

**AN EVALUATION STUDY OF A PEER MENTORING PROGRAM IN POST-
SECONDARY EDUCATION**

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Abstract

There has been increasing concern with the health and wellness of students in post-secondary health professions education programs. Dental hygiene is a health profession in which dental professionals work together to meet the oral needs of their patients. Students enrolled in dental hygiene programs can experience a high-level of stress resulting from examinations, workload, financial strains, patient disappointments, faculty-student interactions and a demanding clinical atmosphere. Peer mentoring programs can benefit post-secondary institutions by helping to reduce student stress and anxiety levels, decrease attrition rates, foster teamwork and collaborative skill development and increase interaction between junior and senior students. This study investigated the benefits of a peer mentoring program in a dental hygiene program. Study participants included peer mentors and mentees from a private post-secondary college in Toronto, Ontario. A mixed-methods, evaluation study design applying Stufflebeam's CIPP evaluation model was undertaken. Evaluation methods included survey questionnaires and semi-structured interviews regarding the merit, value and effectiveness of the peer mentoring program. Eighty-eight (N=88) peer mentees and 26 peer mentors completed surveys, and 10 peer mentor graduates participated in telephone interviews. Findings suggest that peer mentoring is a mutually beneficial relationship encompassing reciprocity between the mentor and mentee. Peer mentoring is positively received and provides peer support, builds friendships and increases knowledge and confidence.

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Chapter 1

1.1 Introduction

"Tell me and I will forget,
Show me and I will remember,
Involve me and I will understand."

- Confucius

1.1.1 Dental Hygiene Profession

Dental hygiene has been a recognized profession for over fifty years in Canada (TCDHA, 2017). Dentists and dental hygienists work together to meet the oral needs of their patients. Dental hygiene is “the science and practice of preventive oral healthcare, including the management of behaviours to prevent oral disease and to promote health” (Darby & Walsh, 2014, p. 1). Dental hygienists provide a variety of services to their patients which includes debridement (cleaning of teeth), educating patients on oral hygiene, taking and developing radiographs, applying sealants, fabricating custom sports guard and teeth whitening trays (TCDHA, 2017). They are licensed oral health professionals who provide education, clinical services and consultation to people of all ages in many settings and capacities (Darby & Walsh, 2014). Dental hygienists assist in promoting oral wellness which leads to a healthier quality of life.

1.1.2 History of Dental Hygiene

Dr. Alfred Fones, who is known as the father of dental hygiene opened the first school of dental hygiene in 1913. In Canada, dental hygiene was legally recognized across the country between 1947 and 1968. The first Canadian dental hygiene education program was established in 1951 at the University of Toronto and subsequent dental hygiene programs were then formed

in community colleges and private institutions across the country. In 1964, the Canadian Dental Hygienists Association (CDHA) was formed and is the only national not-for-profit organization that represents the dental hygiene profession in Canada (Canadian Dental Hygiene Association, 2009). CDHA is the “collective national voice of more than 29,246 dental hygienists” working in Canada (Canadian Dental Hygiene Association, 2018, para.1).

1.1.3 Dental Hygiene Education

A dental hygiene program in Canada is typically three-years in duration and offered through public post-secondary education institutions. However, at a private institution, the program can be condensed to an 18-month program. The program includes theory classes and clinical sessions with hands-on practice and focuses on teaching students the dental hygiene process of care while developing interprofessionalism, client-centred care and interpersonal communication skills (George Brown College, 2017).

The majority of the dental hygiene programs in Canada are accredited by the Commission of Dental Accreditation of Canada (CDAC) which develops and approves requirements for education programs in dental schools, dental hygiene schools and dental assisting schools. Post-secondary institutions must submit detailed information about their programs to CDAC in order to become accredited. CDAC reviews the educational programs thoroughly through on-site visits during which an accreditation survey team holds interviews with faculty and students to ensure that the documentation matches the program. In dental hygiene schools, the accreditation team consists of a dental hygiene educator, a representative of the regulatory authority, and a representative of the certification organization. After the on-site visit, a report is submitted to CDAC in which they decide if the program is granted accreditation status (Commission of Dental Accreditation of Canada, 2018).

Currently, in Ontario, there are six private dental hygiene schools which run eighteen-month programs. While the courses and hours in clinical practice remain the same in both programs (three-year vs. eighteen months), the main difference between the two programs is the break period. In the three-year program, students are given the summer off as well as breaks in between semesters. The three-year program is typically held at a public college where the institution is required to follow the required breaks for all students in that institution. In a private dental hygiene institution that runs for eighteen months, students are not given the summer off and are only entitled to have a one-week break in-between semesters. This results in a highly condensed and accelerated program.

1.1.4 Challenges for Dental Hygiene Students

Some dental hygiene students have no previous university or college education. As such, transitioning from high school to college can present some challenges. Student success is not only measured by academic grades, but adaptability to new social situations, peer pressures, different teaching styles, and having time management and organization skills (Salintiri, 2005). Dental hygiene education has been characterized as stressful due to students having to deal with factors such as exams, heavy workload, financial strains, patient disappointments, faculty-student interactions and a stressful clinical atmosphere (Lopez, Johnson & Black, 2010). This may be particularly compounded for young students entering post-secondary studies directly from high school. The accelerated nature of the program may also compound the pressure and stress on learners. Stress can also play a role in student cheating in dental school and/or dropping out of the program (Burk & Bender, 2005).

Studies show that there is an increasing concern for the mental health of post-secondary students (Windhorst & Williams, 2015). College and university students are at an elevated risk

for mental health issues which can include conditions that affect learners' ability to think and feel (Giamos, Lee, Suleiman, Stuart & Chen, 2017). Having a severe mental health problem can affect how students interact with others and perform their daily tasks (Giamos et al., 2017). A number of national surveys have been undertaken to examine the status of mental health and wellness across North American university and college student cohorts. A General Health Questionnaire (GHQ) revealed that one-third of the Canadian undergraduate university population reported they experienced "elevated psychological distress" during their studies (Giamos et al., 2017, p.121). The Canadian Graduate and Professional Student Survey (CGPSS) which is organized by the Canadian Association of Graduate Studies (CAGS) was last undertaken in 2016. The survey contains information about graduate student satisfaction and experience, and 2016 was the first-time questions regarding disability and mental health were included in the survey. Fifty universities across Canada participated in the survey in 2016 and of the 45,251 total respondents, 2,357 identified as having a mental health disability, which is 5.14% of the total sample (Canadian Association of Graduate Studies, 2018). An American survey conducted in 2014 also highlighted the struggles undergraduate college students are facing: 87% of students feel overwhelmed by all they must do, 55% feel overwhelming anxiety, 33% feel depressed that they cannot function and 9% are suicidal (Windhorst & Williams, 2015). The evidence suggests that post-secondary students have a higher chance of suffering from a mental health crisis.

When students transition from high school to postsecondary institutions without family or institutional support, it can affect their mental health negatively (Giamos et al., 2017). Students who cannot meet the expectations they have set out for themselves in their postsecondary institution may feel disappointed, anxious and depressed (Giamos et al., 2017). Post-secondary

students typically need to “establish more autonomy from parents, form new relationships, adjust to a new social environment, master a new educational curriculum, develop career plans, and become more autonomous individuals who can effectively manage priorities and pressures related to personal, academic and social needs, demands and interests” (Conley, Durlak & Dickson, 2013, p. 286). Having such responsibilities can be stressful for many students and thus may cause mental health problems for some students (Conley et al., 2013). This may be particularly compounded for young post-secondary students completing early years in their studies.

Canadian post-secondary students experience significant levels of stress (Adlaf, Demers & Gliksman, 2005). The stress can stem from transitioning from high school to post-secondary education as it causes a change in routines, security, predictability and a loss of sense of control that the students had during high school (Bray & Born, 2004). This transition combined with staying at a residence, building new friends, financial concerns, school/personal life balance and academic pressures can result in increased stress (Patterson & Kline, 2008). In addition, the students that work either part- or full-time while studying can further heighten the stress level (Al-qaisy, 2010). Poor time management and heavy academic assignments and tests can also add to the stress (Magnussen & Amundson, 2003). A survey of six Ontario universities indicated that the top three stressors that affect academic performance are: stress (38%), sleep difficulties (26%) and anxiety (26%) (American College Health Association, 2009).

Students under extreme stress can participate in unhealthy habits which can result in negative long-term consequences that include addictions, crime, poor academic performance, school dropout, professional burnout and career failure (Dusselier, Dunn, Wang, Shelley, & Whalen, 2005). Students have stated that exam and academic scheduling, availability of

academic support services and course design can affect their well-being (Bishop, Berryman, Wearmouth, Peter & Clapham, 2012). Lack of support from faculty and staff can also negatively affect students' health (Radcliffe & Lester, 2003). Managing stress and learning how to recover from stressful situations are vital aspects to the overall mental well-being of the student. Failing to adjust to the transition and engaging in unhealthy behaviours can negatively affect the students' grades and overall health and well-being (Patterson & Kline, 2008).

Academic institutions are commonly represented as safe, discrimination-free areas where "the barrier of stigma is deconstructed, discussed or challenged" (DiPlacito-DeRango, 2016, p.2). Despite this, there is still a perceived stigma for individuals with mental health issues on campus. This stigma is most strongly felt amongst students who are male, young, Asian, religious, or from a poor family (Giamos et al., 2017). Peer pressure and perceived stigma can prevent students from seeking support (Giamos et al., 2017). The National Educational Association of Disabled Students (2012) in Canada published a report that presents recommendations and best practices on increasing accessibility to post-secondary education for students with disabilities, including students with mental health disabilities. A number of promising practices for post-secondary institutions to apply in addressing services for students with mental health challenges include: collaboration between disability services and counselling services; having someone directly responsible for case management of these students; establishing a joint policy or advisory committee; hiring disability service staff; and hiring a psychiatrist on campus for students (National Educational Association of Disabled Students, 2012).

A number of post-secondary educational institutions have introduced interventions to promote mental health to enhance students' well-being and prevent various adjustment

difficulties (Conley et al., 2013). Changes at national and provincial levels have also been introduced to support the mental health needs of students (Giamos et al, 2017). For example, in Ontario, the government pledged \$12 million over two years to support the Mental Health Innovation Fund and other activities that support student-led projects to raise awareness about seeking mental health support (Giamos et al., 2017). The Mental Health Commission of Canada also has an agenda for helping campuses with mental health services (Giamos et al., 2017). However, despite these interventions, the issues associated with mental illness still “remain inadequately addressed” (Giamos et al., 2017, p.122). Post-secondary institutions are still finding ways to effectively assist students with mental health issues as research suggests that mental health problems on campuses are becoming more frequent and more severe (CMHA, 2013; Verger Combes, Kovess-Masfety, Choquet, Guagliardo, Rouillon, & Peretti-Wattel, 2009).

There is growing evidence that helping professionals, such as teachers, doctors and nurses, social workers and clergy, work in highly demanding fields and can suffer from burnout, compassion fatigue, and secondary stress (Skovholt & Trotter-Mathison, 2014). Faculty members in health care programs are particularly concerned about stress levels among students (Hogan, Fox, Barratt-See, 2017). This problem has been identified in two ways. Some students self-report their stress levels to faculty during the school year. Others report it via formative and summative evaluations of their courses throughout the semester. Significant stress has been found to decrease student’s ability to learn or think critically (Melincavage, 2002).

The Standing Committee on Postgraduate Medical and Dental Education in the United Kingdom has defined mentoring as “a process whereby an experienced, highly regarded, empathetic person (the mentor) guides another (usually younger) individual (the mentee) in the development and re-examination of their own ideas, learning and personal and professional

development. The mentor who often but not necessarily works in the same organization or field as the mentee achieves this by listening or talking in confidence to the mentee” (Healy, Cantillon, Malone, Kerin, 2012, p. 256). Peer mentoring, a planned partnership of an experienced student who tutors an inexperienced student, is one mentorship strategy that is frequently used in educational institutions (Walker & Ceklan, 2016). The implementation of a peer mentoring program may reduce the stress students experience and facilitate a smooth transition to clinical practice. The word mentor comes from an ancient Greek mythological character Mentor, who was a trusted friend of Odysseus (Healy et al., 2012). Odysseus asked Mentor to raise and teach his son Telemachus while he set out for the Trojan War. Mentor advised and counselled Telemachus in his quest to find his father. This reflects that mentoring has existed back to classical times (Ramani, Gruppen, Kachur, 2006). A mentor is an “adviser and consultant, friend, teacher, coach and leader” (Healy et al., 2012, p. 256). A good mentor will support, help, and teach their mentees by example (Healy et al., 2012).

1.2 Purpose

The purpose of this study is to examine the benefits and challenges of a peer mentoring program in a dental hygiene educational institution. The literature suggests that students enrolled in health-care programs experience a high-level of stress during the educational process (Hogan et al., 2017). This is due to students dealing with multiple stress factors such as exams, finances, patient cancellations, and the type of atmosphere created by clinical faculty (Lopez et al., 2010). In fact, dental students are believed to have higher levels of stress than medical students in “academic performance, patient and clinical responsibilities and faculty relations” (Lopez et al., 2010, p. 1197). Medical student stress levels have been shown to decrease over the program,

whereas the dental student stress levels increase especially in the last year when students begin treating patients (Murphy, Gray, Sterling, Reeves, & DuCette, 2009).

While there are several studies published on peer mentoring in dental schools, there is very little research on peer mentoring in dental hygiene schools (Lopez et al., 2010; Murphy et al, 2009; Polychronopoulou & Divaris, 2009; Burk & Bend, 2005). Peer mentoring may have the potential for alleviating stressors for students and enabling their success. This would have important implications for student retention and success. The current study contributes to the literature on peer mentoring in post-secondary education settings and, in particular, evaluates the perspectives of senior and junior dental hygiene students about their experiences of peer mentoring.

1.3 Research Question

What are the benefits and challenges of a peer mentoring program in a dental hygiene institution?

1.4 Situating Self

As an educational coordinator and a dental hygiene instructor at Toronto College of Dental Hygiene and Auxiliaries, the researcher has gained perspective about the first-year student experience. When the researcher started working at the institution, she wanted to find a way to expedite student success and increase retention of students. The researcher was interested in evaluating the peer mentoring program at the institution to examine its success. This research will provide faculty and administrators with a greater understanding of the benefits and effects of a peer mentoring program for dental hygiene students. The study may also serve as a model for designing future program evaluations of peer mentoring programs

within post-secondary educational institutions. Mentoring is an emerging and growing concept within the post-secondary education field and this study contributes to the body of knowledge surrounding peer mentoring. The thesis is organized with an initial review of relevant research and theoretical perspectives on mentoring, followed with a description of the study methodology. The results of the research study are then discussed in detail followed by a discussion of the results and conclusion.

Chapter 2

In order to fully appreciate peer mentoring in a dental hygiene setting, it is essential to have an understanding of the outcomes of mentoring across a variety of educational contexts and varying approaches and interventions. Since minimal research has been completed on peer mentoring in the dental hygiene educational setting, this literature review will address peer mentoring in other health profession education programs. This chapter examines the types of mentoring relationships and the ideal characteristics that mentor and mentee participants should exhibit. Additionally, several benefits of a peer mentoring program will be discussed followed by a description of several theoretical perspectives that could inform the mentoring process.

Literature Review

Dental school stressors can be detrimental if they are not successfully managed (Lopez et al., 2010). Dental students can be prone to developing stress-related disorders such as insomnia, fatigue, mood-disturbances and other health-related issues (Lopez et al., 2010). Peer mentoring offers a cost-efficient approach to supporting students and enabling student resilience to cope with and manage the stressors of post-secondary education. The low cost of implementing peer mentoring programming and the many benefits received by mentees and mentors makes peer mentoring a realistic option for assisting students as they cope with stress levels.

Peer mentoring programs can benefit institutions by helping to reduce student stress and anxiety levels, reduce attrition rates, foster teamwork and collaborative skill development and increase interaction between students amongst different year levels (Hogan et al., 2017). This study seeks to determine if the use of a low-cost peer mentoring program may benefit students in a condensed 18-month dental hygiene program. A review of the literature was conducted by

searching Memorial University's health science and education library database to obtain articles. Terms used to search the literature were 'peer mentoring,' 'peer tutoring,' 'clinical setting,' 'clinical,' 'dental,' and 'dental hygiene.' Inclusion criteria required the articles to be published between 2007-2017 in full-text English and from peer-reviewed articles. Research papers on peer mentoring programs in post-secondary institutions for dental hygiene students are limited. As a health profession involving close provider and client contact in a clinical health services delivery context, the dental hygiene profession and nature of dental hygiene education has many general similarities with the educational pathways of other health professions such as medicine, nursing and midwifery (Hogan et al., 2017).

2.1 Peer Mentoring

Peer mentoring is defined as an interpersonal relationship between two students, a mentor and a mentee (Lopez et al., 2010). The mentor is the more experienced student who has been through at least one year of schooling and has faced the challenges and difficulties of being a dental hygiene student (Lopez et al., 2010). The mentor facilitates the personal and professional growth of a mentee (a less experienced or knowledgeable person) by providing information, skills and insights (Grater-Nakamura, Aquilina-Arnold, Keates, & Lane, 2010). Mentees absorb the mentor's knowledge and keep an open mind and receptivity to what mentors have to offer to them (Grater-Nakamura et al., 2010).

There are several important qualities for mentors and mentees to demonstrate for an effective mentoring relationship. Ramani, Gruppen, and Kachur (2006) have identified six characteristics of effective mentors in academic medicine and these qualities may also apply to dental hygiene mentors. The characteristics for effective mentors are as follows:

- Being knowledgeable;
- Being responsive and available;
- Showing interest in the mentoring relationship;
- Understanding the mentee capabilities and potential;
- Motivating mentee to challenge themselves;
- Acting as advocates for mentee (p. 404).

An effective mentor should set clear expectations and be comfortable with the mentees' lack of knowledge (Humphery, 2010). All mentors should receive training despite having all the right qualities. The more aware the mentor is of the student's needs and how to address these needs, the better the mentor can help their mentees (Pfund, Pribbenow, Branchaw, Lauffer & Handelsman, 2006). Studies also suggest that mentees should have certain characteristics to take full advantage of the learning opportunities from mentors. Zerzan, Hess, Schur, Phillips & Rigotti (2009) write that mentees should have the following characteristics:

- Realistic expectations of mentor;
- Able to receive constructive criticism;
- Accepting of mentor's imperfections;
- Demonstrative of honesty and appreciation;
- Ownership in managing the relationships;
- Aware of knowledge and skill gaps (p. 140).

Having these characteristics will allow for a more meaningful mentoring relationship (Humphrey, 2010). Furthermore, a mentee should also realize that one mentor may not meet all the mentoring needs for a mentee and that a mentee's needs can change over time (Bettmann, 2009).

In the business and military fields, mentorship has been well-established. In fact, the first business field report documents some of the earliest successes with mentoring (Schapira, Kalet, Schwartz, & Gerrity, 1992). Mentorship was developed in large corporations to support junior staff workers in the 1970s in the United States (Buddeberg-Fischer & Herta, 2006). In the Harvard Business Review in 1979 it was stated that executives who had mentors earned more money at a younger age, were better educated and were more satisfied with their career path (Schapira et al., 1992).

Peer interactions has also been widely researched within education. It has been suggested that the influence of peer interaction in post-secondary education can positively affect student success and help student transition to college, increasing student satisfaction and academic performance (Shook & Keup, 2012; Terrion & Leonard, 2007). A number of longitudinal studies and research syntheses have consistently found peer relationships and the interactions amongst peers as one of the most powerful and important elements of the post-secondary student experience (Astin, 1993; Kuh, Kinzie, Schuh, & Whitt, 2005). Astin (1993) summarized: "the student's peer group is the single most potent source of influence on growth and development" (p. 398). Having a peer leader in a post-secondary institution creates a positive influence on their peers in a manner that is less intimidating than the actions of staff and faculty members (Shook & Keup, 2012). Newton and Ender (2010) have also stated that peer leaders are helpful not only for their knowledge and

training but also because of their proximity to students. When a student is in crisis, the peer leader can “price an important and advantageous service by getting a student to sources of assistance before the crisis breaks” (Newton & Ender, 2010, p. 249).

Peer mentorship programs have been established in many post-secondary institutions worldwide to help first year student adjustment, increase retention, and improve new student’s academic performance (Jacobi, 1991). Peer mentoring is seen frequently in college and university campuses in the hope that mentors can relate more to first-year students, compared to instructors, which allows for more open communication between students and their mentors (Holt & Berwise, 2012; Hall & Jaugietis, 2011). The types of peer mentoring vary by program; however, most peer mentors assist with academic help along with psychosocial support (Holt & Lopez, 2014).

Many universities in Canada offer peer mentoring programs to benefit students. For example, at Brock University, a new international student can be connected to a Brock Guide (i.e. an upper year Brock student) who is able to answer any questions that the student may have about their upcoming studies. Brock University hosts “Brock Guide Meet and Greet” during each orientation session for all international students. The students are given insights via email or other social media networks in how to prepare for classes, how to use local transit, what it is like living in residence and where to go in the city. In return, Brock Guides have the opportunity to learn about different cultures and gain leadership experience that can be added on their resume (Brock University, 2018).

Ryerson University has organized a Tri-Mentoring Program for all students across all faculties. First-year students are paired with upper year students in the same program to allow the incoming students to successfully transition into their first-year program at Ryerson. The

mentors have the opportunity to be matched with an industry professional and receive guidance from the professional. A group mentoring program is also available for Ryerson students who are interested in connecting and sharing their experiences (Ryerson University, 2018). The University of Guelph also hosts a Speed Mentoring Event in the Business Career Development Centre in which students can expand their network and meet a mentor. Students can receive valuable information and mentoring opportunities with University of Guelph Alumni. Having an interactive discussion in a speed networking format not only allows students to ask questions about working in the industries they hope to pursue, but also allows them to grow their network (University of Guelph, 2018).

Mentors should not be confused with role models. Role models are people who individuals can identify with and who have qualities that individuals would like to achieve. The role of mentor is very different from that of a role model. In a peer mentoring relationship, there is an exchange of information and guidance between the mentor and mentee, whereas in the case of a role model there is no exchange of communication, nor is there a supervisory relationship (Healy et al., 2012). A mentor actively guides the mentee and acts as their coach, but a role model does not have any clear role with the student. Rather, the role model's actions and attitudes are unconsciously or consciously observed by the students (Healy et al., 2012).

Peer mentoring has been developing for a long period of time. Tania Smith (2013) conducted a literature review on four decades of post-secondary peer mentoring. She noted that peer mentors can “provide a variety of peer-appropriate, course-specific mentoring, tutoring, facilitation and leadership roles and activities that complement the roles of the course’s instructor and teaching assistants both in classroom settings and beyond (Rowman & Littlefield, n.d., para. 2).” Goldschmid and Goldschmid (1979) performed a literature review of 78 publications on

peer mentoring in post-secondary education and wrote that “in the last decade, peer teaching has gained momentum in higher education” (Smith, 2013, p. 7).

One recognized peer mentorship program was introduced in the 1970s and was called Supplemental Instruction (SI). Hurley, Jacobs and Gilbert (2006) described this program by stating that any course with high rates of D and F grades or withdrawals were targeted by the institution. All students in those courses were urged to participate in voluntary extracurricular study sessions that were led by SI leaders. The SI leaders were students who had to have training and support by an SI supervisor. Smith (2013) writes that supplemental instruction (SI) has grown in post-secondary institutions internationally, especially between 1982 and 1996. During that timeframe, SI was implemented in 4,945 courses with more than 500,000 students participating from fields in business, health science, humanities, mathematics, natural science and social science (p.9).

Peer mentoring programs exist across many health profession education programs. The efficacy of peer mentoring in health profession education programs is well-documented. For example, in 2017 a midwifery peer mentoring program was evaluated in an urban Australian university. The participants were first-year mentee and third-year mentor students studying in a three-year Bachelor degree in midwifery. The aim of this study was to explore the benefits of the peer mentoring program for the midwifery students. The study was evaluated through surveys which were distributed at the end of each academic year. In total, 63 peer mentors and 170 mentees participated in this program. The study demonstrated that the peer mentoring program was a benefit to both mentees and mentors. Over 80% of mentors felt they had helped their mentees adjust to clinical placement. Seventy-five percent (75%) of mentors felt they benefited from the program by developing their communication skills, building self-confidence

and increasing their employability. Mentees felt supported and encouraged by their mentors in this mentorship program. The findings of this program showed the value of peer support for mentees and added knowledge about the mentor experience for midwifery students (Hogan et al., 2017).

A nursing peer mentoring program was evaluated at a nursing school in 2016. Clinical experiences can produce anxiety for new nursing students. A quasi-experimental approach was used to evaluate the peer mentoring program wherein a pre- and post-test evaluation study design was used. The research examined the difference in anxiety during clinical settings between first-semester clinical nursing students who participated in the peer mentoring program as compared to first-semester clinical nursing students who did not participate in the peer mentorship program. Participants were asked to complete a State Trait Anxiety Index (STAI) which is a 40-item, Likert scale instrument that assesses state and trait anxiety. Participants were also asked to complete the Clinical Experience Assessment Form (CEAF) which is a 16-item, Likert scale that measures anxiety related to specific clinical experiences. These surveys were filled at baseline and at the end of the three-week intervention period. The findings suggested that students who received peer mentoring experienced less anxiety when providing patient care than students who did not receive mentors. The results support the efficacy of peer mentoring during the first three weeks of clinical practice (Walker & Verklan, 2016).

Mentorship in medicine is also heavily researched as mentorship has been shown to increase career satisfaction and personal development (Zakus, Gelb & Flexman, 2015). In a cross-sectional study conducted in 2015, web-based surveys were distributed to Canadian anesthesiology program directors and residents. The study found that residents and program directors value mentorship as evidenced by 94% of residents agreeing that mentorship was

important. The study also noted that mentor and mentees were more likely to be of the same gender as gender concordance leads to better mentorship relationships. It was concluded that the presence of a formal mentorship program was positively associated with mentorship (Zakus et al., 2015).

Dental students also deal with many stressors while in dental school. The stressors may include regular exams, heavy workload, financial strains, patient disappointments, faculty-student interactions and a stressful clinical atmosphere (Lopez et al., 2010). A study evaluated a peer mentoring program at a dental school in the Midwest United States to determine its effectiveness and identify areas of improvement. A twenty-five-item online survey was sent to all students and 256 students participated in the survey. Seventy percent (70%) of respondents agreed that having a mentor during their first year helped them transition to dental school and 77% stated that they experienced relief from their anxieties by having a mentor in dental school. The students found the peer mentoring program helpful in dealing with stress especially during transition periods, such as when they first started dental school and later when they were in the preclinic setting and finally the clinical setting when working with patients. The study concluded by stating that peer mentoring was a cost-effective way of helping students deal with stress and should cover all years in the dental curriculum (Lopez et al., 2010).

It is important to note that not all academic stress is considered negative. Stress can also have a positive effect on students' motivation and performance. Some students may thrive academically under stress and are encouraged by minor setbacks and view challenging events as manageable. Experiencing stress can also allow few students to believe they have the ability to cope successfully and as a result become more motivated to achieve their goals (Struthers,

Perry, & Menec, 2000). At times, students should embrace stress as they can come out mentally stronger from facing their challenges.

Peer mentoring has no predetermined maximum or minimum number of student-mentor ratio, which means that mentoring can occur in many different forms. One-to-one mentoring is the most common where one peer mentor helps one student mentee. However, mentee-mentor dyads, small groups, large groups, and class-wide activities, presentations or online interactions are also possible. Online interactions via email is known as telementoring or distance mentorship. This allows the mentorship to continue once a student has graduated. Most mentors state that while this type of mentoring is less demanding it is also less personally fulfilling than on-site mentoring (Yeung et al., 2010).

More than one peer mentor can be assigned to one course. Large classes can have more than one peer mentor, with the mentors being assigned to groups of students. Peer mentors can also be distributed to an equal amount of student mentees. Alternatively, students can also choose their peer mentors that they relate with better (Smith, 2013). In one study of internal medicine residencies with formal mentoring programs, 90% of students chose one-to-one mentoring as the most effective type of mentoring (Yeung, Nuth & Stiell, 2010). Program directors assigned mentors in 50% of the programs, while others encouraged residents to choose their mentor. In other programs, both the program director and mentor selected the mentees. There are also reports of mentoring relationships that happen outside of the official residency programs (Yeung et al., 2010).

Mentees who can relate to their mentors have more comfortable and effective relationships than when mentors are selected. When mentees can pick their mentors, better outcomes occur (Bhatia, Singh & Dhaliwal, 2013). The relationship should not be forced, and

both mentors and mentees should be given the option to select their partner(s). If there is a lack of interest or mutual respect between both parties, then little will be gained from the mentorship program (Healy et al., 2012).

To allow for mentors and mentees to pick their partner, the program head can provide a list of potential mentors to the mentees. The mentees can then meet with the mentors to see if they share common interests and goals (McKenna and Straus, 2011). Institutions should not actively try to pair mentors and mentees based on gender, religion, culture and disability as this is not validated in studies (McKenna et al., 2011). In several studies, findings about the need of gender, race or ethnic similarities in a mentorship relationship were inconclusive suggesting that matches based on such characteristics may not be required (McKenna et al., 2011). What is more important is the sensitivity of the mentor towards the mentee rather than matching on any of the factors (Sambunjak et al., 2006). Mentors should learn the skills needed to understand issues relating to mentees' gender and ethnicity. They should attend workshops in which they are taught to become comfortable in working with students from diverse backgrounds. In fact, literature states that individuals would be more accepting of differences if they were matched with individuals of a different culture (Sambunjak, Straus, & Marusic, 2006).

2.2 Benefits of Peer Mentoring

Stress in students can influence academic and clinic performance in addition to student well-being (Jimenez, Navia-Osorio, & Diaz, 2010). The three major causes of stress are documented to be academic stress, clinical stress and external stress such as interference with daily life and financial stress (Jimenez et al., 2010). Much of the literature states that clinical placements are stressful for new students (Hogan et al., 2017; Jimenez et al., 2010). One of the problems faced by students is inadequate supervision in clinic due to staff shortages (Hogen et

al., 2017). Another problem is recruiting appropriate patients for the clinical component with the hope that the patients do not cancel and arrive on time for their assigned clinics. Chipas, Cordey, Floyd, Grubbs, Miller & Tyre (2012) state that “stress in the learning environment is important for the positive motivation of a student, but stress beyond a motivational level can lead the student toward negative consequences” (p. S49). Extreme stress can impede learning and have negative physical and physiological impacts on students (Jiminez et al., 2010). Studies show that students who have excessive stress are emotionally exhausted and suffer from mental distress, physical manifestations, and eventually, burnout (Polychronopoulou & Divaris, 2009). Stress and anxiety can affect the information processing system in the cerebellum, which causes a decrease in memory formation, coordination and learning. This deficiency can transform into poor skills in clinic (Savtchouk & Liu, 2011). Therefore, students under excessive stress may suffer mentally in not only the academic portion of the program, but also the clinical aspect.

A key challenge that health professional students may face is insufficient supervision by staff in clinical practices (Brookes & Moriarty, 2009; Deasy, Coughlan, Pironom, Jourdan & Mannix-McNamara, 2016). The increased stress from a lack of supervision in clinical settings, particularly during early clinical learning experiences, can interrupt students from gaining knowledge and experience (Walker & Verklan, 2016). One method that post-secondary educational institutions have used to assist students to cope with stress is peer mentoring (Lopez et al., 2010).

The literature identifies many benefits of peer mentoring programs. Peer mentoring programs can increase retention rates and studies have found that mentoring programs that provide support to first-year students with low grades and adaptation problems have increased retention and graduation rates (Budge, 2006). The literature also suggests that peer mentoring

programs during the first year of university can help students become more integrated into the university, which increases student retention and their chance of graduating (Yomtov, Plunkett, Efrat & Marin, 2017). Research also suggests that students with peer mentors have “significantly better grades, lower failure rates and better retention” than those students without mentors (Yomtov et al., 2017, p.26).

Negative experiences during clinical placements have been shown to affect attrition in first-year nursing students (Glass & Walter, 2000). This is due to the high-level of stress the students are exposed to in dental school (Lopez et al., 2010). Some studies suggest that mentees have felt encouraged to keep going during the challenging times due to the peer support they received from their mentor (Sprenkel & Job, 2004; Morley, 2014; Hogan et al., 2017). Most mentees found that mentors offered great support and were “helpful, encouraging, understanding, reassuring and positive” (Hogan et al., 2017, p. 207). A peer mentor has a range of roles that includes that of “role model, personal support agent, resource and referral agent, academic success or learning coach, and college success or life coach” (Shook & Keup, 2012, p. 6). One of the reasons for decreased anxiety and stress from peer mentoring may be due to peer mentors who provide support without any evaluation (Ford, 2015; Sprenkel et al., 2004). Instructors, on the other hand, may be supportive, but are also evaluative. One study stated that questions asked by first-year students are sometimes answered best by senior students rather than faculty (Mann, 2013). Thus, peer mentors exert a positive influence on their peers and can do so in a less intimidating manner than faculty members and staff (Shook & Keup, 2012).

Peer mentoring also helps students develop teamwork and collaboration skills as well as increases interaction between students across year levels (Sprenkel et al., 2004; Morley, 2014). One study demonstrated the benefit of a peer mentoring project in reducing anxiety amongst

nursing students by pairing a freshmen student with a sophomore-level peer mentor enrolled in a medical-surgical nursing course. This allowed for improved interaction at various levels in the curriculum (Sprengel et al., 2004).

Peer mentoring also assists dental hygiene and nursing students during transition from classroom to clinical practice (Blanchard & Blanchard, 2006; Lopez et al., 2010). In one study, a twenty-five-item survey was sent online to all dental students at the University of Minnesota. Sixty-six percent (66%) of students responded with representation from all four classes. The study found that students agreed that a mentor was helpful during the transition from the preclinical to the clinical stage. This suggests that peer mentorship should occur early in the curriculum before students make the transition into clinical practice (Lopez et al., 2010).

Studies also indicated that mentors gain confidence and leadership skills from mentoring a mentee, as they see how much their mentee had improved from the beginning of their studies (Sprengel, & Job, 2004; Aston, & Molassiotis, 2003). Mentors also reported that peer mentoring made them appreciate the role of a clinical instructor as they walked in their shoes (Hogan et al., 2017). Students have stated that they developed a greater understanding of the skills and knowledge to become an effective instructor. The peer mentors were able to gain a deeper understanding of the difficulties of teaching while supporting other students in the mentorship program (Roseanau, Lisella, Clancy, & Nowell, 2014).

While peer mentoring has been examined across a number of different health disciplines and professions, there is little information about the value of peer mentor support for dental hygiene students. The relative lack of information on peer mentoring in pre-clinical or clinical settings calls for further research on the effectiveness of peer mentoring for dental hygiene students.

2.3 Challenges of Peer Mentoring

Peer mentoring comes with a few challenges that include mentees misunderstanding the mentor's role, mentors feeling underutilized at times and mentors having to relearn course material (Gunn & Lee, 2016). Firstly, some students do not respect authority which creates a challenge for mentors to work with mentees. The idea of learning from or with a peer may seem irrational because of cultural beliefs about learning roles and relationships. Secondly, mentors may feel underutilized because the mentees do not know the mentors well enough and little social bonding may have occurred. Mentees need to see peer mentoring in action during class or hear good rumours about the mentor's interactions with other students to allow mentees to seek help from mentors. Lastly, mentors can find it challenging to relearn the academic subject in order to effectively help the mentees. This can lead to mentors devoting far more time to the peer mentoring course over any other course. If mentors do not invest the time in to learn the material, mentors may not know how to answer the questions posed by mentees which can be a disadvantage for both mentors and mentees (Gunn & Lee, 2016). If mentors and mentees undergo more challenges with peer mentoring than benefits, the peer mentoring program may not be successful. It is through the guidance of staff and faculty that peer mentors can overcome such challenges and enjoy the educational benefits.

2.4 Theories of Peer Mentoring

This section provides an overview of peer mentoring theories which include the Chickering and Gamson theory, Transformative learning theory and Social Constructivism theory. Social Constructivism theory is discussed in greater detail in this section as principles of

social constructivism have important implications for the underlying philosophical value of peer mentoring.

2.4.1 Chickering and Gamson and Peer Mentoring

In 1987, Arthur W. Chickering and Zelda F. Gamson published “The Seven Principles for Good Practice in Undergraduate Education” (University of Florida, 2017). In 1991, the book, “Applying the Seven Principles for Good Practice in Undergraduate Education” was published (University of Florida, 2017). The seven principles for good practice in undergraduate education include the following (University of Florida, 2017, p. 1):

1. Encourage contact between students and faculty;
2. Develop reciprocity and cooperation among students;
3. Encourage active learning;
4. Give prompt feedback;
5. Emphasize time on task;
6. Communicate high expectations;
7. Respect diverse talents and ways of learning.

Peer mentoring supports all the above principles. In Chickering and Gamson’s (1987) article, they recognize the importance of peer mentorship in education. They state that student-faculty contact can occur by a “student peer” that “peer tutors” other students to encourage cooperation among students. They also write that “peer critiques” can encourage active learning. The other principles mentioned above are not only applied for effective instructors, but also for effective peer mentors.

2.4.2 Transformative Learning and Peer Mentoring

Jack Mezirow (2000) believes that transformative learning is crucial to adult education. Transformative learning is a theory that utilizes disorienting dilemmas to challenge adult learners' thinking. Disorienting dilemmas are experiences that do not fit into a person's current beliefs about the world. This often occurs in academic learning environments when instructors provide space for students to critically engage with new ideas. Students are prompted to use critical thinking and questioning to reflect on their beliefs and assumptions about the world. Mezirow writes that transformative learning is "learning that transforms problematic frames of reference to make them more inclusive, discriminating, reflective, open and emotionally able to change" (Mezirow, 2003, p. 58). It is based on the principle that personal experience is an essential part of learning. Learners should gain new perspectives and become more self-determined over time (Franz, Garst, Baughman, Smith, & Peters, 2009; Mezirow, 2000). This means that mentors need to critically debate and question their mentees to allow for "open discourse and analysis of personal assumptions" (Denny, 2016, p. 3). Acquiring knowledge through peer mentoring "requires a dynamic, participatory approach from both the mentor and mentee" (Denny, 2016, p. 3). Through transformative learning, learners become more open and able to change. This occurs by the mentor and mentee critically reflecting, exploring questions and problems and collaborating to find answers (Klinge, 2015).

2.4.3 Social Constructivism

A Russian psychologist, Lev Vygotsky, developed the social constructivist theory. He emphasized that learning depends on interactions with others (e.g. teachers, peers, parents). Paul Adams (2006) writes that Vygotsky believes that "construction of knowledge is the product of social interaction, interpretation, and understanding (p. 245). According to this theory,

knowledge is a human product that is socially and culturally constructed in an active manner (Gergen, 1995). Social constructivism is when students learn by others through shared experience and discussion. Learning happens through group interaction and not something that takes place within the individual. The learning can occur through collaboration with either student with student or student with teacher.

A key concept in the social constructivism theory is the Zone of Proximal Development, also known as ZPD. This is defined as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). This means that when a student is in the ZPD for a task, educators or mentors should encourage and advance their learning by giving them a “boost.” Vygotsky believes that ZPD revolves around three main aspects. First, a student cannot effectively learn individually, but rather through interaction with other peers, teachers and/or adults. Second, it stresses the importance of students sharing and constructing knowledge (Nguyen, 2017). And lastly, social interaction with peers is “viewed as being dynamic and dialectical” (Nguyen, 2017, p. 30).

The concept of scaffolding is very similar to ZPD, although Vygotsky did not use it in his literature. Scaffolding refers to when an educator or peer gives aid to the student in his/her ZPD as necessary, and then tapers off this aid when the student masters the task (Powell & Kalina, 2009). An example of scaffolding is when a student works on an assignment with help from a mentor. Once the student knows how to do their assignment, his/her zone grows, and the student can do more. This encompasses the social constructivism method because the student tries the

assignment on his/her own and then with assistance from the mentor, they learn the new concept based on what they did individually (Powell & Kalina, 2009).

Social constructivism also emphasizes the importance of collaborative learning. When students share knowledge and take part in collaborative activities they are building knowledge not as individuals, but as a group. Using collaborative learning allows for higher-level thinking (Brown, 1999). When students participate in collaborative learning, they not only are responsible for the other student's learning, but also their own. This is commonly seen in peer mentoring where the mentor clarifies their own understanding through the teaching process.

In dental hygiene institutions, students routinely work independently in the dental clinic under the supervision of a clinical instructor. It is in the clinical setting where the students connect the theory learned in the classroom and apply it with their patients. Having peer mentors in clinic to assist students via collaboration provides a huge advantage to the students (Parkinson, 2008). When peers coach other students, the stress in clinic is reduced (Parkinson & Bartek, 2010). Mentors and mentees should share treatment experiences within the clinical setting as it allows the mentee to share their proficiency concerns with the mentor and learn techniques and strategies that worked well for the mentor (Parkinson & Bartek, 2010). Michael Delucchi (2006) states that collaboration with peers allows for a more engaging, less stressful and more stimulating way to learn.

When peer mentoring occurs in the clinical setting, the peer mentor can informally peer-assess the mentee. Doing so can allow the mentee to learn which areas of instruction need to be revisited. Peer feedback allows for students to reflect and receive the benefit of having a mentor evaluate hygienist-patient relationship and work habits that faculty may not find the time to assess (Davies, 2006; Gonzalez, Huntley & Anderson, 2005). Collaboration amongst peer

mentors and mentees provides “reassurance, multiplied experiences through observation and practice, and connections from classroom theory to practical clinic experience” (Parkinson & Bartek, 2010, p. 236). Collaboration is vital to becoming competent dental hygiene professionals (Parkinson & Bartek, 2010). When implementing a collaborative peer mentoring strategy in a dental hygiene setting, students can benefit in the following ways (Parkinson & Bartek, 2010):

1. Receive feedback regarding interpersonal, hygienist-patient, relationships and hygienists work habits;
2. Enhance their effectiveness and quality of treatment in the clinical setting;
3. Allow for reflection on previous clinical experiences;
4. Become more proficient within a conversation rich professional setting (p. 239).

Using peer mentoring allows for a positive experience within the clinical setting when collaboration between mentors and mentees is used to structure the students’ experiences. It is through “creating collaborative experiences with scaffolded peer-assessment and communicative interactions” that students can increase their confidence (Parkinson & Bartek, 2010, p. 239). The students benefit from the ‘second-set-of-eyes’ perspective which leads to long-term professional growth (Parkinson & Bartek, 2010). Students need support of their peer mentors to their continued development and to instill skills necessary for the dental hygiene profession (Parkinson & Bartek, 2010).

Chapter 3

Methods

The purpose of this study was to explore the benefits of a formal peer mentoring program for dental hygiene students. In this study, two online evaluative surveys were distributed: one survey for peer mentors and the other survey for peer mentees. In-depth interviews were also conducted to explore the peer mentors' experience of the mentoring program and solicit any suggestions to improve the peer mentorship experience and program.

3.1 The Peer Mentoring Program

A peer mentoring program, at a private college in Toronto, Ontario called Toronto College of Dental Hygiene and Auxiliaries (TCDHA), has been implemented with dental hygiene students since 2008. The participants are first-year mentee and second-year mentor students studying in a dental hygiene program condensed from three years into eighteen months. The courses covered, and the hours of clinical practice are the same for the three-year program and the eighteen-month program. The main difference between the two programs is the break period. In the three-year program, students are given the summer off as well as breaks in between semesters. The three-year program is typically held at a public college where the institution is required to follow the required breaks for all students in that institution. In a private dental hygiene institution that runs for eighteen months, students are not given the summer off and are only entitled to have a one-week break in-between semesters. This results in a highly condensed and accelerated program.

All students at TCDHA are offered the opportunity to participate in this voluntary program. The program is divided into four semesters, where the students in the first and second

semester are considered first-year and students in the third and fourth semester are considered second-year. The first-year students are made aware of the peer mentoring program during their orientation day. The program director of the institution, who is also the coordinator of the peer mentorship program, encourages the student to utilize the mentor and discusses the numerous benefits of having a mentor throughout the program. The second-year students are encouraged to sign up to be a mentor during their first week of the third and fourth semester. The program director sends out an email to the students regarding the peer mentorship program along with its application form. If any student is interested in being a mentor or a mentee, he/she can email or meet the program director in person to sign up.

The main purpose of the program is to provide peer support to first-year dental hygiene students who may have no dental background knowledge. As per the TCDHA's peer mentoring program manual, the purpose of this program is as follows (TCDHA, 2017, p.2):

The mentor will have the opportunity to:

1. Experience personal growth;
2. Develop a relationship with a junior student;
3. Contribute to a student's development;
4. Develop leadership skills;
5. Reflect upon one's own learning;
6. Share experience and knowledge;
7. Improve critical thinking skills;
8. Provide a supportive environment for the junior student.

The mentored (mentee) student will benefit by:

1. Setting long and short-term goals to ensure success in the clinics/labs;
2. Developing a relationship with a senior student and a potential network of new friends;
3. Increasing their knowledge;
4. Enhancing their understanding of curriculum;
5. Developing in an environment that supports constructive feedback;
6. Receiving advice, help and encouragement.

As a peer mentor, a volunteer commitment of two hours every other week is required to assist peers in radiography lab, Scaling for Success, and dental materials lab. The radiography lab course teaches students the principles and applications of taking radiographs along with learning how to process and mount radiographs, how to recognize and solve faulty radiographs and how to identify normal radiographic landmarks. Scaling for Success is a course that is open for supervised preclinic practice wherein students are taught to practice their skills with dental hygiene instruments. This program is helpful to students in all semesters and is open to all students. Dental materials lab is a course designed to acquaint students with the physical and chemical properties of materials used in dental practice. The students are taught to differentiate between the various types of dental materials and their respective properties and manipulate materials used in dentistry.

Each peer mentor is provided a schedule of the scheduled mentoring times and location. If the mentor is unable to attend the scheduled session, it is his/her responsibility to find another mentor to cover the session. All changes need to be relayed to the peer mentor coordinator who

will approve the change. In order to be selected as a mentor, the mentor must submit the following items along with an application form (TCDHA, 2017):

- Transcript demonstrating an overall 80% average in the program;
- Obtain a SAT in Clinical Practice I;
- A 250-word submission discussing why he/she would like to be a mentor at TCDHA.

There is a one-hour orientation session that selected mentors are expected to attend. This session orients the mentors with their expectations and responsibilities. The mentors are also provided with a manual outlining their roles and tips on how to be a good peer mentor. Subsequently, if a student has any questions regarding peer mentoring, he/she can approach the program director for assistance.

During the orientation session, mentors are also informed that when scheduling a mentoring session, there can be an upwards of five to six students he/she has to mentee at the same time. This approach is chosen because there are a limited number of mentors and many mentees (78 students per semester). The mentors can reach more students in a time-efficient manner. Having a small group of up to five to six students allows all members to participate fully. There are mentors available to students every week for three classes: Radiography Lab, Scaling for Success, and Dental Materials Lab. Studies show no difference in satisfaction concerning the mentoring relationship between group or network style mentoring and traditional one-on-one mentoring (Walker, & Deborah, 2001). It is only through this networking style that all 78 students would be able to match with a mentor.

To maintain status as a peer mentor, the student must be in good academic standing throughout the program. At any time, the student may have their peer mentor responsibilities

withdrawn by the Dental Hygiene Program Committee if the peer mentor is struggling with their academic studies. Funding for this program is provided by TCDHA. The program costs are minimal as peer mentors are volunteers.

The motivation for peer mentors to apply for this position should be intrinsic. Students with high academic averages are typically motivated students, which is reflected in the number of applicants for this program. All peer mentors are eligible to receive a letter of recommendation for future endeavours and are provided with a grad lunch as a thank you. Peer mentors are also given a certificate of appreciation, recognition at the grad luncheon, and receive a graduation pin.

The researcher is affiliated as an educational coordinator and an instructor at the Toronto College of Dental Hygiene and Auxiliaries. While the researcher is not directly involved in the organization of the peer mentoring program, she does have a solid understanding of how the peer mentoring program operates. During the data and analysis portion of the research, the researcher employed researcher reflexivity and peer debriefing to mitigate any potential biases. Using researcher reflexivity allows for the researcher to disclose assumptions, beliefs, and biases that could potentially shape the inquiry. This validity procedure identifies the social, cultural, and historical lenses of the researcher that could shape interpretation. Additionally, it allows for suspension and bracketing of any biases prior to analysis.

3.2 Evaluation Study Design

The peer mentoring program at TCDHA was evaluated over a two-semester time, between January 16th to October 13th, 2017. Participation from students was voluntary and

conducted on their own time. As mentioned above, training was held for eligible students. All participants were recruited via a posting on the school's portal or email. The current students at TCDHA were recruited via a posting on the school's portal. The graduated mentors were recruited by email as they do not have access to the school's portal. The posting on the portal and the email were only sent out once to all potential participants.

This study utilized a mixed method triangulation research design, incorporating quantitative and qualitative methods. Triangulation is a method of verification that increases validity to a study by including different viewpoints and methods (Yeasmin & Rahman, 2012). By combining multiple methods, researchers can overcome weakness or intrinsic biases that come from single method studies (Yeasmin et al., 2012). Researchers can also be more confident of their results as it minimizes the shortages of single-source studies (Yeasmin et al., 2012). A mixed methods design examines the strengths of both the exploratory nature of qualitative techniques with generalized quantitative methods (Andrew & Halcomb, 2006). The Interdisciplinary Committee on Ethics in Human Research (ICEHR) from Memorial University and the administration of Toronto College of Dental Hygiene and Auxiliaries approved the study protocols. The research was conducted in compliance with Memorial University's ethics policy. Detailed informed consent forms were drafted for the surveys and interview (Appendix 1 and 2) in which information such as purpose of study, length of time, right to withdraw from the study, possible benefits and risks, confidentiality and anonymity information was provided.

The survey and interview questions in this study were based upon Stufflebeam's CIPP (Context, Input, Process and Product) model of program evaluation (Stufflebeam, 2003). Stufflebeam (1971a) explains the CIPP model as a "process of delineating, obtaining and providing useful information for judging decision alternatives" (p.267). In other words, CIPP

uses a decision-oriented approach to assess program evaluation. There are four different types of evaluation that comprise CIPP as defined by Stufflebeam (1971a):

1. *Context Evaluation* - serves planning decisions by identifying unmet needs, unused opportunities and underlying problems that prevent the meeting of needs or the use of opportunities;
2. *Input Evaluation* – serves structuring decisions by projecting and analyzing alternative procedural designs;
3. *Process Evaluation* – serves implementing decisions by monitoring project operations;
4. *Product Evaluation* – serves recycling decisions by determining the degree to which objectives have been achieved and by determining the cause of the obtained results (p. 268).

Survey and interview questions utilized the CIPP model by asking about the needs, assets and resources of the peer mentoring program. The questions posed to the participants helped assess the responsiveness of the peer mentoring program and explored potential strategies to resolve any problems associated with the peer mentoring program. The peer mentoring program was evaluated using this CIPP model in the following ways (Mazur, et al., n.d.):

1. *Context evaluation* – The researcher identified needs, assets and resources of the peer mentoring program that would be beneficial. This was done through distributing survey questions to mentors and mentees, as well as conducting interviews to mentors.
2. *Input evaluation* – The researcher collected information on the mission, goals and plan of the program. The researcher also checked the responsiveness of the program to the students' needs and found strategies to resolve any problems associated with the peer mentorship program.

3. *Process evaluation* – The researcher evaluated the quality of the peer mentorship program implementation. The peer mentoring program was assessed and all feedback by students was sent to the program director at TCDHA. The purpose of this is to inform the program director on how to modify and improve the program.
4. *Product evaluation* – The researcher assessed the advantages and disadvantages of the program towards its students. The short-term and long-term goals were also evaluated.

3.3 Survey Design

The surveys for mentees and mentors are presented in Appendix 5 and 6. Surveys for the mentees were distributed online through the school's portal with an anonymous Google survey link provided, inviting first-year students to participate. The survey asked about their views and experiences of participating in the program and question items were adapted from a survey piloted in a peer mentoring program conducted in an Australian Bachelor of Midwifery program (Hogan et al., 2017). An initial draft of the survey was piloted with 78 students in a Research class at Toronto College of Dental Hygiene and Auxiliaries. The researcher received permission from the authors of the study to adapt the survey for the current evaluation study and question items were modified to fit the dental hygiene educational context. All questions were identical to the original instrument except for two which examined how peer mentors helped transition mentees to college and clinical placement.

The survey for peer mentees (Appendix 5) explored the mentees experience of peer mentoring by asking about their satisfaction with the mentoring program as mentors, their relationship with mentors and the transitioning period into college and clinical practice. The survey consisted of 14 Likert scale questions, where the response choices ranged from 1 to 5,

with 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, and 5 = *strongly agree*. The surveys for the peer mentors were emailed out individually as these respondents had graduated and did not have access to the portal. These mentors were peer mentors at some point between January to October 2017. The peer mentor survey (Appendix 6) examined the mentors experience of peer mentoring by asking about the quality/satisfaction of the mentoring program, the relationship with the mentees and mentees' transition period into college and clinical practice. The survey consisted of 16 Likert scale questions with the same response choices as mentioned above. Completion of the survey required five to ten minutes of respondents' time.

After one month had passed to complete the survey, the researcher closed the survey. The data was checked for completeness. Quantitative data was analyzed descriptively, by gathering the responses to the Likert scale questions and summarizing the results using frequency analysis. Mean scores and standard deviations were calculated for individual survey items. The SPSS Statistics 24 software was used to conduct the analysis.

3.4 Interviews

Semi-structured interviews for peer mentor graduates were conducted with a purposive sample until saturation was reached. In qualitative research, saturation refers to the point when there is enough data to ensure the research questions can be answered (Saunders, Sim, Kingstone, Baker, Waterfield, Bartlam, Burroughs, & Jinks, 2018). It is expected that data saturation may occur after 8-15 interviews as there would be rising instances of the same codes, but no new ones. The additional data would not lead to any new emergent themes (Saunders, 2018). The telephone interviews were arranged at times that were convenient for the graduated mentors, as a majority of the graduated mentors live in the western provinces of Canada. Verbal

consent was obtained through the phone at the beginning of the interview. The participants received a consent form prior to the interviews which was emailed to them. The requirement for written informed consent was waived by the ICEHR. The consent of those who decided to participate was documented by oral/audio recording (Appendix 3).

The telephone interviews were only conducted with the peer mentors. The interview questions were based on a series of open-ended questions (Appendix 4). From the eleven questions asked, two focused on the benefits of being a peer mentee and peer mentor. One question asked, 'how did you benefit from being a peer mentor?' while another asked 'how do you feel the mentees benefited?' The answers from these questions were mainly used to answer the research question regarding the peer mentoring program's benefits. The last interview question posed to the interview participants was, 'is there anything else you would like to share that I did not ask?' This allowed the peer mentors to share not only positive aspects of the peer mentoring experience, but also negative experiences and/or challenges that mentees and mentors found with the peer mentoring program at TCDHA.

The telephone interviews were audio-recorded and transcribed. The researcher took notes during the interviews. Each participant was asked for permission to use direct quotes in the final research report using an assigned pseudonym. The final report will be shared with the participants after the completion of the research.

3.4.1 Interview Analysis

The researcher thoroughly listened and transcribed the interviews to understand the content. After transcription, the researcher read the transcript thoroughly for overall meaning. The transcripts were read three times to gain familiarity. Following transcription, an open-coding process was used whereby key points related to the research question were identified in

each transcript (Creswell, 2015). The researcher coded in order of the interview questions, rather than by each interviewee. All subject responses to the first question were coded first, before moving on to the next research question. The codes were arranged in a list format followed by a thematic analysis to determine common themes (Creswell, 2015).

A hand analysis was preferred because the researcher had a small database to analyze and wanted to have a hands-on feel with the data without the intrusion of a computer (Creswell, 2015). Thematic coding of the data allowed broad themes to emerge (Creswell, 2015). Creswell (2008) states the following steps need to be done during the coding process (p.251): initially read through data; divide the text into segments of information; label the segments of information with codes; reduce overlap and redundancy of codes; and, collapse codes into themes. Codes were taken from interview transcripts which helped summarize and condense data. Patterns were searched for in coded data to categorize them. Coding was done both during and after data collection as an analytic tactic. This allowed for data to be “segregated, grouped, regrouped and relinked” to form themes as seen in Appendix 7 (Grbick, 2007, p.21). Once major themes were noted and new data did not identify new themes, the data analysis ended (Creswell, 2008). The software used to analyze the qualitative findings was Microsoft Excel. The research findings were validated through data triangulation. One-way triangulation was confirmed by using multiple methods of data collection, which in this research was through interviews and surveys (Creswell, 2015). When all themes were thoroughly reviewed for each research question, the final themes were given a title and then organized in a table format.

Chapter 4

Results

The purpose of this study was to examine the benefits and areas for improvement of a peer mentoring program in a post-secondary dental hygiene educational institution. A mixed methods evaluation study design was used to collect evaluative data. This chapter provides a summary of the results from the survey and interviews that were conducted for the study.

4.1 Survey Results

There were 156 students/mentees enrolled in the first-year dental hygiene program. Eighty-eight (n=88) students completed the survey, resulting in a 56% response rate. There were 26 students who were peer mentoring students in their first semester of study. All 26 peer mentors completed the peer mentor survey resulting in a 100% survey response rate. Statistical analysis was conducted on both the peer mentor and peer mentee surveys using SPSS Statistics 24 software.

The results presented in Table 1 suggest the peer mentees reported a generally positive attitude towards the mentorship program. The descriptive statistics indicate that the respondents agreed or strongly agreed with most of the statements. The majority of survey respondents agreed or strongly agreed that the mentees respected the mentors (N= 74, 85.06%). The majority of mentee respondents also agreed or strongly agreed with the statement ‘my mentors are easy to talk to’ (N = 70, 80.45%) and “I would recommend the peer mentoring program to others” (N = 66, 75.86%). With respect to mentees adjusting to clinical practice, the majority of mentees agreed or strongly agreed that their peer mentors helped them adjust to clinical practice (N=56, 64.37%). Approximately 19.54% (n=17) of the mentees did not feel that mentorship helped them transition into college and most of the mentees answered “neither agree or disagree” to this

question. However, 49.43% (n=43) mentees thought that peer mentorship had helped them to transition into their college life.

The mentees felt neutral about the statement “my peer mentors and I are enjoying a high-quality relationship” (N=36, 41.38%). However, the majority of mentee respondents felt they benefited from the mentoring relationship (N=61, 70.12%). Peer mentees also answered positively to the statement “I am gaining a better sense of how to be successful and involved at TCDHA” (N=67, 77.02%). Additionally, the majority of mentee respondents strongly agreed or agreed to the statement “I am gaining new skills” (N=61, 70.11%).

In the survey, a comments section was provided to the participants. Twenty participants provided comments. From the students who provided comments, the majority indicated that peer mentorship had been “*helpful*” and “*fantastic*” to them as the mentees received valuable tips and feedback on being successful in dental hygiene school. However, there were some mentees that felt they had mentors who “*don’t really want to be around*” and are only present “*just for the extra credits.*” Mentees also hoped to see more consistency with regards to some scaling techniques being taught as shown by the following comment:

“Peer mentoring is a great help but it would greatly benefit the mentor and mentees if there’s more consistency in regard to techniques being taught e.g. Scaling for Success -some instruments were used differently when the mentors were in our shoes and so they were confused on the new way we were using certain instruments. Other than that, everything was helpful, peer mentors are helpful” (Mentee #1).

Table 1 Summary of Mentee Satisfaction with Peer Mentoring

| Items | Strongly Agree | | Agree | | Neither Agree nor Disagree | | Disagree | | Strongly Disagree | | Mean | SD |
|--|----------------|-------|-------|-------|----------------------------|-------|----------|-------|-------------------|------|------|------|
| | N | % | N | % | N | % | N | % | N | % | | |
| My peer mentors and I are enjoying a high-quality relationship | 16 | 18.39 | 26 | 29.89 | 36 | 41.38 | 4 | 4.6 | 5 | 5.75 | 3.51 | 1.03 |
| I am effectively utilizing my peer mentor | 18 | 20.69 | 40 | 45.98 | 16 | 18.39 | 7 | 8.05 | 6 | 6.9 | 3.66 | 1.11 |
| I am benefiting from the mentoring relationship | 24 | 27.59 | 37 | 42.53 | 15 | 17.24 | 6 | 6.9 | 5 | 5.75 | 3.79 | 1.1 |
| The peer mentoring program runs smoothly | 19 | 21.84 | 39 | 44.83 | 20 | 22.99 | 5 | 5.75 | 4 | 4.6 | 3.74 | 1.02 |
| I would recommend the peer mentoring program to others | 30 | 34.48 | 36 | 41.38 | 15 | 17.24 | 1 | 1.15 | 5 | 5.75 | 3.98 | 1.05 |
| I am gaining a better sense of how to be successful and involved at TCDHA | 26 | 29.89 | 41 | 47.13 | 13 | 14.94 | 3 | 3.45 | 4 | 4.6 | 3.94 | 1 |
| I am gaining new skills | 27 | 31.03 | 34 | 39.08 | 18 | 20.69 | 4 | 4.6 | 4 | 4.6 | 3.87 | 1.05 |
| I am becoming more open minded and able to consider others' feelings and attitudes | 21 | 24.14 | 35 | 40.23 | 19 | 21.84 | 8 | 9.2 | 4 | 4.6 | 3.7 | 1.08 |
| I am improving my ability to communicate effectively with others | 22 | 25.29 | 33 | 37.93 | 23 | 26.44 | 5 | 5.75 | 4 | 4.6 | 3.74 | 1.05 |
| My peer mentors are easy to talk to | 33 | 37.93 | 37 | 42.53 | 12 | 13.79 | 2 | 2.3 | 3 | 3.45 | 4.09 | 0.96 |
| I respect my peer mentors | 39 | 44.83 | 35 | 40.23 | 8 | 9.2 | 1 | 1.15 | 4 | 4.6 | 4.2 | 0.99 |
| My peer mentors are well-qualified to be a mentor | 26 | 29.89 | 32 | 36.78 | 21 | 24.14 | 5 | 5.75 | 3 | 3.45 | 3.84 | 1.03 |
| My peer mentors have helped me transition to college | 17 | 19.54 | 26 | 29.89 | 27 | 31.03 | 13 | 14.94 | 4 | 4.6 | 3.45 | 1.11 |
| My peer mentors have helped me adjust to clinical practice | 20 | 22.99 | 36 | 41.38 | 18 | 20.69 | 9 | 10.34 | 4 | 4.6 | 3.68 | 1.08 |

4.1.2 Peer Mentor Survey Results

The results of the peer mentor survey are presented in Table 2. Peer mentors were asked to rate their experience as a peer mentor at TCDHA. The questions covered topics like perceptions about program quality, mentor satisfaction and relationships with mentees. Overall, across most items, the majority of respondents either agreed or strongly agreed with the statements. The statement indicating the highest positive response was “I am improving my ability to communicate effectively with others” with nearly all mentors (N=24, 97%) either agreeing or strongly agreeing with this statement. Ninety-six percent (N=24, 96%) of survey respondents strongly agreed or agreed with the statement, “I would recommend the peer mentoring program to others.” Ninety-six percent (N=24, 96%) of survey respondents also strongly agreed or agreed to the statement, “My participation in the peer mentorship program enabled me to develop in coaching.” A majority of respondents (N=23, 92%) strongly agreed or agreed that “both my mentees and I are benefiting from the mentoring relationship.” Eighty-eight percent (N=22, 88%) of survey respondents felt that peer mentorship had helped mentees transition into the college system. However, approximately twelve percent (N=3, 12%) of mentors did not feel that mentorship had helped the mentees to transition into college.

Similar to the findings noted from mentees, the statement “I have helped my peer mentors adjust to the college system” had the highest number of negative responses with eight percent of mentors neither agreeing or disagreeing (N=2, 8%) and four percent strongly disagreeing (N=1, 4%) with this statement. Some mentors felt neutral about the statement “I am becoming more open minded and able to consider others’ feelings and attitudes” with eight percent (N=2, 8%) who neither agreed nor disagreed with the statement and four percent (N=1, 4%) strongly disagreeing with the statement. The same finding was found with the statement

Table 2 Summary of Mentor Satisfaction with Peer Mentoring

| Items | Strongly Agree | | Agree | | Neither Agree nor Disagree | | Disagree | | Strongly Disagree | | Mean | SD |
|---|----------------|----|-------|----|----------------------------|---|----------|---|-------------------|---|------|------|
| | N | % | N | % | N | % | N | % | N | % | | |
| My mentees and I are enjoying a high-quality relationship | 10 | 40 | 12 | 48 | 1 | 4 | 1 | 4 | 1 | 4 | 4.16 | 0.99 |
| My mentees are effectively utilizing me as a peer mentor | 12 | 48 | 10 | 40 | 2 | 8 | 0 | 0 | 1 | 4 | 4.28 | 0.94 |
| Both my mentees and I are benefiting from the mentoring relationship | 21 | 84 | 2 | 8 | 1 | 4 | 0 | 0 | 1 | 4 | 4.68 | 0.9 |
| The peer mentoring program runs smoothly | 11 | 44 | 13 | 52 | 1 | 4 | 0 | 0 | 0 | 0 | 4.4 | 0.58 |
| I would recommend the peer mentoring program to others | 21 | 84 | 3 | 12 | 0 | 0 | 0 | 0 | 1 | 4 | 4.72 | 0.84 |
| I am gaining a better sense of how to be successful and involved at TCDHA | 14 | 56 | 10 | 40 | 0 | 0 | 0 | 0 | 1 | 4 | 4.44 | 0.87 |
| I am gaining new skills | 14 | 58 | 9 | 37 | 0 | 0 | 0 | 0 | 1 | 4 | 4.46 | 0.88 |
| I am becoming more open minded and able to consider others' feelings and attitudes | 19 | 76 | 3 | 12 | 2 | 8 | 0 | 0 | 1 | 4 | 4.56 | 0.96 |
| I am improving my ability to communicate effectively with others | 21 | 84 | 3 | 12 | 0 | 0 | 0 | 0 | 1 | 4 | 4.72 | 0.84 |
| It is easy to talk to my mentees | 7 | 28 | 16 | 64 | 2 | 8 | 0 | 0 | 0 | 0 | 4.2 | 0.58 |
| My mentees and I respect each other | 11 | 44 | 13 | 52 | 1 | 4 | 0 | 0 | 0 | 0 | 4.4 | 0.58 |
| I feel well-prepared to be a mentor | 9 | 36 | 15 | 60 | 0 | 0 | 0 | 0 | 1 | 4 | 4.24 | 0.83 |
| My participation in the peer mentorship program enabled me to develop in LEADERSHIP | 18 | 72 | 6 | 24 | 0 | 0 | 0 | 0 | 1 | 4 | 4.6 | 0.87 |
| My participation in the peer mentorship program enabled me to develop in COACHING | 19 | 76 | 5 | 20 | 0 | 0 | 0 | 0 | 1 | 4 | 4.64 | 0.86 |
| I have helped my mentees adjust to the college system | 8 | 32 | 14 | 56 | 2 | 8 | 0 | 0 | 1 | 4 | 4.12 | 0.88 |
| I have helped my mentees transition to clinical placement | 9 | 36 | 14 | 56 | 1 | 4 | 0 | 0 | 1 | 4 | 4.2 | 0.87 |

“my mentees are effectively utilizing me as a peer mentor” with eight percent (N=2, 8%) neither agreeing or disagreeing with the statement and four percent (N=1, 4%) strongly disagreeing.

When comparing the difference between the mentees’ and mentors’ survey results, it was noted that the mentors tended to have a more positive attitude towards the program than the mentees as evidenced by ninety-six percent agreeing or strongly agreeing that “the peer mentoring program runs smoothly” (N=24, 96%). There was only one mentor who reported a neutral response to this statement.

The mentors’ survey also included a comment section in which thirteen respondents indicated that the peer mentorship program was beneficial and that they were happy to participate. A number of respondents commented on the positive aspect of peer mentoring by stating that the mentorship program is “*fun*,” “*rewarding*,” “*a good opportunity*,” and a “*very good experience*.” Peer mentors seem to enjoy mentoring and enjoy partaking in the mentorship program at TCDHA. The following comments reflect the results from summary statistics:

“Very good experience and so rewarding when the mentees would come to me and say how well they did on an exam. I would feel as if I accomplished something too.”

“Being a peer mentor is fun and also a great opportunity to improve my coaching skills and gain a great relationship with my schoolmates.”

4.3 Interview Results

Second semester students of the dental hygiene program were peer mentored by twenty mentors who had graduated from the educational institution. The researcher contacted these graduate mentors to request their participation in interviews regarding their involvement in the

peer mentoring program. Of the 20 graduate mentors contacted, 10 agreed to participate in an interview.

Qualitative data collected from the open-ended interviews was transcribed, coded, and analyzed by the researcher through thematic analysis as outlined in Appendix 7. In response to the research question regarding the benefits of a peer mentoring program for mentees, five main themes emerged as outlined in Table 3.

Table 3 Key Benefits of Peer Mentoring for Peer Mentees

| Themes | Examples |
|------------------------------------|---|
| Making new friends | “[The peer mentees] enjoyed making new friends. I think that’s always helpful while in school” |
| Comfortable with Peer Mentors | “[t]hey got a perspective from a student rather than an instructor which is more comfortable” |
| Increased Confidence | “[Peer mentoring] helped their confidence as well. It was slower paced for help which some students need.” |
| Increased Knowledge | Peer mentors taught “how to properly use the scaler, how to properly take x-rays” |
| Learn about the upcoming semesters | “They were asking for courses in the future, like courses in the second semester, third semester and fourth semester...as well as getting clients [for clinic] ...that kind of stuff” |

Making New Friends

Based on graduate mentors’ responses, one of the benefits they reported for the peer mentees was making new friends. Many positive relationships were developed between mentors and mentees which helped develop friendships. This was indicated in an interview with one peer mentor who stated that the peer mentees “*enjoyed making new friends. I think that’s always*

helpful while in school” (Peer Mentor #1). She also stated that “having someone to relate to” (Peer Mentor #1) is a benefit especially in an intensive dental hygiene program. Another participant stated:

“They really benefitted from having someone who’s been through the first two semesters... Have had the exact same stresses and struggles that you had and just to be able to talk to someone who isn’t an instructor” (Peer Mentor #10).

Comfortable with Peer Mentors

The graduate mentors stated that the peer mentees felt more comfortable asking academic questions to the peer mentors, rather than the instructors. *“More students felt comfortable with me”* stated one peer mentor. Another said *“[t]hey got a perspective from a student rather than an instructor which is more comfortable” (Peer Mentor #5).* Peer mentors felt that the peer mentees were not as nervous to ask questions to peer mentors, as shown below:

“I also feel that they were less nervous to ask me instead of asking instructors, and that’s where they benefited. Students feel more confident asking us...They didn’t feel like they had to ask the instructor 500 times, but they could ask me and I could explain it as best as I could” (Peer Mentor #9).

One peer mentor stated *“[t]he instructors are always the step above, so it’s kind of nice [for peer mentees] to be on the same level as someone and talk to them about whatever your concerns are” (Peer Mentor #10).* Others said that peer mentees are *“less nervous to ask a peer mentor” (Peer Mentor #9)* as they are too *“scared to ask questions to instructors” (Peer Mentor #8).*

Increased Confidence

Peer mentors felt that peer mentees benefited from peer mentoring as mentors felt more confident with the material. One mentor said the peer mentoring *“helped their [peer mentees]*

confidence as well. It was slower paced for help which some students need” (Peer Mentor #8). Another stated that peer mentees felt that “[*m*]y mentor was in the same situation a few semesters ago and she’s doing well, so I’m sure I can do well too” (Peer Mentor #1). Knowing that peer mentors were in the same shoes as the peer mentees helps as it shows that the mentees can become as successful in their studies as the peer mentors.

Increased Knowledge

The peer mentors were available to meet with the peer mentees in person during three courses: Scaling for Success, Dental Materials and Dental Radiology. The peer mentors felt that face-to-face interaction was very helpful in peer teaching on certain skills such as how to scale, how to make teeth models and create custom trays, and how to properly take diagnostic radiographs. The mentors stated that the mentees were taught “*how to properly use the scaler, how to properly take x-rays*” (Peer Mentor #2) and “*angle x-ray head properly*” (Peer Mentor #1).

Any questions the mentees had about making “*working models, study models...which are stressful for students*” (Peer Mentor #1) were answered by peer mentors. Peer mentors were asked about “*tips on passing each instrument*” (Peer Mentor #1) during the Scaling for Success sessions where the students are taught how to scale teeth. A few peer mentors had a dental assisting background before entering the dental hygiene program. One mentor said that she provided tips she learnt in dental assisting to help her mentees with taking x-rays.

Learn about upcoming semesters

The last theme that arose from interviews with the graduate mentors was the peer mentees’ curiosity about what to expect as they get further into the program. One peer mentor

stated, “*Students were curious about the rest of the program...and what the clinic requirements are for students in 3rd and 4th semester*” (Peer Mentor #10). Another stated, “*A lot of them had questions about future semesters and how I found things. I felt I was helping them on subjects they were on and giving them tips and tricks for studying the different subjects that will come in the following semester*” (Peer Mentor #9). Several mentors felt that “*Students wanted to learn tips [and] anything to help pass the program*” as it “*helped the mentees [in] knowing what to expect [in the upcoming semesters]*” (Peer Mentor #2). Below are more quotes that demonstrate that peer mentees were interested in the future semesters:

“[The mentees] asked about clinic and where you find the patients [for clinic]” (Peer Mentor #1)

“They were asking for courses in the future, like courses in the second semester, third semester and fourth semester...as well as getting clients [for clinic] ...that kind of stuff” (Peer Mentor #2)

“A lot of them were interested in what will happen in semester two...like all of them. Especially semester 1, they were really interested in that. I think that would see us in the halls and see semester 3 and 4’s stressed out.... I find it helps when semester 4 gives them a different view and not look at all the stressful stuff” (Peer Mentor #3)

A thematic analysis was also conducted on key themes that arose in terms of the benefits of being a peer mentor. Table 4 lists the five main themes.

Table 4 Key Benefits of Peer Mentoring for Peer Mentors

| Themes | Examples |
|--------------------------------|--|
| Satisfaction in helping others | “Gave me a sense of enjoyment to be teaching someone else” |
| Form Relationships | “I wanted to expose myself to students and form relationships with students” |
| Refresh Dental Knowledge | “It help[s] me to remember the information that I already learned, which help[s] me prepare for the board exam.” |
| Increased Confidence | “helped me relaxed because I knew all the stuff, didn’t feel overwhelm, and made me feel more confident.” |
| Give Back | “I found it helpful for me, so I wanted to do it for other students” |

Satisfaction in helping others

Satisfaction in helping others was a consistent theme from the peer mentors interviewed. One participant stated “*I wanted to help people who might be struggling in the same semester as me or lower. It would be a good experience ... [it] gave me a sense of enjoyment to be teaching someone else and having direct results because of something I was able to help them with*” (Peer Mentor #8). Another mentor said that peer mentoring “*made me feel better that you were helping other students that were struggling*” (Peer Mentor #6). Mentors felt rewarded as they made a positive impact on another student’s learning experience.

For some, the satisfaction in helping others came from having struggled themselves in the first semester:

“I kind of knew how much I struggled in first semester, especially the clinical stuff. So, for me it was like if I can go and help others and help them with things that I was struggling with, it will make me happier” (Peer Mentor #6)

Form Relationships

Some peer mentors had the opportunity to become friends with their mentees. For example, one mentor stated, *“I wanted to expose myself to students and form relationships with students” (Peer Mentor #5)*. Another mentor enjoyed the *“friendly space in the hallways ...I could say hi to the students in the hallways” (Peer Mentor #1)*. Peer mentors felt that *“[b]ecause we were all students learning... [we could] identify with them...[and] make new friends” (Peer Mentor #1)*. This social benefit of interacting with new students and developing friendships with them makes peer mentoring a *“fun and enjoyable experience” (Peer Mentor #1)*. Some mentors stayed in touch with their mentees after graduation.

Give Back

Peer mentors felt the need to give back to other students. For example, one graduate mentor stated, *“When I was in 1st and 2nd semester, I made use of the mentoring...When a 4th semester mentored me, it was helpful so I wanted to do it as well” (Peer Mentor 1)*. Mentors wanted to *“[pay] it forward to help other people” (Peer Mentor #4)*. This mentor also said, *“other people helped you out, so you wanted to pass it along” (Peer Mentor #4)*.

Refresh Dental Knowledge

Another benefit of mentoring students is refreshing of dental knowledge that students had learnt in previous semesters. Peer mentors spoke of how the mentoring *“benefit[ed] me as well because I will still be practicing [preclinic skills] as well and you know teaching them what I*

know and what I do in clinic now” (Peer Mentor #6). The mentors felt that they can perform better in the Dental Hygiene National Board exam as “It help[s] me to remember the information that I already learned, which help[s] me prepare for the board exam” (Peer Mentor #8). One participant said “I was able to refresh my own knowledge. I was able to refresh my preclinic skills. It was a good refresher” (Peer Mentor #9), while another stated peer mentoring “kept the information fresh in my mind” (Peer Mentor #8). Peer mentors had to be prepared before they start the mentoring session and doing so allowed them to re-learn and refresh their knowledge of the material they had learnt in previous semesters.

Increased confidence

Lastly, the peer mentors felt their confidence increased as a result of their mentoring experience. For example, one mentor stated that peer mentoring *“helped me relaxed because I knew all the stuff, didn’t feel overwhelm, and made me feel more confident” (Peer Mentor #6). Another mentor said peer mentoring made us “realize how far [we’ve] come in the program” (Peer Mentor #10), while another stated that it “helped my confidence with the material that I have already learnt and kept the information fresh in my mind” (Peer Mentor #8).*

In response to the research question regarding the challenges of a peer mentoring program, two main themes arose as outlined in Table 5.

Table 5 Key Challenges of Peer Mentoring

| Themes | Examples |
|------------------------------|---|
| Lack of mentors | “More peer mentors may be needed to help out” |
| Lack of training for mentors | “We didn’t really have training” |

The following question was asked at the end of each of the interview sessions: “*Is there anything else you would like to share that I did not ask?*” While the majority of mentors said that they did not have anything to add, a few mentors made a few suggestions.

Lack of Mentors

Two graduate mentors felt that there was a lack of peer mentors at TCDHA. If more students signed up to be peer mentors, it would be more beneficial to the peer mentees as the peer mentor – peer mentee ratio was too high (i.e. 3 peer mentors: 40 peer mentees). One mentor felt “*more peer mentors may be needed to help [the other mentees]*” (Peer Mentor #10). This was especially noticed in the dental materials lab class as the “*ratio of peer mentors to students for [dental] materials class was not enough because many students needed help and we couldn’t get to everyone*” (Peer Mentor #3).

Lack of Training

A few other mentors felt that more training for mentors would be beneficial so that they could be more helpful to their mentees. One mentor stated “*training would have helped. We didn’t know what to expect or how many students would be there*” (Peer Mentor #4). Another mentor wished for “*a touch up of the course we were peer mentoring*” (Peer Mentor #7). The mentor felt “*maybe if we were able to get training for our course, we would be able to help [the mentees] more effectively*” (Peer Mentor #7). At times, students would “*ask peer mentors questions and then clarify [content] with instructors to be sure*” (Peer Mentor #4). Having formal training or review sessions with the instructor just before the peer mentoring session would prevent the mentees from doubting the information received from the mentors.

Chapter 5

This chapter is intended to analyze, interpret and discuss the implications of the findings from the mentor and mentee surveys and interviews which were conducted. The findings of the study will also be discussed in relation to existing literature on peer mentoring and implications for future research of peer mentoring in post-secondary education.

Discussion

Peer mentoring was perceived to be beneficial by both mentors and mentees which is supported by previous research. Comments from the interviews and the comment section of the surveys suggest that students derived a number of benefits from the program. Nursing literature has shown comprehensive benefits for student peer mentors who take part in mentorship programs, such as gaining confidence, leadership skills, clinical decision making and time management skills (Hogan, et al., 2017). This is the first study to gain insight into the benefits of peer mentoring for mentors and mentees in a dental hygiene context. Results suggest that both mentors and mentees felt that the program benefited them to some degree.

Mentees reported feeling more comfortable asking their mentors questions than they did asking faculty. This is supported by previous literature as peer mentors provide support without any evaluation (Ford, 2015; Sprengel et al., 2004). Having a negative instructor-student relationship prevents students from asking course questions to instructors. One study stated that questions asked by peer mentees are answered better by peer mentors rather than instructors (Mann, 2013).

Many mentees felt that mentors assisted them in increasing their knowledge which increased their confidence of the material in the dental hygiene program. This is in keeping with the literature from a range of disciplines which demonstrates that most mentees found the

support and knowledge offered to be helpful and positive (Hogan et al., 2017). Christie (2014) reported that mentees identify academic skill enhancement as a critical outcome from their work with a peer mentor. Some studies suggest that the mentees felt encouraged to keep going during the challenging times due to the peer support they received from their mentor (Sprengel & Job, 2004; Morley, 2014; Hogan et al., 2017). This confidence building stems from the support received from the peer mentors.

This study highlights that peer mentoring is a mutually beneficial relationship involving reciprocity between the mentor and mentee. For example, forming friendship and lasting relationships is a benefit for both, mentees and mentors. This is a dominant theme throughout the literature (Couchman, 2009; Temple & Stanish, 2011). Literature has cited that peer mentors view their mentees as friends, rather than clients and that the relationship formed between the mentor and mentees work both ways (i.e. the mentors and mentees both form friendship with each other) (Temple & Stanish, 2011; Couchman, 2009; Heirdsfield, Walker, Walsh & Wilss, 2008). In addition, higher levels of friendship quality display higher academic performance, lower levels of depression and anxiety, and lower levels of stress. Mentor programs appear to enhance connections between students (Pittman & Richmond, 2008). Developing friendship between the mentor and mentee may need to take place for peer mentorship to be advantageous for both individuals.

Gaining knowledge is a theme that previous studies have also noted. The peer mentors' knowledge in program-specific content increased as a result of their mentoring experiences (Couchman, 2009 & Badura, Millard, Peluso, & Ortman, 2000). Calder (2004) states that mentors "appear to relish the opportunity to demonstrate or refine the skills that they have learnt

in other aspects of their university study” (p.12). Thus, the importance of cognitive benefits from peer mentoring is consistent with the literature.

Peer mentors also enjoyed teaching and passing on their knowledge and experience to their peer mentees and appreciated the positive feedback from mentees. A number of studies have shown that mentors gain satisfaction and achievement through helping others (Shrestha, May, Edirisingha, Burke & Linsey, 2009 & Hughes, Boyd, & Dykstra, 2010). Such benefits are important (Shrestha, et al., 2009). Many mentors feel rewarded as “mentees often expressed gratitude for their mentor’s support” (Heirdsfield et al, 2008, p.117).

The merit, worth and benefits uncovered from the evaluation study support the peer mentor program director in justifying the utility of the peer mentoring program. This may be important when recruiting students to participate as peer mentors. For effective mentoring to take place, good mentors must be willing to share their own failures and success and provide open and honest feedback to the mentee. Good mentors should also be active listeners and be able to identify the mentees’ strengths and assist them in accomplishing their goals. The “prized mentors” are recognized as being knowledgeable and respected in their field and greatly values the mentor relationship (Yeung et al, 2010, p. 146). For effective mentoring to occur, both parties, the mentor and mentee, must be compatible with each other. Yeung et al. (2010, p.146) identified a number of responsibilities within a mentoring relationship (Table 6).

The CIPP evaluation model was useful in framing the evaluation study and methods to evaluate the short- and long-term goals of the program. The long-term goal of the peer mentoring program at TCDHA is to improve retention for first semester students. The short-term goals are to increase the academic success of first semester students and to provide better support for faculty members teaching first semester courses. This study did not examine

Table 6 Responsibilities of Mentors and Mentees

| Mentor Responsibilities | Mentee Responsibilities |
|---|--|
| Treat the mentee with courtesy and respect | Conduct self in a mature and ethical manner |
| Be sensitive to cultural, gender, religious and ethnic differences | Be mindful of mentor time constraints Take initiative in asking questions |
| Limit the number of mentees for whom they assume responsibility | |
| Promote the interests of the mentee rather than those of the mentor | |
| Be sensitive to behavioural or physical changes that may indicate mentee stress | |

retention rates at TCDHA and future research could be undertaken to understand the correlation between mentoring and retention rates. However, the study did utilize the CIPP model to evaluate the short-term goal in increasing academic success as outlined below:

1. *Context evaluation:* TCDHA identified students’ needs in increasing academic success.
2. *Input evaluation:* TCDHA designed the peer mentoring project that is mutually beneficial and allows participants to work together to increase the mentees academic success, which in turn also increases the mentors’ academic success.
3. *Process and product evaluation:* TCDHA encouraged participants to be engaged in the peer mentoring program and met the goal of increasing academic success. The results obtained from this study allows for improvement and sustainability.

The evaluative evidence from this study suggests that there is a positive relationship between interacting with a peer mentor and academic support. While student's GPA was not directly assessed by the researcher, anecdotal evidence from peer mentors suggest that mentees benefited academically as they increased their knowledge about the dental hygiene content. Finally, faculty were not interviewed in this study to explore if peer mentoring provided support for faculty members in any way. Future research could explore the impact of peer mentoring on teaching and learning from a faculty member's perspective.

The peer mentors stated in the interview the following recommendations to improve the program: increase number of peer mentors, provide more training to peer mentors, and introduce regular semester evaluations of the peer mentoring program by not only asking peer mentors, but also peer mentees to evaluate the program. Peer mentors felt that with a large class of 78 students, having two or three mentors were not enough to help all students. Enticing more students to partake in the peer mentoring program would be more beneficial as more students or mentees can get the help they need. Some peer mentors were not aware of the reward they received at the end (i.e. letter of recommendation, grad lunch, and graduation pin). The peer mentors felt that if more students were made aware of these rewards, more students would be inclined to sign up for the mentorship program. One mentor valued the letter of recommendation as she stated it helped her tremendously when finding a job.

Having biweekly or monthly training meetings for the mentors with the program director can help give mentors the chance to debrief, brainstorm, receive support and reflect on their work and progress of their mentee(s) (Rajuan, Tuchin & Zuckermann, 2011). The frequent exchange of information, ideas and experiences with other mentors and coordinators would assist

the mentors to balance their aspirations and apprehensions for their mentee (Rajuan, Tuchin & Zuckermann, 2011; Parsie & Forret, 2008).

TCDHA understands the importance of equipping mentors with the appropriate skills to best help their mentees and does this through training sessions. Without this, mentors would not know how to function in their new role. Holding workshops that allow prospective mentors to participate in practice exercise such as watching videotaped scenarios and role-plays are effective ways to teach mentors education strategies (Straus, Chatur, & Taylor, 2009). This could be implemented into TCDHA's current training workshop.

One mentor reported that he/she was not present for the mentor orientation meeting because of an appointment and therefore missed hearing about some of the procedures that were discussed in the meeting. One way to resolve this issue is to make attendance mandatory at the mentor orientation meeting. It is essential to find a time when all mentors are available. Alternately, as the mentor pool expands, multiple orientation meetings can be scheduled with a requirement that each mentor must attend one of the meetings. These meetings could be offered in the campus or online to accommodate students' busy schedules.

Lastly, the peer mentorship program should be evaluated consistently every semester. Evaluation is a valuable tool for program directors who are seeking to improve the quality of the program and improve outcomes for students. Evaluation can answer basic questions about the effectiveness of the program and the evaluation data can be used to improve the mentorship program (Stufflebeam, 1971).

Sambunjak, Straus, and Marusic (2009) completed a systematic review of the qualitative literature to explore the perceptions and experiences of the mentoring relationship in academic

medicine. In their paper, they reviewed five studies which made suggestions on how to improve a mentoring program. Table 7 summarizes the information that can be utilized by TCDHA to improve their mentorship program. Training and education for peer mentors is very important to ensure a successful peer mentoring program. Workshops and detailed written guidelines on how to peer mentor are considered beneficial. Mentors need to be coached on how to mentor while receiving feedback. This can be done through role-plays or watching scenarios of effective ways of mentoring. Lastly, TCDHA can conduct an intensive yearly seminar or a one full day workshop on how to effectively mentor students (Sambunjak et al., 2009).

Students should also foster relationships with mentees outside of the school setting. For example, they can meet at homes or in restaurants, potluck dinners and/or movie or book clubs (Laurel, Levine, Malhotra, & Holtzheimer, 2004). The mentors and mentees should also have a written partnership agreement to hold the mentor and mentee accountable to attend the peer mentoring session. This document should be provided to the mentors by the program director and tailored to meet their individual partnership needs. Mentees should also be given a choice and availability of mentors by being provided a list of potential mentors (Sambunjak et al., 2009). Doing so can allow the mentees to match themselves with a mentor they feel most comfortable with. In addition, TCDHA may consider expanding their pool of mentors to allow more mentees to benefit from mentors during Scaling for Success, dental materials lab and/or dental radiography lab.

5.1 Study Implications for Peer Mentoring in Programs of Dental Hygiene Education

The results of this study have several implications for the training and supervision of peer mentors at TCDHA. Some peer mentors have noted that TCDHA would benefit from having

Table 7 Strategies to Improve Mentoring (Sambunjak, 2009, p.76)

| Dimension | Area | Action |
|------------------|------------------------------------|--|
| Personal | Training and education | Training faculty how to mentor, taking into consideration limited time available or such training (e.g. workshop, a brief online course, a written guideline) |
| | | Coaching program in which mentors learn by doing and receive feedback from others during sessions on mentoring A yearly seminar or 1-day workshop for students to learn about mentoring |
| Relational | Fostering relationships | Creating “a space” for interactions outside of the institution Making mentoring meetings and contacts regular |
| Structural | Choice and availability of mentors | Written partnership agreement or progress reports (to hold both the mentor and mentee accountable) Expand potential pool of mentors |
| | | Providing a list of potential mentors to the mentees, who would be advised to meet with potential mentors and to speak with their other mentees (Sambunjak, 2009, p.76). |

more peer mentors available to assist the students in Scaling for Success, dental materials and dental radiology. To increase peer mentor recruitment and retention efforts, it may be advisable to clearly note how peer mentors would benefit academically, personally and professionally when recruiting students. Literature shows that mentors are not aware of the benefits (Harmon,

2006) and thus emphasizing these benefits may attract a larger number of students willing to mentor.

Peer mentoring programs are an effective way to reduce academic and clinical stress in an intensive program (Jimenez et al., 2010). Although most of the literature reviews show promising student outcomes from peer mentoring, Topping (1996) advises against viewing peer mentoring programs as a solution to all student success issues in post-secondary institutions. Most articles state that peer mentoring programs are most effective in a highly structured academic environment. Implementing programs in an unstructured setting is unfavourable and as such, peer mentoring needs to be research-based and consciously planned (Casey, 2013).

Formal mentorship programs are common not only in educational institutions but also in workplaces in the health care field. In Ontario, the College of Dental Hygienists of Ontario (CDHO) has developed a Peer Mentorship Program. It is hoped that students who have had a positive experience in the peer mentorship program at their educational institution would also benefit from CDHO's Peer Mentorship Program when they are registered dental hygienists. CDHO recognizes that mentoring relationships are beneficial for new hygienists. Students who were mentors at their educational institution now have a chance to become a mentee in the CDHO Peer Mentorship Program. The mentees can receive support and guidance during their integration into clinical practice and deepen their knowledge and understanding through shared experiences of a trusted colleague, the mentor (College of Dental Hygienists of Ontario, 2013).

The stressors of health profession education can take a heavy toll on students which can cause students to be less supportive to their patients (Calkins & Epstein, 1994). The implementation of a peer mentoring program in all health profession education programs can not only promote students' well-being, but also positively affect the clinician-patient relationships

(Calkins & Epstein, 1994). A number of medical schools, for example, have benefited from such programs as it not only benefits the students, but also the institutions (Calkins & Epstein, 1994).

5.2 Study Limitations

Given the scope of the study focused on a specific program in specific geographic regions, the results of this study should be considered within that context and may be limited in generalization to peer mentoring programs in other educational institutions. The researcher was not able to extend the research to other dental hygiene colleges who implement the peer mentorship program in Ontario – due to time and budget to travel. However, characteristics of the program and how the program is implemented and organized are findings that could be generalized to other programs. This study adds to the current literature in ways that can suggest considerations for other program directors interested in implementing or improving their peer mentoring program.

Another limitation is that this study is that it is a cross-sectional study, making it difficult to find any trends in the peer mentoring program (Creswell, 2015). Ideally, longitudinal research should be conducted to give a more realistic view into how mentors and mentees benefit in the mentorship program. Correlational studies should also be conducted to explore how peer mentoring might impact grades and national board exam results.

Potential researcher bias is another limitation as the researcher is an instructor at the Toronto College of Dental Hygiene and Auxiliaries that is actively involved with the institution. In order to limit the researcher bias, the researcher was responsible by writing a reflexive journal, where the researcher logged the details of how she may have influenced the results of each interview. It is essential for the researcher to recognize he/she can bring preconceived ideas to the research (Charmaz, 2006). The reflexive journal assisted in removing any preconceptions

that could negatively influence the findings (Creswell, 2015). The researcher also made an effort to watch tone of voice and language so as to not influence the participants into giving skewed answers. In addition, a conscious effort was made to avoid leading questions.

Future research will be needed to include larger scale studies to validate results and explore additional evaluation variables, such as clinical performance and learning. Continued research on the outcomes of peer mentoring in clinical setting should be studied using rigorous scientific methods.

Chapter 6

Conclusion

This study was an evaluation of a dental hygiene peer mentoring program at Toronto College of Dental Hygiene and Auxiliaries. The purpose of this mixed-method evaluation study was to examine the benefits of the peer mentoring program at TCDHA, which has been in place for several years. The study findings suggest that peer mentoring contributes to supporting first year students with their successfully transition to post-secondary education and may contribute to enhancing retention of learners in their program of studies.

The study findings also reflect previous research in the area of peer mentoring support and in particular highlight the beneficial aspects of such student support programming. The findings of this study indicate a high level of support from students of the value of having support from a peer student who has gone through the same process. A number of key aspects of peer mentoring were found to be important and could be enhanced in the program examined in the existing study. First, ensuring an adequate number of peer mentors are available to match with mentees. Peer mentor training to prepare mentors for their role and responsibilities is key. Lastly, introducing regular semester evaluations was found to be an important aspect in program monitoring and ensuring effectiveness. The study findings highlight the positive impact that peer mentoring has in the lives of the students in relation to peer support, building friendships, increasing knowledge and confidence. These key elements have been shown to support student success in post-secondary education

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Appendices

Appendix 1

Informed Consent Form (Survey)

Title: Peer Mentoring Outcomes Between First and Second-Year Dental Hygiene Students

Researcher: Fatimah Dato, Student at Memorial University (Master's of Post-Secondary Education)

Contact Information: fatimah786@hotmail.com

Supervisor: Dr. Vernon Curran. Faculty of Medicine, Memorial University of Newfoundland
Contact information: vcurran@mun.ca

You are invited to take part in a research project entitled "Peer Mentoring Outcomes Between First and Second-Year Dental Hygiene Students."

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Fatimah Dato, if you have any questions about the study or would like more information before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction:

My name is Fatimah Dato and I am a Master's student at Memorial University. As part of my Master's thesis, I am conducting research under the supervision of Dr. Curran.

Purpose of Study:

The purpose of this study is to examine the benefits of a peer mentoring program. Peer mentoring program can benefit institutions by helping to reduce student stress and anxiety levels and reduce attrition rates, among many other benefits such as development of teamwork and collaboration skills and increased interaction between students amongst different year levels.

This study seeks to determine if the use of a low-cost peer mentoring program may benefit students in a condensed 18-month dental hygiene program.

What You Will Do in this Study:

A google survey link is provided on the college’s portal where participants will be asked about their views and experiences of participating in the peer-mentorship program. If you are a peer mentee (someone who is receiving help from a peer mentor), you will be asked to answer 14 Likert-scale questions. Likert-scale questions are survey questions that offer a range of answer options. The end-points of this Likert scale survey are strongly disagree and strongly agree.

If you are a peer mentor (someone who is helping a first or second semester student), you will be asked to answer 16 Likert-scale questions.

Length of Time:

The survey will take approximately five minutes to complete.

Withdrawal from the Study:

If you wish to stop participating while doing the survey questions, you can simply close the screen. No data will be saved unless you press “submit” at the end of the survey.

If you have submitted your survey answers and wish to have your data removed, please understand that your data cannot be removed as it has been submitted and will remain anonymous.

Possible Benefits:

While there are no intended benefits to the participants in this study, there is a likelihood that their feedback may improve the quality of the peer mentoring program at the college. The wider benefits of this study extend to understanding student’s perceptions of the benefits of the program. This understanding may result in recommendations for improvements in the peer-mentorship program.

Possible Risks:

There are no possible risks to this study.

Confidentiality:

All staff at TCDHA, including myself, will not know who has decided to participate and who has not, so that your decision to participate or withdraw cannot have any impact on your standing in the class or on your final grade.

Anonymity:

Please note that your participation and your answers to the survey question will remain anonymous. Every reasonable effort will be made to ensure your anonymity

Use, Access, Ownership, and Storage of Data:

I, the researcher, will only have access to the data in an electronic format. All electronic copies will be stored in my password-protected computer.

Data will be kept for a minimum of five years, as required by Memorial University's policy on Integrity in Scholarly Research. After the five years, electronic files will be deleted from my computer hard-drive and server.

Third-Party Data Collection and/or Storage:

Data collected from you as part of your participation in this project will be hosted and/or stored electronically by Google and is subject to their privacy policy, and to any relevant laws of the country in which their servers are located. Therefore, anonymity and confidentiality of data may not be guaranteed in the rare instance, for example, that government agencies obtain a court order compelling the provider to grant access to specific data stored on their servers. If you have questions or concerns about how your data will be collected or stored, please contact the researcher and/or visit the provider's website for more information before participating. The privacy and security policy of the third-party hosting data collection and/or storing data can be found at: <https://www.google.com/policies/privacy/>

Reporting of Results:

Upon completion, my thesis will be available at Memorial University's Queen Elizabeth II library, and can be accessed online at: <http://collections.mun.ca/cdm/search/collection/theses>.

Sharing of Results with Participants:

The final report will be available to participants after the study is complete. The thesis will be posted on TCDHA's portal for all students to read.

Questions:

You are welcome to ask questions before, during, or after your participation in this research. If you would like more information about this study, please contact: Fatimah Dato at fatimah786@hotmail.com. You can also contact the supervisor, Dr. Vernon Curran at vcurran@mun.ca.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:

By completing this survey you agree that:

- You have read the information about the research.

- You have been advised that you may ask questions about this study and receive answers prior to continuing.
- You are satisfied that any questions you had have been addressed.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw participation from the study by closing your browser window or navigating away from this page, without having to give a reason and that doing so will not affect you now or in the future.

Regarding withdrawal after data collection:

- You understand that this data is being collected anonymously and therefore your data **cannot** be removed once you submit this survey.

By consenting to this online survey, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Please retain a copy of this consent information for your records.

Appendix 2

Informed Consent Form (Interview)

Title: Peer Mentoring Outcomes Between First and Second-Year Dental Hygiene Students

Researcher: Fatimah Dato, Student at Memorial University (Master's of Post-Secondary Education)

Contact Information: fatimah786@hotmail.com

Supervisor: Dr. Vernon Curran. Faculty of Medicine, Memorial University of Newfoundland
Contact information: vcurran@mun.ca

You are invited to take part in a research project entitled "Peer Mentoring Outcomes Between First and Second-Year Dental Hygiene Students."

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Fatimah Dato, if you have any questions about the study or would like more information before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction:

My name is Fatimah Dato and I am a Master's student at Memorial University. As part of my master's thesis, I am conducting research under the supervision of Dr. Curran.

Purpose of Study:

The purpose of this study is to examine the benefits of a peer mentoring program. Peer mentoring program can benefit institutions by helping to reduce student stress and anxiety levels and reduce attrition rates, among many other benefits such as development of teamwork and collaboration skills and increased interaction between students amongst different year levels. This study seeks to determine if the use of a low-cost peer mentoring program may benefit students in a condensed 18-month dental hygiene program.

What You Will Do in this Study:

You will participate in a telephone interview which will be arranged at a time convenient for you. The interview question will be based on a series of 13 open-ended questions. Your participation will NOT be anonymous to the researcher as you were my previous student. However, upon publication of results, I will hold back any descriptive information that can identify you. The telephone interviews will be audio-recorded and transcribed. I will be taking notes during the interviews.

Length of Time:

The interview will take approximately twenty to forty minutes of your time.

Withdrawal from the Study:

Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer particular questions will not influence the nature of the ongoing relationship you may have with the researcher or the nature of your relationship with Toronto College of Dental Hygiene and Auxiliaries either now, or in the future.

In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible. Should you wish to withdraw after the study, you will have the option to also withdraw your data up until the analysis is complete. The cut-off date is *February 15th, 2018*.

Possible Benefits:

While there are no intended benefits to the participants in this study, there is a likelihood that their feedback may improve the quality of the peer mentoring program at the college. The wider benefits of this study extend to understanding student's perceptions of the benefits of the program. This understanding may result in recommendations for improvements in the peer-mentorship program.

Possible Risks:

Due to a small number of participants participating in my interview research, there is a chance that you may be identifiable to informed readers, particularly in direct quotes. However, please note that no names will be released when publishing the direct quotes.

Confidentiality:

I, the researcher, am the only person that will know that you participated in the interview portion of the study.

After your interview, and before the data are included in the final report, you will be able to review the transcript of your interview, and to add, change, or delete information from the transcripts as you see fit.

Anonymity:

Please note that your participation and your answers to the survey question will remain anonymous. Every reasonable effort will be made to ensure your anonymity. You will not be identified in publications without your explicit permission. However, please note that due to a small number of participants participating in my interview research, there is a chance that you may be identifiable to informed readers, particularly in direct quotes.

In order to protect the anonymity of your peer mentees, I ask that you please do not identify any mentees by names. This will be reminded to you at the outset of the interview.

Recording of Data:

You will be audio-recorded during the telephone interview process. This will assist me in creating a transcript for you to review, add, change or delete any information you see fit before data publication.

Use, Access, Ownership, and Storage of Data:

I, the researcher, will only have access to the data in an electronic and paper format. All electronic copies will be stored in my password-protected computer. All hardcopies of data (e.g. notes by researcher during the interviews) will be stored in a locked drawer in my office. Data will be kept for a minimum of five years, as required by Memorial University's policy on Integrity in Scholarly Research. After the five years, electronic files will be deleted from my computer hard-drive and server and paper documents will be securely shredded.

Reporting of Results:

Upon completion, my thesis will be available at Memorial University's Queen Elizabeth II library, and can be accessed online at: <http://collections.mun.ca/cdm/search/collection/theses>.

Sharing of Results with Participants:

The final report will be available to participants after the study is complete. The thesis will be posted on TCDHA's portal for all students to read.

Questions:

You are welcome to ask questions before, during, or after your participation in this research. If you would like more information about this study, please contact: Fatimah Dato at fatimah786@hotmail.com. You can also contact the supervisor, Dr. Vernon Curran at vcurran@mun.ca.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:

Your signature on this form means that:

- You have read the information about the research.
- You have been able to ask questions about this study.
- You are satisfied with the answers to all your questions.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw participation in the study without having to give a reason, and that doing so will not affect you now or in the future.

Regarding withdrawal during data collection:

- You understand that if you choose to end participation **during** data collection, any data collected from you up to that **point will be destroyed**.

Regarding withdrawal after data collection:

- You understand that if you choose to withdraw **after** data collection has ended, your data can be removed from the study up to *February 15th, 2018*.

I agree to be audio-recorded

Yes No

I agree to the use of direct quotations

Yes No

By signing this form, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Your Signature Confirms:

I have read what this study is about and understood the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.

I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation.

A copy of this Informed Consent Form has been given to me for my records.

Signature of Participant

Date

Researcher's Signature:

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

Signature of Principal Investigator

Date

Appendix 3

Consent for Participation in Interview Research

I volunteer to participate in a research project conducted by Fatimah Datoos from Toronto College of Dental Hygiene and Auxiliaries (TCDHA). I understand that the project is designed to gather information about the peer mentorship program at TCDHA. I will be one of approximately 15 people being interviewed for this research.

1. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty. If I decline to participate or withdraw from the study, no one on at TCDHA will be told.
2. I understand that most interviewees in will find the discussion interesting and thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.
3. Participation involves being interviewed by one researcher, Fatimah Datoos. The interview will last approximately 20-40 minutes. Notes will be written during the interview.
4. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.
5. Faculty and administrators from TCDHA will neither be present at the interview nor have access to raw notes or transcripts. This precaution will prevent my individual comments from having any negative repercussions.
6. I understand that this research study has been reviewed and approved by the Research Ethics Board at Memorial University and Toronto College of Dental Hygiene and Auxiliaries.
7. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.
8. I have been given a copy of this consent form.

| | |
|-----------------|-------------------------------|
| _____ | _____ |
| My Signature | Date |
| _____ | _____ |
| My Printed Name | Signature of the Investigator |

For further information, please contact:

Fatimah Dato
fatimahd@toronto-college-dental.org
647-300-6633

Reference:

Stanford University. (n.d.) Sample informed consent form. Retrieved from
https://web.stanford.edu/group/ncpi/unspeficied/student_assess_toolkit/pdf/sampleinformedconsent.pdf

Appendix 4

Peer Mentor Interview Questions:

1. How did you learn about the peer mentoring program?
2. What were your reasons for wanting to be a peer mentor?
3. How did you assist your mentee?
4. What types of topics did you typically discuss with your mentee?
5. Did you offer any other types of support to your mentees?
6. What do you accomplish in each session, for academics and enrichment?
7. How well was the program organized and coordinated?
8. Were you well prepared for the role of peer mentor? What training did you receive? What other supports or preparation would you have liked?
9. How did you benefit from being a peer mentor?
10. How do you feel the mentees benefitted?
11. Is there anything else you would like to share that I did not ask?

Reference:

Zhu, Cathy. (2017). Evaluation of Jones-Zimmerman Academic Mentoring Program (JZAMP). Retrieved from http://educationstudies.yale.edu/sites/default/files/files/Zhu_EDST%20Capstone_2017.pdf

Appendix 5

Peer Mentee Survey

Thank you for agreeing to take part in this survey. This survey is anonymous and is designed to help us understand how the peer mentoring program is working so far, and how it can be improved upon in the future. Be assured that all answers you provide will be kept in the strictest confidentiality.

| | | | | |
|----------------------|----------|-------------------------------|-------|-------------------|
| 1 | 2 | 3 | 4 | 5 |
| Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |

Quality/Satisfaction

| | | | | | |
|--|---|---|---|---|---|
| 1. My peer mentors and I are enjoying a high quality relationship. | 1 | 2 | 3 | 4 | 5 |
| 2. I am effectively utilizing my peer mentor. | 1 | 2 | 3 | 4 | 5 |
| 3. I am benefiting from the mentoring relationship. | 1 | 2 | 3 | 4 | 5 |
| 4. The peer mentoring program runs smoothly. | 1 | 2 | 3 | 4 | 5 |
| 5. I would recommend the peer mentoring program to others. | 1 | 2 | 3 | 4 | 5 |

Learning

From working with my peer mentor...

| | | | | | |
|--|---|---|---|---|---|
| 6. I am gaining a better sense of how to be successful and involved at TCDHA. | 1 | 2 | 3 | 4 | 5 |
| 7. I am gaining new skills. | 1 | 2 | 3 | 4 | 5 |
| 8. I am becoming more open minded and able to consider others' feelings and attitudes. | 1 | 2 | 3 | 4 | 5 |
| 9. I am improving my ability to communicate effectively with others. | 1 | 2 | 3 | 4 | 5 |

Relationship, Respect, and Communication

| | | | | | |
|--|---|---|---|---|---|
| 10. My peer mentors are easy to talk to. | 1 | 2 | 3 | 4 | 5 |
| 11. I respect my peer mentors. | 1 | 2 | 3 | 4 | 5 |
| 12. My peer mentors are well-qualified to be a mentor. | 1 | 2 | 3 | 4 | 5 |

Transition

| | | | | | |
|---|---|---|---|---|---|
| 13. My peer mentors have helped me transition to college. | 1 | 2 | 3 | 4 | 5 |
| 14. My peer mentors have helped me adjust to clinical practice. | 1 | 2 | 3 | 4 | 5 |

Comments:

References:

Hogan, R., Fox, D., & Barratt-See, G. (2017). Peer to peer mentoring: Outcomes of third-year midwifery students mentoring first-year students. *Women and Birth, 30*, 206-213

Peer mentor evaluation. (n.d). Retrieved from english.org/mentor/resources/peer-mentoring-survey-tool.docx

Appendix 6

Peer Mentor Survey

Thank you for agreeing to take part in this survey. This survey is anonymous and is designed to help us understand how the peer mentoring program is working so far, and how it can be improved upon in the future. Be assured that all answers you provide will be kept in the strictest confidentiality.

| | 1 Strongly Disagree | 2 Disagree | 3 Neither Agree nor Disagree | 4 Agree | 5 Strongly Agree |
|--|---------------------------|---------------|------------------------------------|------------|------------------------|
| Quality/Satisfaction | | | | | |
| 1. My mentees and I are enjoying a high quality relationship. | 1 | 2 | 3 | 4 | 5 |
| 2. My mentees are effectively utilizing me as a peer mentor. | 1 | 2 | 3 | 4 | 5 |
| 3. Both my mentees and I are benefiting from the mentoring relationship. | 1 | 2 | 3 | 4 | 5 |
| 4. The peer mentoring program runs smoothly. | 1 | 2 | 3 | 4 | 5 |
| 5. I would recommend the peer mentoring program to others. | 1 | 2 | 3 | 4 | 5 |
| Learning | | | | | |
| From becoming a peer mentor... | | | | | |
| 6. I am gaining a better sense of how to be successful and involved at TCDHA. | 1 | 2 | 3 | 4 | 5 |
| 7. I am gaining new skills. | 1 | 2 | 3 | 4 | 5 |
| 8. I am becoming more open minded and able to consider others' feelings and attitudes. | 1 | 2 | 3 | 4 | 5 |

| | | | | | |
|--|---|---|---|---|---|
| 9. I am improving my ability to communicate effectively with others. | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|

Relationship, Respect, Leadership, Coaching and Communication

| | | | | | |
|---------------------------------------|---|---|---|---|---|
| 10. It is easy to talk to my mentees. | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------|---|---|---|---|---|

| | | | | | |
|--|---|---|---|---|---|
| 11. My mentees and I respect each other. | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|

| | | | | | |
|--|---|---|---|---|---|
| 12. I feel well-prepared to be a mentor. | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|

| | | | | | |
|--|---|---|---|---|---|
| 13. My participation in the peer mentorship program enabled me to develop in <i>leadership</i> . | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|

| | | | | | |
|--|---|---|---|---|---|
| 14. My participation in the peer mentorship program enabled me to develop in <i>coaching</i> . | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|

Transition

| | | | | | |
|---|---|---|---|---|---|
| 15. I have helped my mentees adjusting to the college system. | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|

| | | | | | |
|--|---|---|---|---|---|
| 16. I have helped my mentees transition to clinical placement. | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|

Comments:

References:

Hogan, R., Fox, D., & Barratt-See, G. (2017). Peer to peer mentoring: Outcomes of third-year midwifery students mentoring first-year students. *Women and Birth, 30*, 206-213

Peer mentor evaluation. (n.d). Retrieved from english.org/mentor/resources/peer-mentoring-survey-tool.docx

Appendix 7

Coding of Qualitative Data

Key Benefits of Peer Mentoring for Peer Mentees

Theme: Making new friends

- Code: Relate to
- Code: Greet
- Code: Exposure

Theme: Comfortable with peers

- Code: Comfort
- Code: Different perspective from student

Theme: Increased Confidence

- Code: Learnt material
- Code: More confident
- Code: Feel enriched
- Code: Refresh knowledge

Theme: Increased Knowledge

- Code: Teaching
- Code: Learn material
- Code: Refresh memory
- Code: Received tips

Theme: Learn about upcoming semesters

- Code: Advice
- Code: Tips
- Code: How to get through

Key Benefits of Peer Mentoring for Peer Mentors

Theme: Satisfaction in helping others

- Code: Paying it forward
- Code: Receiving thank you's
- Code: Smiles

Theme: Form Relationships

- Code: Encourage mentees
- Code: Say hi in hallways
- Code: Make friends
- Code: Relate to
- Code: Exposure

Theme: Refresh Dental Knowledge

- Code: Share knowledge
- Code: Learnt material
- Code: Teaching
- Code: Refresher
- Code: Teach proper way

Code: Critical thinking skills

Theme: Increased Confidence

Code: Enrichment

Code: Communication skills

Code: Success in program

Code: Better interaction

Code: Leadership role

Code: Better time management

Code: Better interaction

Theme: Give Back

Code: Share knowledge

Code: Give in return

Code: Help others

Key Challenges of Peer Mentoring

Theme: Lack of Mentors

Code: Ratio too large

Code: Wish more signed up

Theme: Lack of Training

Code: More preparation

Code: Felt scrambled

Code: Felt unsure