question 9 participants were asked, "Are you aware of the social support services available to you as a student-athlete on campus?". The results showed that 36% (n=27) of participants answered "Yes", 62.67 (47%) of respondents answered "No", and 1.33% (n=1) selected "No answer". Figure 4 compares questions 5 and 9 to determine if the level of awareness of social support services by student-athletes has effects on the level of prioritization of social support services. The results indicated that over half of the respondents stated they were not aware of social support services on campus. Many participants also "agreed" or "strongly agreed" that they did not prioritize social support services when responding to the statement "I do not prioritize social support services at

Figure 4 - The Level of Awareness of Social Support Services (SSS) by Student-Athletes has Effects on the Level of Prioritizations of SSS

Likert scale responses to "I do not prioritize SSS at McMaster University due to my academic and athletic demands"

McMaster University due to academic and athletic demands". These results infer that awareness does impact prioritization, suggesting that there is not enough information about the social support services available to student-athletes.

Figure 5 - Participants were asked in question 4, "How strongly do you identify with the level 'student-athlete' (i.e. being a full-time student and full-time athlete is part of your identity)?". The results showed that 73% (n=55) of participants answered, "I completely
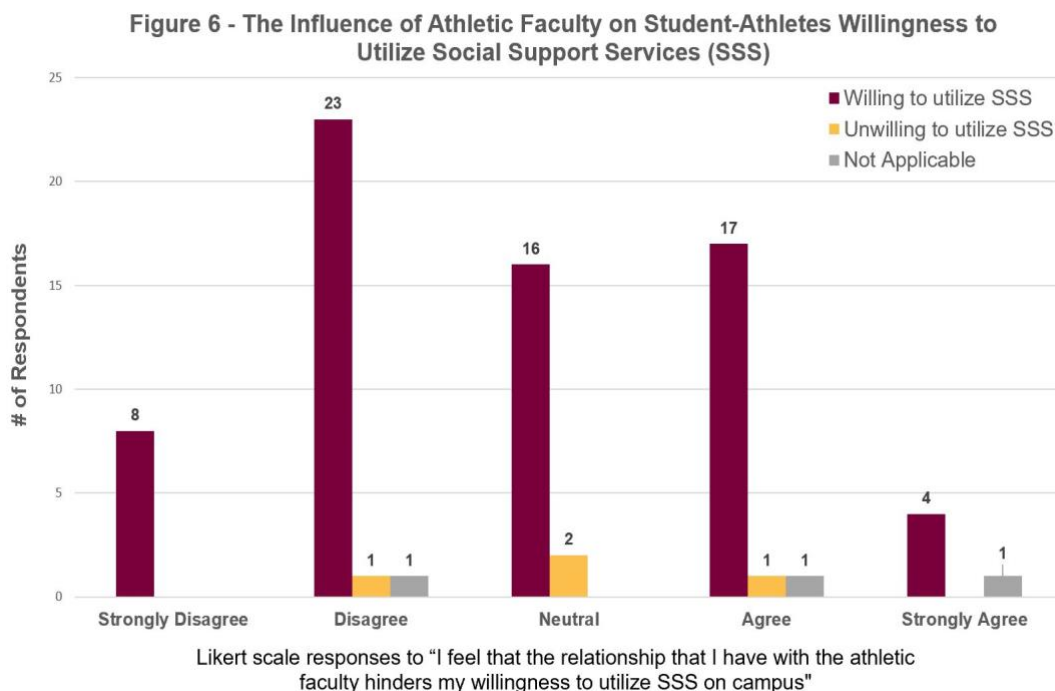
Figure 5 - Student-Athlete Perception on Utilizing Social Support Services (SSS)
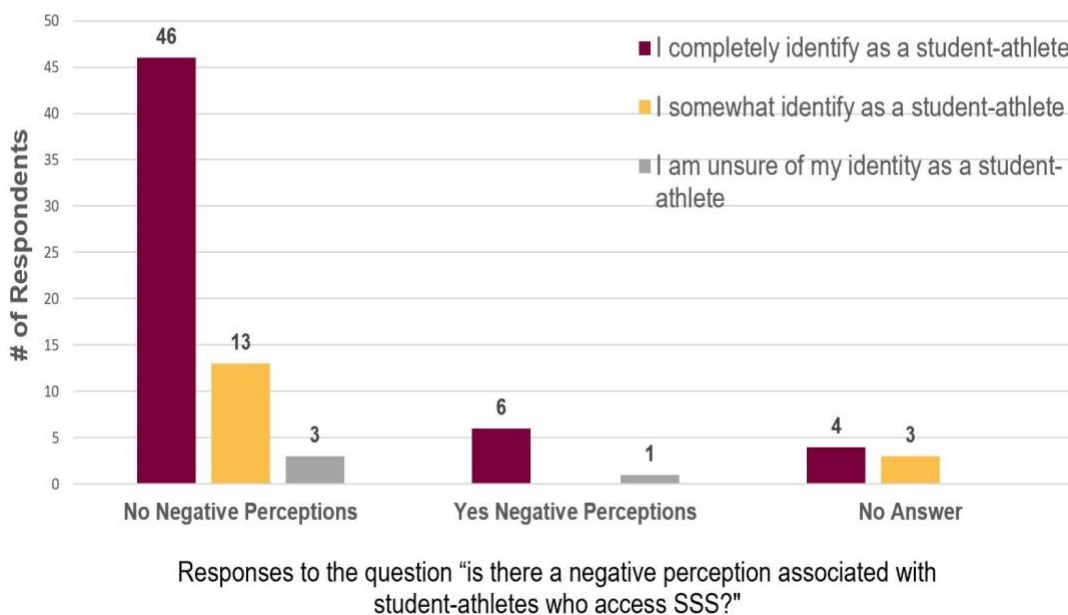
Responses to the question "is there a negative perception associated with student-athletes who access SSS?"

identify as a student-athlete", 21.33% (n=16) answered "I somewhat identify as a student-athlete" and 5.33% (n=4) answered "I am unsure of my identity as a student-athlete". The response "I do not identify as a student-athlete at all" was eliminated from the graphing analysis as no participants selected it. Participants were asked for question 12, "Is there a negative perception associated with student- athletes who access social support services?". The results showed 9.33% (n=7) of participants answered "Yes", 82.67% (n=62) of participants answered "No", and 8% (n=6). Figure 5 compares questions 4 and 12 to examine if there are any negative perceptions of identity if student-athletes utilize social support services. The results found that student-athletes who "completely identify as a student-athlete" accounted for the majority of the "No negative perceptions" respondents. These results indicate that "student-athlete identity" does not have an effect on negative perceptions around accessing social support services.

   Figure 6 - Student-athlete participants were asked in question 13 to rate their level of agreement on a 5-point Likert scale to the prompt "Hypothetically speaking, do you think that one's relationship with the athletic faculty (i.e. coaches, trainers, teammates) hinders their willingness to utilize social support services on campus?". The results found that 10.67% (n=8) of participants selected "Strongly Disagree", 33.33% (n=25) selected "Disagree", 24% (n=18) selected "Neutral", 25.33% (n=19) selected "Agree", and 6.67% (n=5) selected "Strongly Agree".

   In question 14 participants were asked "Hypothetically speaking, would you be more willing to seek help if recommended by a coach or teammate?". The results showed that 90.67% (n=68) of participants answered "Yes", 5.33% (n=4) answered "No", 2.67% (n=2) answered "Not Applicable", and 1.33% (n=1) selected "No answer". Figure 6 compared questions 13 and 14 to examine if the athletic facility had an influence on student-athletes' willingness to utilize social support services. Participants who had a high willingness to utilize social support services had a variation on how they felt about the athletic facility's influence. 24% (n=18) of participants remained "Neutral" on the influence

Figure 6 - The Influence of Athletic Faculty on Student-Athletes Willingness to Utilize Social Support Services (SSS)

Likert scale responses to "I feel that the relationship that I have with the athletic faculty hinders my willingness to utilize SSS on campus"

of athletic faculty, while 32% (n=24) of respondents agreed that their relationship with the athletic faculty hinders their willingness to utilize social support services on campus. However, 44% (n=33) of respondents were also in disagreement with that statement.

Discussion
Relationship to Faculty

The relationship between student-athletes and their athletic faculty is important when discussing the utilization of social support services. Athletic faculty includes but is not limited to; coaches, teammates, trainers and other relevant staff that athlete's may come into contact with throughout their season. In our study just under half, 44% (n=33), of our participants felt that hypothetically, their relationship with athletic faculty does not affect their willingness to utilize social support services at McMaster University. This suggests that athletic faculty have minimal bearings on an athlete's use of social support services. This is in contradiction to what was found in other studies and literature reviews where it was commonly found that the relationship student-athletes have to faculty is very influential in their well-being (Leimer et al., 2014; Ryan et al., 2018; Hawley et al., 2014). The contradictions found could be due to the small sample size collected and participants' concern related to what faculty would say looking at these results. It should also be noted that 32% (n=24) of participants said that their relationship does hinder their willingness to utilize social support services, which could be due to various factors such as social environment, communication and availability of resources. The remaining participants 24% (n=18), felt neutral about the statement and were neither here nor there. These findings will be explored in depth by looking at specific relationships such as the ones formed via the athlete and coach, athlete and team, and the athlete and other athletic professionals.

The question to follow, sought to find out whether participants would be more willing to seek help if recommended by a coach or teammate, to which 90.67% (n=68) of respondents answered yes. This suggests that if encouraged or guided by outside sources, student-athletes would be more inclined to utilize social support services. In analyzing these results, we can see a clear contradiction with the above statement, "hypothetically speaking, one's relationship with athletic faculty does not affect their willingness to utilize social support services at McMaster University" as these results suggest that encouragement does affect one's willingness. Therefore, it can be assumed that positive reinforcement and conversations in the normalization of mental unwellness encourages student-athletes to seek help when needed. As stated by Wahto et al. (2016, p. 88), "willingness to seek help would be the highest when the referral came directly from a coach or teammate compared to oneself or a family member". Various other studies have found that the relationship between a student-athlete and their coaches and teammates significantly impacts their views on the use of social support services (Leimer et al., 2014; Hawley et al. 2014).

The relationship between a student-athlete and their coach is indicative of their willingness to seek help when needed. Coaches can play an active role in encouraging and caring for their team's mental health according to NCAA research (Ryan et al., 2018). Using a socio-ecological framework, the social environment enacted by coaches influences their players and the team domain as a whole (Moreland et al., 2018). This can either emphasize or minimize the value placed on mental health and the steps taken to

provide for support or treatment when needed (Ryan et al., 2018). Coaches are in a position of power and can influence how mental health is discussed within the parameters of the team. In understanding mental health and burnout, a study found that student-athlete's resilience was correlated with two types of social support, including informational support and tangible social support (Lu et al., 2016). Informational support includes "advice and guidance; such as helping athletes deal with slumps and set-backs, failures, problems of training and competitions, and enhance athlete fitness" (Lu et al., 2016, p. 207). Tangible support is the hands-on approach offered by coaches, where they are made aware of the resources and services available to them (Lu et al., 2016). This is correlated to our findings about the importance and need for awareness regarding social support services available on McMaster campus discussed in the awareness section below.

These findings speak to the facilitators and barriers of seeking social support services as mentioned in the literature review. Coaches' reaction and understanding of mental health issues deliberately affects students seeking social support (Ryan, 2018). This can act as a barrier as student-athletes fear a negative reaction resulting in personal discomfort, lack of compassion, or losing their coaches confidence in them (Ryan et al., 2018; Leimer et al., 2014; Hawley et al. 2014). In order for coaches and teammates to act as facilitators to social support services, there is a need for open communication and positive attitudes surrounding the topic (Gulliver et al., 2012). This notion is further explored in the sections regarding identity salience and perceptions.

Focusing on student-athletes and their relationship to their teammates, studies show how loyalty and winning ideologies can influence social support seeking behaviours. (Leimer et al., 2014). There is a common "Win-At-All Costs" philosophy experienced by student-athletes that prioritize winning and needs of the team over oneself (Leimer et al., 2014). This philosophy would suggest that student-athletes have been socialized to do what is best for the team over what is best for themselves (Leimer et al., 2014). Student-athletes who contemplate reaching out for help were found to be thinking about what that would suggest about their ability to perform (Leimer et al., 2014; Kern et al., 2017). These feelings are directly correlated to fear of stigma and negative perceptions that may exist among student-athletes.

Beyond coaches and teammates, student-athletes interact with trainers and specialists throughout their designated season. Trainers and specialists are another form of gatekeepers that can control the social environment's student-athletes exist in (Gulliver et al., 2012; Levy & Lopez, 2013). These relationships can also influence a student-athlete's perception on using social support services and whether or not it will affect their identity as an athlete. The stigma that exists within these communities can affect the type of treatment and plans of actions student-athletes are put through. "It has been reported that stigma often deters professionals working with the athletes from referring an athlete to a mental health professional" (Gulliver et al., 2012, p. 3). This is concerning for student-athletes as their gatekeepers control their social environment and those that they have access to. If professionals are not granting access or facilitating social support services, then they are acting as a barrier to the help student-athletes are seeking.

Overall, it is evident that a student-athlete's relationship with athletic faculty does play a role in whether or not they utilize social support services. With positive reinforcement, our study and previous studies found that there is an increased willingness to seek social

support. Which suggests a need for open and honest communication about mental health concerns in student-athletes' lives.

Awareness

Throughout our study, a common theme of importance was awareness. Many sociological researchers have noted that there is a lack of awareness amongst varsity student-athletes when it comes to mental well-being and the social support services available to them (Kern et al., 2017). Kern et al. (2017) state that there is a need for the creation of interventions that formulate awareness and make mental health a norm of a student-athletes health status overall. Breeding awareness of mental wellness would aid in the normalization of help-seeking amongst varsity student-athletes (Kern et al., 2017). It is not uncommon for student-athletes to feel a sense of fear surrounding stigma and lack knowledge when looking to access social support services (Ryan et al., 2018). This notion was furthered by our own findings, which indicated that 85.33% (n=64) of student-athletes at McMaster University believe McMaster's athletic department could improve on their awareness promotion of social support services. As researchers, this is something we would hope our study could help formulate a solution.

Another interesting finding is that the majority of student-athletes who were already aware of social support services were made aware by their friends. 62.67% (n=47) of student-athletes were uncertain of what social support services were available to them at the University, with only 32% (n=27) being aware. This further alludes to the fact that within the athletic department itself, there is a lack of awareness. If the department was ensuring that students were sufficiently aware of the resources available to them, these students would not need the guidance of a peer. However, it can also be said that it is a positive trait that friends are communicating helpful resources to those athletes. We know that student-athletes face more mental stressors than non-student-athletes, so it is imperative that these athletes are aware of who, what, and where they could get the appropriate help needed (Ryan et al., 2018).

Rickwood, Cavanagh, Curtis, and Sakrouge (2004) have made suggestions about incorporating the involvement of athletes who have dealt with mental health struggles as well as specialized sport psychologists during information sessions with student-athletes. This would aid in the awareness of the matter through the familiar nature of those presenting the information (Kern et al., 2017). Their role would be to separate the facts from myths when it came to mental wellness as their research has shown improvement with this method (Kern et al., 2017). Currently, McMaster University varsity athletes do not feel that the David Braley Athletic Centre does a good enough job of promoting information for the accessing of social support services. When asked if the participants felt that there was enough promotion of social support services, 30.67% (n=23) disagreed that they did, with about 22.67% (n=17) agreeing that there was.

However, the same amount of people that disagreed with there being a good job done on promotion were neutral in their feelings. This shows us that not enough athletes are confident in their awareness of social support aids. More of them gave us disagreement and uncertainty than those that gave positive appraisals. Furthermore, we wanted to gauge which social support services the athletes were most aware of. The findings indicated that 86.67% (n=65) of students were aware of the Student Wellness Centre, 46.67% (n=35) were aware of Student Accessibility Services, 50.67% (n=38) were aware

of the Student Success Centre, 12% (n=9) were aware of the Student Health Education Centre and only a shocking 32% (n=24) were aware of the Counselling services offered. Granted, the numbers for the wellness center are not too catastrophic, however, the others are very worrying as to why all athletes should have 100% awareness. Knowing that student-athletes need such services, possibly more than non-student-athletes, this is very problematic and needs to be remedied. Furthermore, about 85% of participants overall stated that McMaster as a school needed to do a better job of promoting these imperative services. Further investigation is needed to determine what services are predominately accessed and used by student-athletes and therefore promoted accurately.

Previous studies by the NCAA (2016) tell us that awareness is imperative to the furthering of help-seeking behaviours of student-athletes, however, we are noting a clear lack within our findings. This indicates that McMaster University and the David Braley Athletic Centre specifically need to shift the current method of information-giving when it comes to mental wellness amongst varsity student-athletes. Not enough student-athletes are benefiting from these needed services. There needs to be a normalization and an incorporation of that akin to the student-athlete lived experience to make more of an impact and increase help-seeking behaviours amongst these athletes (Kern et al., 2017).

Specialized Services
Through the analysis of our results, we have discovered that there is a need for sports-based social services within the McMaster athletic faculty, specifically at the varsity level. Student-athletes are constantly under stress due to heavy athletic and academic demands and unfortunately, time is not an asset (Wahto et al., 2016). Research suggests that due to the enormous demand and psychological distress that is placed upon student-athletes, research suggests that "10-25% of college student-athletes suffer from psychological distress at a level indicative of a need for psychological services" (Wahto et al., 2016, p. 86). Our findings show that 85.34% (n= 64) of McMaster student-athlete participants responded that they spend an average of 11-30 hours per week on sport affiliations alone (that does not account for the time spent on academic work). As a result, 90.66% (n= 68) of McMaster student-athletes have agreed that they have added stress to their daily lives simply by being a part of a varsity team. The limits on time served as a crucial barrier to utilizing social support services as it "highlights the importance of making these services available to student-athletes in light of their demanding schedules" (Levy & Lopez, 2013, p. 25).

The National Collegiate Athletic Association (NCAA) "Mental Health Best Practices" document notes that a student-athlete's well-being is "best served through a collaborative process in which the mental health provider is easily accessible and within or proximate to athletic department facilities" (Sudano et al., 2017, p. 78). Additionally, Sudano et al. (2017) have suggested that "one way to provide comprehensive care to student-athletes is using an integrated care model. Integrated care combines mental and medical health services to form a unified, on-site team, integrated treatments, systems, and payments" (p. 78). Currently, 64% (n= 48) of McMaster student-athletes do not prioritize social support services due to their academic and athletic demands which could hinder their performance in their respective sport. 81.33% (n= 61) of McMaster student-athlete participants selected that athletic stressors account for the most negative impacts on their

daily lives. This is an indication to place potential treatments inside the David Braley Athletic Centre but must emphasize that "if services are provided to student-athletes within the athletic department, services must be provided in a location that protects the student-athlete's privacy and confidentiality from other athletes and staff" (Levy & Lopez, 2013, p. 28). This privatization could possibly ensure that the athletes are not held back from seeking help due to any form of stigma.

A highlight of our research findings indicates that McMaster student-athletes need better access to social support services regarding more flexible time schedules, shorter wait times, extra support during midterms and exams season, and spreading awareness more consistently. In a study conducted in the United States, it asked, "what conditions would increase student-athlete access to mental health care?", and the top three responses were; free services, access to a practitioner with an understanding of the student-athlete experience, and the ability to schedule appointments online (Ryan et al., 2018, p. 73). In addition, 90.67% (n= 68) of McMaster student-athlete participants have expressed that they would be willing to seek help if recommended by a coach or teammate. This is in accordance with past studies that suggest familiarity to the field makes an individual more appealing to the athlete.

Generally, student-athletes feel "that anonymous access to the internet may act as a facilitator for a small minority of athletes who may not feel comfortable approaching a health provider in person" (Gulliver et al., 2012, p. 9). Research suggests that the "head Athletic Certified Trainers" (ATC) are often aware of the mental health issues in the student-athlete population, which is important because the ATC's are often the first line of triage for an athlete with mental illness" (Sudano & Miles, 2017, p. 266). Additionally, ATC's and student-athletes spend a significant amount of time together, therefore it is emphasized that it is very crucial that the open lines of communication are maintained (Sudano & Miles, 2017). Moreover, there are currently "no recommendations for the amount of time a mental health clinician should be available, therefore it is crucial that a student-athlete has regular access to a member of the health care team in case of an emotional crisis" (Sudano & Miles, 2017, p. 266).

In general, student-athletes demonstrate more negative attitudes toward help-seeking behavior in comparison to their non-athlete peers (Ryan et al., 2018, p. 73; Wahto et al., 2016). Our research displays that McMaster student-athletes would prefer more specialized social support services that are tailored to understanding their athletic demands, such as a Sports Psychologist. Gulliver et al. (2012) conducted a research study and found that "male college athletes' attitudes demonstrated that negatively assessed male athletes who consulted a 'psychotherapist' but not consulting a 'sport psychologist' felt that it was due to their misunderstanding of the sport" (Gulliver et al., 2012, p. 2). The differentiation of attitude could be a result of "the latter being more involved in performance enhancement than mental health issues" (Gulliver et al., 2012, p. 2). Furthermore, the male athlete participants were more "comfortable seeing sport psychologists for performance related issues", such as performance enhancement instead of mental health counseling (Ryan et al., 2018, p. 73). Similarly, student-athletes expressed that they are more willing to seek help when the program is targeted toward a sports culture (Gulliver et al., 2012). However, though it is clear from the aforementioned that specialized services are more preferred, the normalization of mental health in athletic spheres is still needed.

Not only does talking to a sport psychologist make it more comfortable for student-athletes, but also the age of the psychologist matters. Our findings of McMaster student-athletes highlighted that they prefer having sport psychologists who were once student-athletes themselves. That finding was common across other research studies as it was expressed that participants prefer a "counsellor knowledgeable and personally experienced with sports, possibly with collegiate sports participation" (Levy & Lopez, 2013, p. 29). However, athletes also state that they would prefer seeking treatment from individuals "who are older than they are, but still close enough in age to understand their journey as college-age students" (Levy & Lopez, 2013, p. 27). The reason is that "participants held perceptions believing that they would not be understood" which acted as a barrier to seeking such services. Similarly, our results indicate student-athletes prefer help providers who potentially will understand the athlete's complex role and "sport-related issues" and "not have to explain their complex day-to-day existences or the intricacies of their sport, but to be free to focus on the issue troubling them" (Levy & Lopez, 2013, p. 27). That being said, student-athletes also felt that having a good rapport with a health professional would be a factor to push them in the direction of seeking help when needed (Levy & Lopez, 2013). Overwhelmingly, they thought that knowing the psychologists they would be accessing made it "easier if you need help" (Ryan et al., 2018, p. 9). Thus, as showcased, familiarity with sport is an asset to student-athletes.

Identity Salience

The findings within this theme came with a contradiction. We hypothesized that the more a student-athlete identified with their student-athlete label, the more likely they were to regress from help-seeking behaviors. We based this hypothesis on previous studies dealing with the presentation of self and the ideal of the strong stoic student-athlete. Previous studies would conclude that our hypothesis was indeed correct. Dean (2019) and Leimer et al. (2014) stated that student-athletes held a strong stoic ideal that made them perceive help-seeking as weak due to a no pain, no gain ideology. The walk-it-off mentality is a norm of being on a sports-affiliated team (Dean, 2019). However, our findings indicated that even though the majority of students identified their student-athlete title as their master status, 76% (n=57) of them did not feel that their strong or stoic image prevented them from seeking social support services. This finding was furthered by the fact that over 80% of participants stated that they did not believe that there was a negative perception associated with student-athletes who accessed social support services. Referencing Hughes (1971) master status, one's social identity often aligns with their social environments and thus influences their behaviour in front of others. Thus, the athletic social world student-athletes exist in places a very critical eye on their behaviour and needs for social support services.

The fact still stood that they were not accessing them at a rate that correlated with their responses. Over 60% of the students were not even aware of the services to access them, and about half of them stated they did not prioritize social support services due in part to their focus on their athletic status. This beckons us as researchers to ask, if their athletic identity was not stopping McMaster University student-athletes from accessing social support services, then what was? Was there bias in their answers due to not wanting to be perceived in a negative light somehow? Or is it that at McMaster University

they perceive the support services as a positive thing but still do not act on it due to fear of perceived stigma? Lastly, was our sample size simply too small?

We know that "previous research that has examined barriers to athletes seeking psychological help has suggested that although student-athletes view coaches and teammates as major sources of support, they also view these individuals as barriers to seeking professional psychological help" (Wahto et al., 2016, p. 87). Thus, why then were our findings not a parallel? Regardless of the reasoning, it stood that our findings did not support our original line of thinking. Sheehan et al. (2018) tell us that the lifestyle of a student-athlete in its dualism as an academic participant as well, puts them at risk for aggressive moods, depression, anxiety and inability to sleep. The aforementioned further their chances of drug and alcohol abuse as well (Dean, 2019). With such knowledge, there is a need to mobilize student-athletes into more help-seeking behaviours to ensure that they get help where it is needed.

Athletic & Academic Demand

From the survey results we found that academic and athletic stressors were the highest-ranked stresses that McMaster student-athletes experienced. However, these results are not surprising, as past research done by Hilliard et al. (2018) expressed that student-athletes are a vulnerable population as they continue to balance academic and sport-performance pressures, along with injury and interpersonal relationships. Similarly, Gulliver et al. (2012, p. 5) comment that commitments to both their sport and studying were sources of stress. Based on one of our Likert scale questions in the survey which stated, "I do not prioritize social support services at McMaster University due to my academic and athletic demands", we found that 48% of McMaster student-athlete participants agreed, and 16% strongly agreed with the statement. Therefore, the well-being of student-athletes has been restricted due to their physical health, further influencing their performance outcomes in sports and academics (Watson & Kissinger, 2017, p. 153).

Types of Demands

Through our research, we can infer that student-athletes experience more demands than non-students-athletes. For instance, student-athletes are restricted to social and occupational opportunities due to their intense sport scheduling and time constraints (Gavrilova & Donohue, 2018). By limiting their time socially and academically, a student-athlete has less time to reflect on themselves and their well-being. The types of commitments student-athletes participate in includes physical sport training, maintaining multiple relationships within or outside of the team, restricted financial opportunity and avoiding injury (Gavrilova & Donohue, 2018). In addition, maintaining their fitness for better performance is equally important (Gavrilova & Donohue, 2018), since monitoring their nutrition, body composition and coping with physical fatigue is often unavoidable (Van Slingerland et al., 2018). Noticeably, there is an overwhelming amount of commitments for student-athletes to maintain. As a result, these types of demands that student-athlete's experience may affect them academically, emotionally, and personally (Van Slingerland et al., 2018).

Pressures Experienced Based on Demands

The athletic and academic demands that student-athletes experience may cause additional pressures. For example, Wahto et al. (2016) study estimates that approximately 10% to 25% of college student-athletes suffer from psychological distress. Therefore, this level of distress may indicate that there is an increased chance of student-athletes experiencing psychological health problems (Kern et al., 2017). The increased demands on their academic and athletic careers greatly impact the pressures and stress added to a student-athletes' well-being. Student-athletes are often expected to maintain an acceptable grade point average (GPA) throughout the year while also taking on their athletic demands. Failure to do so can result in loss of playing time, loss of scholarships, risk of damaging relationships with teammates (Moore, 2017, p. 133). However, with the pressures to perform at an elite level in their respective sport, coaches, families, or even student-athletes themselves create an additional pressure in fear of causing disappointment for the coaching staff and their informal support network (Moore, 2017; Gulliver et al., 2012, p. 4). Also, one of the reasons why student-athletes do not seek social support services was due to their lack of time (Gulliver et al., 2012, p. 3; Levy & Lopez, 2013, p. 25).

According to our survey respondents, their ability to seek services was limited and the services were not made available during the times that a student-athlete was available. As a result, student-athletes would rather prioritize the pressures coming from their sport since there is less time to put towards seeking social support services.

Perception

The main finding from the results in perceptions was, student-athletes did not feel there was a negative perception of athletes who access social support services. In response to "Do you believe that the strong stoic ideal of a student-athlete is compromised if an athlete accesses social support services at McMaster?", 76% (n=57) respondents answered "No", and only 16% (n=12) answered "Yes". However, this finding is contradictory to the previous literature on student-athletes' perceptions. According to other research done, the stigma around help-seeking is why student-athletes have low help-seeking rates. Kern et al. (2017) found that student-athletes encounter barriers to help-seeking due to stigma surrounding mental illness and the use of mental health services. In this study, student-athletes were found to have more negative perceptions of help-seeking behaviours when compared to non-athletes (Kern et al., 2017).

Wahto et al. (2016) found that stigma was a predictor of negative attitudes that were associated with student-athletes lack of utilization of services. As well, Ryan et al. (2018) found student-athletes fear negative reactions from coaches and administration, along with personal discomfort, further creating barriers to seeking mental health treatment. There is also evidence to support that all students, athlete and non-athlete, underutilize mental health resources due to the associated stigma (Wahto et al., 2016; Watson, 2005). The particular mental health concerns of student-athletes were found to be mostly depression and anxiety (Tomalski et al., 2019). Student-athletes also have perceptions of stigma around having a mental health concern, not just seeking out help for it (Tomalski et al., 2019). There are also findings, in particular, that male and younger athletes have been reported to have fewer positive attitudes towards seeing a sport psychologist than female and older athletes (Martin et al., 2004; Gulliver et al., 2012). A more specific

example of the perceived stigma around help-seeking behaviours, student-athletes were found to have perceptions that they will be thought of as weak (Levy & Lopez, 2013; Watson, 2005; Gulliver et al., 2012). As well, student-athletes reported high levels of motivation that was found to contribute to their perception of maintaining high standards of success (Levy & Lopez, 2013; Gulliver et al., 2012). Student-athletes being highly concerned with the perceptions of others is also problematic as they are more likely to be recognized on campus accessing counselling centres than their non-athlete peers (Levy & Lopez, 2013). In summary of all these findings, the perceptions and norms of athletics in combination with the social and cultural environment of a university impacts how athletes perceive mental health and help-seeking behaviours (Moreland et al., 2018).

A possible explanation of our research's contradictory finding to an abundance of research, is hesitation to disclose any negative perception student-athletes may hold. As highlighted in Goffman (1959), the respondents may have felt they had to uphold their front-stage self even on an anonymous survey. As well, Kaier et al. (2015) found that student-athletes have a greater perceived public stigma than personal stigma. This suggests that student-athletes could be internalizing personal stigma and prejudices. According to Levy & Lopez (2013), there could be an unwritten code of athletics that student-athletes perceive has never shown "weakness" even to themselves to avoid any negative perceptions of performance. Both of these findings could also translate while answering a survey, especially one that highlights athletic identity. There is also the possibility that student-athletes feel comfortable enough at this university to be open about their help-seeking behaviours of social support services. Further research would need to be done on this student-athlete population to conclude the reasoning.

Stress

Based on our group's results, it is evident that most student-athletes felt they had added stress to their daily lives. Of the participants 65.33% (n=49) strongly agreed that stress is involved in their daily lives when managing an academic workload as well as participating in a varsity sport at McMaster. With such strict demands and limited time constraints, student-athletes are often restricted to social and occupational opportunities due to their intense sport scheduling and time constraints (Gavrilova & Donohue, 2018). Stress is inevitable when it comes to playing competitive sports, and the chronic stress that athletes experience is harmful and could lead to burn out (Lu et al., 2016). As a result, student-athletes experience multiple forms of stressors. Through our study, we were able to verify that a student-athlete's stress levels can be affected both physically and mentally.

Types of Stressors

It is evident through previous studies and our findings that stress has always been a prevalent factor affecting student-athletes. The majority of our respondents agreed 25.33% (n=19) or strongly agreed 65.33% (n=49) that student-athletes on varsity teams have an added stress. Ryan et al. (2018) found that student-athletes have an elevated risk of distress due to the variety of environmental and developmental factors they encounter throughout the school year. In comparison to our study, participants agreed that the stressors they experience could either be personal, academic or athletic, or more than just one. Student-athletes possess stressors such as increased academic pressures,

longer playing seasons, pressure from coaches to win, the commercialization of college athletics, and living away from their families which all are a source of stress that impacts the mental health of student-athletes (Ryan et al., 2018; Gulliver et al., 2012, p. 5). One respondent in our survey commented that midterm and exam season is one of the most stressful times and would appreciate heightened promotion of social support services during these times. Consequently, student-athletes endure additional stressors due to the demands of their dual-status throughout the school year (Kern et al., 2017).

Stress & Mental Health

As a consequence of the added stress that student-athletes experience, there is a greater effect on their mental health. Since the Van Slingerland et al. (2018) study focused on the levels and prevalence of mental health functioning in Canadian university student-athletes, they found that the "time of year, individual living arrangements, substance usage, year of study were all found to have an effect on student-athlete's mental health" (Van Slingerland et al., 2018, p.150). Therefore, student-athletes were found to have differences in mental health compared to non-athletes during their athletic season (Sheehan et al., 2018).

Results from our study also suggested that the majority of student-athletes felt that there was more stress in some academic years versus others. For instance, 98.67% (n=74) of participants agreed that they tend to experience more stress in some academic years versus others; 66.67% (n=50) agreed that first year was the most stressful meanwhile 41.33% (n=31) believed fourth year was the most stressful year. If a student-athlete is not receiving adequate help for their mental health during a peak year, it can impact them negatively. One respondent in our study suggested that the people currently working in the social support services may not fully understand the type of commitments and extra stress that student-athletes undergo, therefore, hindering the ability or willingness for student-athletes to reach out for help.

Due to student-athletes not receiving the right type of social support for their particular stressors, mental health issues that are found to potentially arise are disturbed moods, depression and anxiety, and insomnia (Sheehan et al., 2018). To add, Gulliver et al. (2012, p. 4) study found that there were participants that felt depressed or anxious when they had a poor sports performance or had feelings of depression, sadness, and anger due to experiencing a short or long-term injury. Issues such as weight gain and/or maintenance were critical to the student-athlete's ability to perform which was an additional source of stress (Gulliver et al., 2012). Overall, it is important to monitor the mental health of student-athletes because of the high risk associated with strict athletic demands, thus limiting their time to access social services on campus.

Future Implications

Awareness is a key factor that was discovered in our findings, as 85.33% (n= 64) of McMaster student-athlete participants stated that there was a need for improvement surrounding the promotion of social support services within the McMaster University Athletic Department. It is extremely important for athletic departments to "foster an environment supportive of seeking help for issues of mental health and well-being" (Levy & Lopez, 2013, p. 28). Of McMaster student-athlete participants, 62.67% (n= 47) stated that they are unaware of the social support services that are available at McMaster. In

addition, our open-ended question results emphasized that McMaster's Athletic Department needs to improve on posting more information of support that is available throughout the David Braley Athletic Centre to increase the overall awareness. It was also stressed that resources need to be distributed equally to all McMaster teams and not only making a few teams the top priority. As previously mentioned, Van Slingerland et al., (2018), recognized the importance of the "work needed to normalize the conversation of mental health struggles and treatment in student-athletes" (p. 162).

The researchers also suggested that post-secondary institutions "consider mental health screening as part of their pre-season examinations" (Van Slingerland et al., 2018, p. 162). Furthermore, family members may have little knowledge of their student-athletes' experience of "mental health problems or need for psychological help" as in most cases student-athletes leave home to attend school (Wahto et al., 2016, p. 95). It was revealed in our survey responses that 86.67% (n= 65) of McMaster student-athletes currently live in on-campus residences or in nearby student-houses. It would be of benefit for McMaster Athletic Department to conduct a presentation that informs first year students of the social support services offered, as 66.67% (n= 50) of participants addressed that first year indeed places the most stress on McMaster student-athletes.

Communication plays a major role in ending the stigma in the athletic community, it may be of interest to the McMaster Athletic Department to organize presentations to specific sports individually. It could be a McMaster Alumni of the sport that has utilized social support services in the past. The goal of the presentation is to share their story to provide a sense of acceptance and overall, more awareness for student-athletes. 73.33% (n= 55) of McMaster student-athletes believe that McMaster University, as a whole, can improve on the social support services offered on campus. By developing a relationship with the Student Wellness Centre, "athletic departments may facilitate the implementation of counseling services that are tailored to meet the unique time demands and providers with sports knowledge so as to enhance the counseling experiences of student-athletes" (Levy & Lopez, 2013, p. 28). By developing a relationship, significant increases could occur "in knowledge and positive attitudes toward mental health and help-seeking.

These results suggest that brief contact-and education-based interventions may be helpful in reducing stigma and promoting help-seeking behavior among college student-athletes" (Kern et al., 2017, p. 324). Athletic departments would benefit from "recruiting and hiring staff members who are aware of the importance of attending to student-athletes' mental health and well-being and are outwardly and positively supportive of seeking help when it is desired or necessary" (Levy & Lopez, 2013, p. 28). In addition, knowing more about the levels of stigma that student-athletes face compared to non-athletes could help identify an appropriate intervention for the student-athlete population (Hilliard et al., 2018). In general, an Athletic Department's main goal is to "send out a message of acceptance, support, and promotion of mental wellness that may be conveyed to their student-athletes. In addition, to open lines of communication between the student-athletes and coaching staff" (Wahto et al., 2016, p. 95).

Limitations

Although our anonymous online survey did not present any ethical issues to our participants, we faced certain limitations which hindered our ability to collect more appropriate data. One of our main limitations in the survey was the wording of our

questions. For example, one of our survey questions was, "With what ethnicity do you identify?", and from this we noticed that the participants did not completely understand the term "ethnicity". The question was not clear to the participants if we were talking about race, country of origin, background or skin colour. Furthermore, aside from many participants correctly identifying as Caucasian as an answer for ethnicity, other participants stated that they were White or multicultural. Therefore, if we had defined the term ethnicity, we would have been able to better quantify each ethnic identity that participated in our survey.

Another question that had provided us with limitations is Question 15 and 16 which asked, "In general, do you believe students tend to experience more stress in some academic years versus others?". The follow up question if the participant answered yes was, "If yes to the previous question, which academic school year(s) do you believe places the most stress on students? Select all that apply". From these two questions, the participants may have interpreted the question as to which year they anticipate to be the most stressful rather than which year they experienced as the most stressful. Rather than asking what the student-athletes would have thought as the most stressful academic year, we should have asked out of which years they have experienced, which one was the most stressful.

Based on our sample size of 75 McMaster student-athlete participants, we were content with the collection of data that we have received. However, the student-athlete population at McMaster is immense. If we had recruited more participants for our survey, this could have changed the results of our data significantly since we would have more insight from a greater amount of the student-athlete population inducing generalizability. We also recognize that there was a difference among student-athletes in terms of competition level which could have affected their answers since resources are allocated differently. This should be further explored in future studies.

A final limitation we experienced was the use of language. We were not able to ask certain questions that explicitly stated mental health and or acts of help-seeking due to psychological risks that might occur. For example, one question we would have wanted to ask was regarding "have you previously accessed social support services?". In asking this, we would have wanted to evaluate how often the social support services were actually being used by student-athletes. Instead, we focused on whether student-athletes were aware of social support services in general and how they were informed of these services.

Insights

Our survey questions have allowed us to identify some major issues that needed to be discussed with respect to mental health within the McMaster athletic community. The data that we have collected through our participants has enabled us to provide feedback to McMaster's athletic community to improve the awareness of social support services available to student-athletes. One of the main insights we received from participants was that there needs to be an improvement in awareness, accessibility and flexibility of social support service appointments. McMaster as a whole should better in providing accessible resources that fit around the intense schedule student-athletes endure. The athletic department should focus on personal recommendations by coaching staff or teammates

and increase in the number of sports psychologists available to assist student-athletes in both physical and mental well-being.

Conclusion

Based on our results, we can conclude that McMaster varsity student-athletes do not hold a negative perception towards accessing social support services on campus. However, we did find that there is a lack of awareness for the social support services available for student-athletes. Although there are interventions already in place at McMaster University for the entire student population, not enough awareness is delivered around campus. In particular, there are not enough posters and information boards displayed for student-athletes in the David Braley Athletic Centre.

Overall, we did see some restrictions throughout the implementation of our study as above-mentioned. However, we found that our findings still gave great insight into student-athletes in relation to the accessing of social support services. Even within the contradictions we found, we were able to further analyze what those contradictions insinuated. We definitely see the need to implement more awareness-promotion to normalize mental health in the athletic sphere. Specialized services are also a key point of notation as we cannot ignore the fact that athletes lean towards those of familiar backgrounds. With implementation of such interventions, we hope to see improvements such as the ones seen within the NCAA studies mentioned prior. As much as society thrives on the benefits within the realm of sport culture, we cannot neglect the backstage of such culture. With this in mind, we as researchers believe that our study can provide aid in regard to this due to its inclusion of successful interventions.

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References

Bathje, G. & Marston, H. (2014). Self-stigmatization. *Encyclopedia of Critical Psycholog*y, 1687-1920. DOI 10.1007/978-1-4614-5583-7. Retrieved from https://link.springer.com/referenceworkentry/10.007%2F978-1-4614-5583-7_395

Becker, Howard. S. (1963). *Outsiders*. London: Free Press.

Bird, M. & Chow, G. (2018). Student-athlete and student non-athletes' stigma and attitudes towards seeking online and face-to-face counseling. *Journal of Clinical Sport Psychology, 12*, 347–364. Retrieved on October 03, https://www.researchgate.net/publication/324735810_StudentAthlete_and_Student_NoAthletes'_Stigma_and_Attitudes_Toward_Seeking_Online_and_Face-to Face_Counseling[1]

Dean, N. A. (2019). "Just Act Normal": Concussion and the (Re)negotiation of Athletic Identity,*Sociology of Sport Journal*, *36*(1), 22-31. Retrieved Oct 03, 2019, from https://journals.humankinetics.com/view/journals/ssj/36/1/article-p22.xml

Egan, K. P. (2019). Supporting Mental Health and Well-being Among Student-Athletes. *Clinics in Sports Medicine*, *38*(4), 537–544. doi: 10.1016/j.csm.2019.05.003. From https://www.sportsmed.theclinics.com/article/S0278-5919(19)30041- 9/abstract

Gavrilova, Y., & Donohue, B. (2018). Sport-Specific Mental Health Interventions in Athletes: A Call for Optimization Models Sensitive to Sport Culture. *Journal of Sport Behavior*,*41*(3), 283–304. Retrieved from https://www.researchgate.net/profile/Yulia_Gavrilova2/publication/320567736_Sport_Specific_Mental_Health_Interventions_in_Athletes_A_Call_for_Optimization_Models_Sensitive_to_Sport_Culture/links/5c167e284585157ac1c7b0bf/Sport-Specific-Mental-Health-Interventions-in-Athletes-A-Call-for-Optimization-Models-Sensitive-to-Sport-Culture.pdf

Goffman, E. (1956). *The Presentation of Self in Everyday Life*. Edinburgh: Univ. of Edinburgh.

Gulliver, A., Griffiths, K.M, & Christensen, H. (2012). Barriers and facilitators to mental health help-seeking for young elite athletes: a qualitative study. *BMC psychiatry, 12*(157), 1-14. Retrieved from http://www.biomedcentral.com/1471-244X/12/157

Hawley, L. R., Hosch, H. M., & Bovaird, J. A. (2014). Exploring social identity theory and the 'black sheep effect' among college student-athletes and non-athletes. *Journal of Sport Behavior*, *37*(1), 56+. Retrieved from https://web.a.ebscohost.com/abstract?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=01627341&AN=110738049&h=aEOXL0jqxTVnGRd8%2fqbaxpTYuc9%2f%2bXvCVYWc50N1C7JvlAF91HVAoXrRsIqMIHWnrPDYX4K0cFKm8gxNcfwF5A%3d%3d&crl=c&resultNs=AdminWebAuth&resultLocal=ErrCrlNotAuth&crlhashurl=login.aspx%3fdirect%3dtrue%26profile%3dehost%26scope%3dsite%26authtype%3dcrawler%26jrnl%3d01627341%26AN%3d110738049

Hilliard, R. C., Redmond, L. A., & Watson, J. C. (2018). Differences in Stigma and Attitudes Toward Counseling Between College Student-Athletes and Nonathletes. *Journal of College Student Psychotherapy*, *33*(4), 332–339. Doi:10.1080/87568225.2018.1504639. Retrieved from https://www.tandfonline.com/doi/full/10.1080/87568225.2018.1504639?casa_tok`en=htdBTSdytsAAAAA%3AePhqIS7cotzoYFtTn1CZrfs_1yrdvhNHIiUbxUOsBJGB8ZmG369f1KaeZjVeA7JTmBDLj7LrpWg

Hughes, Everett, C. (1971). *The Sociological Eye - Selected Papers.* Chicago, IL: Aldine Atherton.

Kaier, E., Cromer, L.D., Johnson, M.D., Strunk, K., & Davis, J.L. (2015). Perceptions of Mental Illness Stigma: Comparisons of Athletes to Nonathlete Peers. *Journal of College Student Development 56*(7), 735-739. doi:10.1353/csd.2015.0079. Retrieved from https://muse.jhu.edu/article/597271

Kern, A., Heininger, W., Klueh, E., Salazar, S., Hansen, B., Meyer, T., & Eisenberg, D. (2017). Athletes Connected: Results From a Pilot Project to Address Knowledge and Attitudes About Mental Health Among College Student-Athletes. *Journal of Clinical Sport Psychology*, *11*(4), 324. Retrieved from https://journals.humankinetics.com/view/journals/jcsp/11/4/article-p324.xml

Leimer, A., Leon, R., Shelley, K., (2014). Stigmas and Stereotypes: Counseling Services for Student-Athletes. *Journal for the Study of Sports and Athletes*

in Education, 8 (29), 121-135. Retrieved from
https://www.tandfonline.com/doi/full/10.1179/1935739714Z.00000000022?casa_toke
n=roiwmvBI9IwAAAAA%3A_EsUF8eNUtBikv9X0L6g5_CCi88I4u1ovTkLEIEuVFYbQ
ylwsALfWAr5mEw1PDT7DcgYXbptw_FLA

López, R. L., & Levy, J. J. (2013). Student Athletes Perceived Barriers to and
Preferences for Seeking Counseling. *Journal of College Counseling*, *16*(1),19–31.
doi:10.1002/j.21611882.2013.00024.x. Retrieved from
https://onlinelibrary.wiley.com/doi/full/10.1002/j.2161-
1882.2013.00024.x?casa_token=8PnBNj5_epEAAAAA%3AxH4sZG29E_Zeh2rK
CxNtf5BYoU_Muxa_Y_Y613XCkWRXSHbiXqUrpnW4iyJo1gq1mRgeDWFFA4x
EBOUq

Lu, F. J., Lee, W. P., Chang, Y.-K., Chou, C.-C., Hsu, Y.-W., Lin, J.-H., & Gill, D. L.
(2016). Interaction of athletes resilience and coaches social support on the stress-
burnout relationship: A conjunctive moderation perspective. *Psychology of Sport and
Exercise*, *22*, 202–209. doi: 10.1016/j.psychsport.2015.08.005. Retrieved from
https://www.sciencedirect.com/science/article/pii/S1469029215300029?casa_tok
en=8zCxL5RsK38AAAAA:Knp3nKISH BrbcFKr2OMMnRglHHH63ZxW4EY0Dw
w16NkQ6CtpXVIKNZF_6gcpuE7IKnmgWrXWjw

Moore, M. (2017). Stepping Outside of their Comfort Zone: Perceptions of
Seeking Behavioral Health Services amongst College Athletes. *Journal of Issues in
Intercollegiate Athletics,*130-144. Retrieved October 03, from http://csri-jiia.org/wp-
content/uploads/2017/07/JIIA_2017_SI_08.pdf

Moreland, J. J., Coxe, K. A., & Yang, J. (2018).Collegiate athletes' mental health
services utilization: A systematic review of conceptualizations,
operationalizations, facilitators, and barriers. *Journal of Sport and Health Science,
7*(1), 58-69. doi:10.1016/j.jshs.2017.04.009. Retrieved from
https://www.sciencedirect.com/science/article/pii/S2095254617300637

Ryan, H., Gayles, J. G., & Bell, L. (2018). Student-Athletes and mental health
experiences. *New Directions for Student Services, 2018*(163), 67-79.
doi:10.1002/ss.20271. Retrieved from
https://onlinelibrary.wiley.com/doi/full/10.1002/SS.20271?casa_token=OxhotMCh   F
08AAAAA%3A3Vvq4voaUDG-bYpImgnTzE40Wvw3IZlj5mBV4cM-
9ca4TCsMy4Xy3yuUL_frZxNlvfLAUcJx1jL4mUN0

Sheehan, R. B., Herring, M. P., & Campbell, M. J. (2018). Longitudinal relations of
mental health and motivation among elite student-athletes across a condensed
season: Plausible influence of academic and athletic schedule. *Psychology of Sport
and Exercise*, *37*, 146-152. doi:10.1016/j.psychsport.2018.03.0005.Retrieved from
https://www.sciencedirect.com/science/article/pii/S1469029217306556?casa_token=
Wcng4NTZXFkAAAAA:bOsz_a8VISicHhiVd-
AFP6jm4bIgkGOuTtpAso1o0JqejrnuRiU4rMK8XOW0XPPGTHWQoXCim4

Sudano, L. E., & Miles, C. M. (2017). Mental health services in NCAA Division
I athletics: A survey of head ATCs. *Sports Health: A Multidisciplinary Approach,
9*(3), 262-267. doi:10.1177/1941738116679127. Retrieved from
https://journals.sagepub.com/doi/full/10.1177/1941738116679127?casa_token=r
D2l7mncUIsAAAAA%3AxS8DAdFPTwhxklnzPs7_X4dL0Wk06enS3T2pZUMnTXA8T
Ufmgs2KyXcG6YDcekuZKsQBBgLIieKM5Q

Sudano, L. E., Collins, G., Miles, C. M. (2017). Reducing barriers to mental health care for student-athletes: An integrated care model. *Families, Systems, & Health, 35*(1), 77-84. doi:10.1037/fsh0000242. Retrieved from https://psycnet.apa.org/record/2016-56887-001

Tomalski, J., Clevinger, K., Albert, E., Jackson, R., Wartalowicz, K., & Petrie, T. A. (2019). Mental health screening for athletes: Program development, implementation, and evaluation. *Journal of Sport Psychology in Action, 10*(2), 121-135. doi:10.1080/21520704.2019.1604589. Retrieved from https://www.tandfonline.com/doi/full/10.1080/21520704.2019.1604589?casa_tok   e n=7DCQZ7rXOx0AAAAA%3AODmeB1FfNA9NUPOTb2tlkP4b2C3Dbjckt_cuypEm9 Og2KBUt3rt7g1Up16KQTtRzzOUvuE-EASQV9A

Van Slingerland, K., Durand-Bush, N. & Rathwell, S. (2018). Levels and Prevalence of Mental Health Functioning in Canadian University Student-Athletes. *Canadian Journal of Higher Education*, *48*(2), 149–168. Retrieved from https://id.erudit.org/iderudit/1057108ar

Wahto, R. S., Swift, J. K., & Whipple, J. L. (2016). The Role of Stigma and Referral Source in Predicting College Student-Athletes' Attitudes Toward Psychological Help-Seeking, *Journal of Clinical Sport Psychology*, *10*(2), 85-98. Retrieved Oct 03, 2019, from https://journals.humankinetics.com/view/journals/jcsp/10/2/article-p85.xml [2]

Watson, J. & Kissinger, D. (2007). Athletic participation and wellness: Implications for counseling College student-athletes. *Journal of college counseling, 10*, 153-162. Retrieved from October 10, from https://onlinelibrary.wiley.com/doi/abs/10.1002/j.2161-1882.2007.tb00015.x