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SIMULATED TEAMWORK: A QUALITATIVE DESCRIPTION OF PRE-LICENSURE HEALTH CARE STUDENTS' EXPERIENCES

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Dedication

I would like to dedicate this work to my husband James who has been by my side throughout this Masters. Without his endless love, support and dedication I would still be editing.

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"At times our own light goes out and is rekindled by a spark from another person. Each of us has cause to think with deep gratitude of those who have lighted the flame within us." - Albert Schweitzer

I knew the day that I sat down to write this, would be the day I completed my Master's thesis. As a runner I liken my thesis to running a marathon. The journey was long and hard, yet extremely rewarding. As I cross the finish line I look at the many people who ran alongside me on this journey. They guided me, placed opportunities in front of me and showed me paths that might benefit me on my run. For all who helped me, I am extremely grateful.

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Abstract

Today's complex and challenging heath care conditions require collaborative health care for better health outcomes and a reduction of adverse results. Simulated interprofessional education has been identified as a resource to meet this need. Simulation based interventions rather than lecture based collaborative learning can lead to improved attitudes towards teamwork and a better understanding of health professional roles. A thorough understanding of a student's perspective is essential for designing successful collaborative care training, as the data can inform teachers on best practices in the instructing and learning of teamwork skills. This will enable educators to align and adapt curriculum objectives to achieve interprofessional education competencies. A qualitative approach has been adopted to gain insight and understanding of the experiences of pre-licensure health care students towards teamwork when exposed to a simulated interprofessional education program. This study employed qualitative description as the methodology for the data collection and analysis activities.

Key words: simulation, interprofessional education, pre-licensure health care student, collaboration, teamwork

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List of Symbols, Abbreviations and Nomenclature

CIHC - Canadian Interprofessional Health

CAIPE - Centre for the Advancement of Interprofessional Education

GBC – George Brown College

INACSL - International Nursing Association for Clinical Simulation and Learning

IPE – Interprofessional Education

IPEC - Interprofessional Education Collaborative Expert Panel

WHO – World Health Organization

Simulated Teamwork: A Qualitative Description Of Pre-Licensure Health Care Students' Experiences

Chapter I

Introduction

The complex health demands of today's patients necessitates that health care providers from multiple disciplines work together as a team to address these challenging needs. The 1972 report from the Institute of Medicine, "Educating for the Health Team", aroused interest in team-based care, but lacked the evidence about how this care would promote better health (Interprofessional Education Collaborative Expert Panel [IPEC], 2011; Institute of Medicine, 1972; Oandasan & Reeves, 2005; Palaganas, Epps, & Raemer, 2014). In North America, multidisciplinary team based delivery of health care has been associated with better health outcomes and a reduction in adverse results (Blue, Mitcham, Smith, Raymond, & Greenberg, 2010; Greidanus, King, LoVerso, & Ansell, 2013). Addressing these complex health issues cannot be achieved by an individual health care provider alone, but may be possible with a team of providers. The shift towards team-based health care necessitates the development of new education strategies. In the past, health care training lacked opportunities for inter-disciplinary education, which is precisely what is now needed in order to better prepare the health care workers of the future (Sargent, 2009). If we are to effectively address the demands of today's health care needs, educators must make a paradigm shift in their teaching and training strategies toward interprofessional education (IPE).

Researchers and educators acknowledge the importance of effective implementation of IPE within a health professional's education (Blue et al., 2010;

Bridges, Davidson, Odegard, Maki, & Tomkowiak, 2011; Wilhaus et al., 2012). IPE programs include didactic courses and community-based experiences such as hospital placements, and simulation. Simulation, a bridge between classroom learning and real-life clinical experiences has been shown to be a high-quality and effective instructional strategy (Greidanus et al., 2013; Jeffries, 2005). Simulation activities range from: (1) involved role-play, where learners take on the duties and responsibilities of a specific role, (2) standardized patients, where a person is trained to take on the role of a real patient, and (3) simulated clinical scenarios, where high or low fidelity patient simulators are introduced. A simulated IPE program, which facilitates practice and learning of real life health care experiences in a safe environment, is capable of meeting the core competencies of collaborative teamwork (Thistlethwaite & Moran, 2010).

A thorough understanding of the students' perspective of teamwork in interprofessional simulation will provide useful new knowledge for educators to understand if current IPE programs for health care students should be re-designed to include simulation as a teaching methodology. The data can inform teachers on best practices in the instruction and learning of interprofessional skills (Aase, Hansen, & Aase, 2014; Hall, Brajtman, Weaver, Grassau, & Varpio, 2014). This raises the question — What are pre-licensure health care students' experiences of teamwork when exposed to a simulated interprofessional education program?

Purpose of Study and Research Question

A guiding framework for this study was a key recommendation of The Romanow Report: *Building on Values: The Future of Health Care in Canada* (2002). In this report educators were urged to focus more on team-based approaches to meet the advancing

health care needs of society. Traditionally, education within the various professions of heath care existed in relative isolation to one other (Palaganas et al., 2014). The hierarchical relationships that once existed in healthcare must now be replaced with collaborative care. Many academic institutes have now initiated comprehensive IPE curricula to meet today's heath care needs (IPEC, 2011; Reeves, Goldman, & Oandasan, 2007; van Soeren et al., 2011). Educators have been encouraged to adapt their teaching strategies so that health care students will gain the knowledge, skills, and judgment to provide evidenced based care (IPEC, 2011; Wilhaus et al., 2012).

Evidence-based practice involves decision-making based on clinical expertise, patient values and preferences, and the best available scientific evidence (Woods, 2013). The evidence is obtained through the systematic use of data and information systems. Research has shown that evidence-based practice improves patient outcomes, decreases healthcare costs and improves a practice (Brownson, Fielding, & Maylahn, 2009; Woods, 2013). Evidence-based health care commences with a well-built, explicit, clinical question associated with "knowledge gaps" or uncertainties about a specific health situation (Richardson, Wilson, Nishikawa, & Hayward, 1995, p. A12). The scientific rationale to utilize simulation laboratories to teach interprofessionalism has been shown to be evidence-based (Blue et al., 2010; Dillon, Noble, & Kaplan, 2009; Reese, Jeffries, & Engum, 2010). The implementation of a new initiative such as simulated IPE for all health care students in an organization can be complex and challenging. Successful and effective implementation of a health intervention requires a strategic organizational approach to ensure sustainability and longevity (Blue et al., 2010).

Inspired by the belief that collaborative practice is the key to safe, high quality

patient care, a review was made of the existing IPE programs in a specific academic centre, at George Brown College Centre (GBC) in Toronto. The college's move in 2012 to create a single unit health care facility, Centre for Health Sciences, was to support collaborative learning. The college's primary IPE learning outcomes are to:

1. Appraise the relationship between one's own profession and the background, scope and roles of other health care professionals.
2. Evaluate one's ability to work in a team.
3. Participate collaboratively as a health team member to support patient/clients' achievement of their expected health outcomes.
4. Assess the impact of the broader legislative and ethical framework on inter-professional practice (GBC, n.d.-a).

IPE programs in GBC vary according to the specific health care program. All health care students are exposed to didactic IPE. The nursing students, the primary users of the simulation centre are exposed to a combination of IPE: a separate IPE course, clinical placement in a hospital setting or nursing home, as well as intermittent discussion where they may participate in a short simulation activity with students from another health care program, such as a personal support worker.

Other GBC health care students in programs such as denturism and hearing instrument specialist have interprofessional modules built into their clinical requirements. In such cases the students will come into the simulation centre to participate with another health care profession. For example: denturism and nursing students working together to optimize best practice in geriatric care. The focus of the partnership is on practicing and developing competency in specific shared clinical skill areas (GBC, n.d.-b).

The dental hygiene students experience IPE predominantly through clinic placements. They may have one very limited interprofessional module conducted in the simulation centre built into their clinical requirement. Integration of the interprofessional module is dependent on the student first having adequate clinic practice time. Other health care students, such as health and fitness, and dental assisting students may never experience the simulation centre. For these students their IPE is only through didactic courses where discussion of case studies involving teamwork occurs.

Didactic IPE programs at GBC are introduced during the early stages of each health care program. On the other hand simulated IPE, if part of a health care program, is introduced at varying stages of each health care curriculum. Ideally if introduced in the latter half of a specific educational program the belief is that students' have established their own professional identities and roles and can be challenged to mingle and participate with students from other health care professions (Bridges et al., 2011; Charles et al., 2010). However scheduling challenges may result in finding a less than ideal time to introduce these activities.

The current IPE opportunities for the vast majority of health care students in the Centre of Health Sciences at GBC involve external clinical placements and didactic programs. The use of off-site placements involves large resources, time commitments, and restrictions enforced by the placement sites (Bridges et al., 2011). On the other hand, didactic programs can lack the reality-based experience for students to better understand teamwork (Reese et al., 2010).

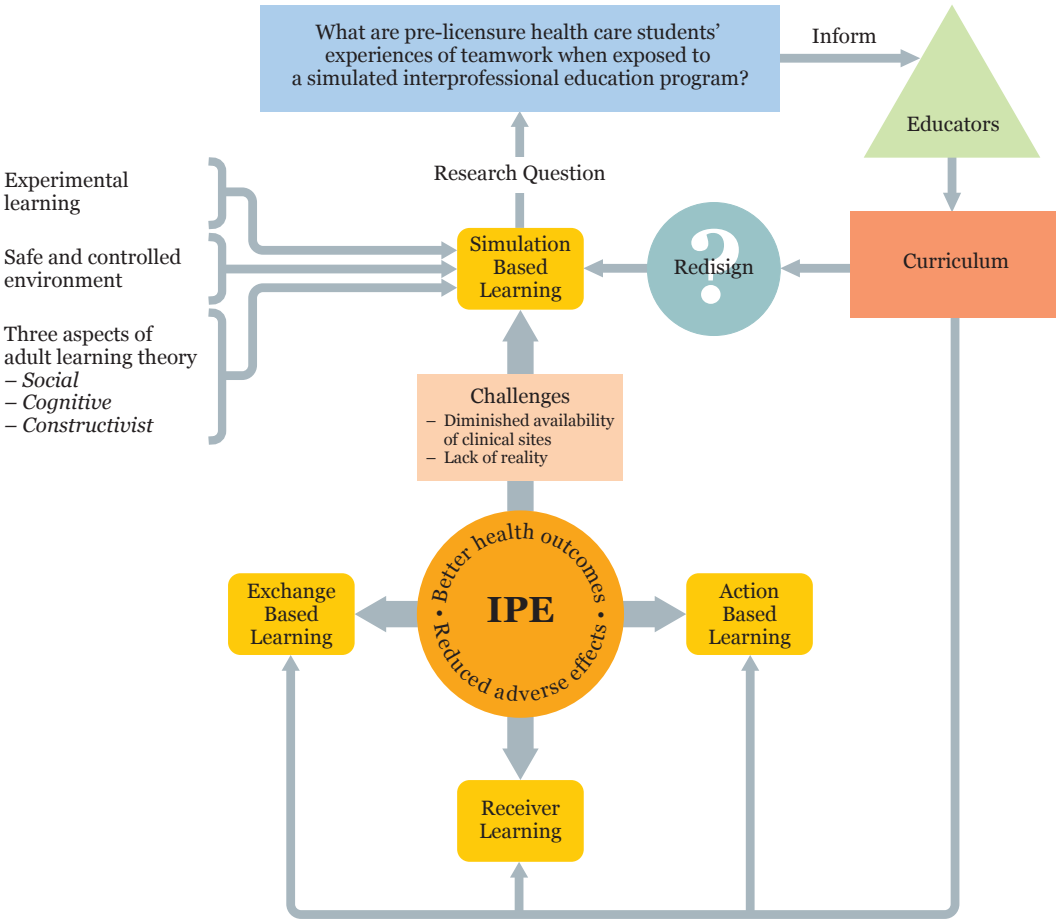
GBC's simulation centre built in 2012, houses five 12-bed simulation practice laboratories that mimic various hospital and long term care facilities. In addition the

centre also has four high fidelity suites, an operating room suite and a bachelor apartment (GBC, n.d.-b). In addition to these simulation laboratories, other resources that the college is equipped with include experienced simulation faculty, multidisciplinary heath care students, and an organization and clinical faculty that support evidenced based practice. The college is associated with the Canadian Interprofessional Health Collaborative, an organization that promotes "collaboration in health and education".

Currently the simulation centre, a valuable tool for IPE, primarily provides nursing students educational content only in their own discipline and is not being used to its full capacity. Other health care students such as denturists, hearing aide specialists, personal support workers etc., get limited or no exposure to the simulation centre. For these students, IPE programs revolve around didactic sessions or clinical placements. As research shows, simulation as an instrument for the advancement of IPE, has been adopted into the curriculum with success by some specialized areas of health care, such as nursing and medicine (Jeffries, 2005; Walsh & van Soeren, 2012; Wilhaus et al., 2012). However, it is still very far from the norm in other health profession's education (Gaba, 2004; Jeffries, 2005; Reese et al., 2010; Walsh & van Soeren, 2012; Wilhaus et al., 2012). Simulation is a learning methodology that addresses the challenges associated with current, non-simulated IPE programs; challenges such as diminished availability of clinical sites for IPE and the lack of reality associated with theoretical IPE initiatives (Cook, 2005; Jeffries, 2005). These findings led to the inquiry of what needs to be done to provide simulation based IPE for all pre-licensure health care students in this institution.

All of these factors suggest that a qualitative descriptive approach would be the most appropriate method to answer the research question (Figure 1) — What are pre-licensure health care students' perceptions of teamwork when exposed to a simulated interprofessional education program? The purpose of this qualitative study is to obtain an understanding of pre-licensure health care students' experiences with teamwork as they are encountered in a simulated educational session. In this study, the students' experiences will be described in a language similar to their own (Hunt, 2011; Magilvy, & Thomas, 2009; Neergaard, Olesen, Andersen, & Sondergaard, 2009). This straightforward description of events (Sandelowski, 2000) will provide educators evidence to determine if current IPE programs need to be re-designed to include simulation.

Figure 1: Conceptual Framework for Simulated Teamwork



Note: IPE = Interprofessional Education

Chapter II

Definitions

Definition of Interprofessional Education

"Interprofessional education occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care" (Centre For The Advancement of Interprofessional Education [CAIPE], 2002, para. 1). IPE has been in the minds of the health care community since the 1970's (IPEC, 2011; Oandasan & Reeves, 2005). The goal of instituting an IPE program is to educate health professionals to provide patient centered care in a collaborative manner (Buring et al., 2009). There is much debate about the most effective way to incorporate IPE experiences into a health care curriculum. IPE involves various learning methods such as exchange-based learning, action-based learning, received learning and simulation-based learning (Barr, Freeth, Hammick, Koppel, & Reeves, 2000). Barr and his colleagues elaborate on these learning strategies (2000). Exchange-based learning involves discussion of case studies. Action-based learning is associated with collaborative enquiry and problem solving. Received learning occurs when information is dispersed in a didactic format. Simulation based learning involves role playing, using standardized patients and simulated clinical scenarios employing patient simulators.

Definition of Simulation

Simulation, a technology rich instructional tool, is an experiential learning method that provides students the opportunity to make decisions and solve problems in a safe and controlled environment (Greenstock, Brooks, & Bingham, 2011; Greidanus et al., 2013; Jeffries, 2005; Walsh & van Soeren, 2012). In this learning method students can apply

classroom theory to a clinical situation without any risk of harming a patient. Simulation is grounded in three aspects of the adult learning theory: cognitive, social and constructivist (Rutherford-Hemming, 2012). In the cognitive process, learning involves one's perception, thought, memory, and ways of processing and structuring information (Merriam, Caffarella, & Baumgartner, 2007). Students create knowledge using prior knowledge (Merriam et al., 2007; Rutherford-Hemming, 2012). For example: a situation where a student with prior theoretical knowledge of collaborative care is able to translate theory into practice in the simulation centre. The social learning theory is based on observation. Learning can occur by observing others in action and witnessing the results of those actions (Bandura, 1986). The constructivist nature of simulated learning, where knowledge is constructed rather than acquired through a student's personal experience, enables health care students to interact with each other and build their own understanding (Walsh & van Soeren, 2012). This new construct of meaning is then incorporated into the student's existing body of knowledge (Pitout, Human, Treadwell, & Sobantu, 2014). Zigmont and team (2011) refer to this as "cementing new knowledge" (p.50).

Chapter III

Literature Review

A comprehensive search strategy involving articles relating to simulation and IPE were undertaken. Multiple electronic databases were searched to locate relevant articles. The search for literature included PubMed, Cochrane Library, Google Scholar, Academic Search, Evidenced Based Medicine, Clinical Evidence, National Institute for Health and Clinical Evidence and Agency for Healthcare Research and Quality, Educational Resources and Information Center (ERIC), Athabasca library and Cumulative Index to Nursing and Allied Health Literature (CINAHL). Journal articles, scientific papers and informal searches of grey literature were conducted. Varying study designs were assessed. A combination of terms was used in the search strategy: experiential learning, teaching through simulation, interprofessional learning, interprofessional curricula modules, interprofessional learning through simulation, simulation as a teaching strategy, and students perceptions of IPE. The search was narrowed by inclusion of variables: (1) restricting the context to educational health care facilities, (2) a target population of only health professional students at varying levels of study and (3) a time frame ranging from 2000 to 2018. A select number of older articles were also chosen due to their relevance to the topic. Data was compared for patterns and designs.

Following a review of the literature related to topic of interest, major concepts emerged: the *Romanow Report*, simulation as a learning method, benefits of simulation, simulation in IPE, types of interprofessional health care education in Canada, optimal time to implement IPE, and students' perceptions of a learning experience.

The Romanow Report

In 2001 Roy Romanow, a former premier of Saskatchewan, was appointed by Governor General Adrienne Clarkson, on the advice of Prime Minister Chrétien to head the Royal Commission on the Future of Health Care in Canada. The Commissioner's mandate was to review Medicare, engage in dialogue with Canadians about the future of Canada's public health care system and recommend policies and measures to "ensure long-term sustainability of a universally accessible, high quality, publicly administered health care system for all Canadians" (Romanow, 2002, p.1). In November 2002, the Commissioner released his report *Building on Values: The Future of Health Care in Canada* (*Romanow Report*). Romanow touched on IPE and called for new approaches to teamwork among health care professionals to maximize the use of the health care workforce (Canadian Interprofessional Health Collaborative [CIHC], 2008). Romanow further asserted that if health care providers are expected to work together and share expertise in a team environment, then changes must be made in the way health care providers are educated and trained.

Simulation as a Learning Method

The 1920's witnessed the first successful use of simulation (Aebersold, 2016). The aviation industry introduced simulation to allow pilots to practice and learn technical skills in a safe environment (Aebersold, 2016). The growing knowledge base of the benefits of simulation, along with the advent of computers, enabled the technique to be adapted to fit other commercial sectors. Today simulation-based learning is widely used in a number of industries including health care (Harder, 2018; Reising, Carr, Gindling, Barnes, Garletts, & Ozdogan., 2017).

Ideally simulated learning has three stages. The stages are: pre-briefing, the scenario or simulation activity itself and debriefing. Pre-briefing, the introduction to the simulation activity, is where learners roles and expectations are discussed, learning outcomes reviewed and the participants are oriented to the learning environment. The scenario is where learners get to practice clinical skills and techniques in a simulated environment. During the simulation, educators who are facilitators engage and guide students through the learning cycle rather than lecture them (Greidanus et al., 2013). Debriefing, which occurs immediately following the simulation activity, allows the facilitators and learners to reflect and analyze individual and group performance as well as outcome. All three stages offer participants varying learning modalities to discuss, participate, observe and reflect.

Lateef (2010) relates simulation to an immersive form of learning, where students have the opportunity to live through a representation of a real-life scenario. For example, a medical student role-plays a doctor who has to obtain consent from a patient's family for organ donation. This interactive component of simulation is conducive to role exploration. In doing so students are able to learn or practice skills, such as communication, and gain an understanding of theoretical knowledge (Harder, 2010). In Harder's (2010) systematic review of simulation use, simulation was confirmed as the primary learning modality for health care students learning clinical skills. The researcher however, notes the absence of a formative measuring tool to quantify and evaluate simulation as an education intervention. Similarly Cant and Cooper (2017) identify that finding the best method to evaluate learning in simulation is a challenge. Evaluating a subjective measure, such as confidence, along with an objective measure, such as

knowledge gained, is not sufficient. The researchers identified several other facts that need to be taken into consideration when evaluating learning in simulation. These factors include: time spent in simulation, knowledge retention and testing this knowledge at given time intervals post simulation.

Benefits of Simulation

Research has shown that simulation offers the learner an opportunity to practice skills that may involve a degree of risk multiple times, in order to gain confidence and ability in performing the task (Lateef, 2010; Reese et al., 2010). This method of learning provides learners the opportunity to transfer didactic knowledge to clinical hands-on application (Zigmont, Kappus, & Sudikoff, 2011). Simulation based learning has been linked with better academic based performance (Wang & Petrini, 2017). This method of learning has also been shown to deepen the understanding of healthcare students' clinical skills such as critical thinking (Reising et al., 2017), communication (Reising et al., 2017), and teamwork (Wang & Petrini, 2017). Simulation studies have shown that students' attitudes and beliefs during their early professional training becomes the foundation of how they interact and behave with others in the future (Charles, Bainbridge, & Gilbert, 2010; Greidanus et al., 2013). Simulation-based interventions rather than lecture based interprofessional learning has been shown to improve attitudes towards teamwork and promote a better understanding of health professional roles (Walsh & van Soeren, 2012).

Simulation has been shown to decrease patient complication rates by increasing the volume of experience of the health-care professional (Reese et al., 2010). An increased awareness and commitment to patient safety has prompted educational

institutes to invest in simulation as an educational tool (Harder, 2018; Palaganas et al., 2014; Zigmont et al., 2011). Despite these successes, high costs associated with setting up a simulation centre, are a major deterrent for adoption of this method (Maloney & Haines, 2016; Zigmont et al., 2011). Recent literature emphasizes the ongoing debate in academia pitting the cost of starting a simulation centre against the value of simulation itself (Harder, 2018; Maloney & Haines, 2016). Harder's (2018) response "What is the cost if we do not [invest in simulation]?" (p.74) leaves us pondering.

Hobgood et al. (2010) in their study report equal success in the acquisition of basic teamwork knowledge, skills and attitude among nursing and medical students using four different educational modalitites. The modalities used were: high fidelity simulation, role-play, lecture and a video scenario exercise. As a result of their findings the researchers encourage educational institutions to choose an educational method, to deliver basic collaborative training, which best supports the organization's resources. It can be argued that all four educational modalities presented here do not support the immersion of a learner in a mimicked real-life scenario. Maloney & Haines (2016) advise educators to be judicious in their selection of educational interventions for IPE. The researchers highlight the need to identify education delivery methods that can maximize learning outcomes within a given funding constraint.

Simulation in Interprofessional Education

Simulation and IPE are mature topics; they have existed for over 40 years (Palaganas et al., 2014). The first documented simulation-enhanced IPE initiative was in 1947 (Palaganas et al., 2014). History shows that the traditional method of educating students in collaborative practice occurred in uniprofessional silos (Boutcher, Conn,

Mroziewicz, & Guttman Sokoloff, 2014; Greidanus et al., 2013; Horsburgh, Lamdin, & Williamson, 2001; Reese et al., 2010). This siloed approach has been a major cause for patient errors (Boutcher et al., 2014; Poulton & Balasubramaniam, 2011; World Health Organization [WHO], 2007). IPE became integral to patient safety when gaps in interprofessional teamwork were often linked to compromised patient care. Quality patient care was the impetus to combine simulation and IPE (Palaganas et al., 2014; IPEC, 2011; WHO, 2007). Simulation based training has been shown to be conducive to IPE based activities due to it's experiential nature. Costello et al. (2017) conclude that simulation, a method that promotes experiential and team-based learning, is a suitable platform for IPE. The researchers report that simulated IPE activities provide students with experiences to meet the core competencies of interprofessional collaboration. These competencies included value and ethics, teamwork and collaboration, roles and responsibilities, and communication (IPEC, 2016).

In simulated IPE, the instructors "facilitate" the students' learning as co-learners (Greidanus et al., 2013; Jeffries, 2005). This creates an environment of minimal power imbalance between the teacher and the learner. The aim of the facilitation is to move the students learning from a singular understanding of their profession to one that is multifaceted or, in effect, interprofessional. The educators' challenge is to use simulation as a methodology to promote knowledge transformation (Jeffries, 2005). The result of this paradigm shift is to enable the learner to build awareness of and respect for the perspectives of different professions from one's own and to build specific interpersonal skills for effective collaboration and communication (Sargeant, 2009).

Wilhaus et al. (2012) identify scheduling and organizational resources as the major challenges that academic institutes experience in implementing simulated IPE experiences. The organizational resources include finances, experienced faculty, time for planning and physical space. The researchers found that programs that participate in IPE activities are often programs with similar curriculum, accreditation requirements that required IPE activities and those that are in close proximity to one another.

Studies have shown that the IPE experiences of students can affect their attitudes, values and beliefs about collaborative work and may influence team functionality (Cox, Sullivan, & Button, 2012; Curran, Sharpe, Flynn, & Button, 2010; Leipzig et al., 2002). Once outside the norm in health profession education (Buring et al., 2009; IPEC, 2011; WHO, 2007), multiple authors emphasize that interprofessional collaborative care has become the standard for health care education (Blue et al., 2010; CIHC, 2008; Reeves et al., 2007). Contrary to this belief, Palaganas et al. (2014) highlight the fact that collaborative care currently exists under the label "future of health care" (p. 112), as there still exists much discussion about effective ways to educate health care students on teamwork. It has been shown that students need to develop a common framework early in their education that describes a best practice model of collaborative care (Bridges et al., 2011). Accrediting bodies and professional organizations now recommend IPE (IPEC, 2011). The environment where students are trained and the people they interact with, influence their professional development (Palaganas et al., 2014). Meaningful interactions with members of other professions will help to reduce narrow perspectives that exist in uniprofessional training (Charles et al., 2010; Walsh & van Soeren, 2012). Research shows that a change in teaching strategies to incorporate simulation in

interprofessional health care education to both teach and assess learners is an effective way to educate health care students on teamwork (Mellor et al., 2013; Oxelmark, Nordahl Amorøe, Carlzon, & Rystedt, 2017).

Simulation is a complex intervention that needs to be planned and practiced with attention to organized contexts. Dillon et al. (2009) identify the critical resources for a successful simulated IPE program as (a) mentor and faculty training, (b) commitment from education institutes, (c) student participation, (d) technology infrastructure and (e) adequate physical space. The authors further elaborate that implementation of an innovation is more likely to occur when the initiative is consistent with the organization's policies, values and procedures and resource configuration. At GBC, the Centre for Health Sciences' philosophy is "Wellness, Applied Research and Visionary Education (WAVE)". The institute's vision is for the various professions to work together to provide an overall sense of wellness and embraces this as a guiding educational principle (GBC, n.d.-c).

Types of Interprofessional Health Care Education in Canada

The University of Alberta developed the first interprofessional course for health-care providers in Canada, in the early 1990's (Cook, 2005). Universities such as Memorial University of Newfoundland, University of British Columbia, University of Toronto, Queens University, Dalhousie University and others have followed suit. Many academic institutes have now initiated comprehensive IPE curriculum to meet today's health care needs (IPEC, 2011; Reeves et al., 2007: van Soeren et al., 2011). A number of factors influence how academic centers select and establish IPE curriculum models such as learning activities, faculty leadership, adequate space and methods of instruction. Cook

(2005) describes variations of specific instruction in IPE as: (1) an elective program, (2) an intermittent discussion, (3) separate course, and (4) a clinical placement.

An elective program. The University of British Columbia developed an elective program approach to IPE, which was later adopted by the University of Alberta. The program develops varying individual interprofessional courses that are available to the health care students to ensure maximum flexibility for interprofessional learning (Borduas et al., 2009; Cook, 2005).

Intermittent discussion throughout the undergraduate education. This approach has been adopted by Dalhousie University. Interprofessional modules that are part of the individual health care programs are integrated into existing required courses to discuss contemporary health and health care issues (Borduas et al., 2009). Johnston, Ryding and Campbell (2003) found that interprofessional modules "foster more coherent system thinking as well as higher-order intellectual skills of synthesis and integration" (p. 658d).

A separate course at a particular point in the undergraduate program. Memorial University of Newfoundland and the University of Alberta have adopted this model. Students in interprofessional teams participate in a series of exercises, such as discussions that challenge a particular medical-social issue. The process enables students to familiarize themselves with each other's profession and practice collaboration (Cook, 2005).

Individual clinical placement. Most heath care programs offer some form of clinical placement. Learning interprofessional practice from this form of exposure is not always guaranteed, as placement environments may not demonstrate successful

collaborative practice (Cook, 2005). An effort must be made to ensure the placement provides an interprofessional environment.

Optimal Time to Implement IPE

The adoption of IPE in health care training programs is widely promoted because research supports that IPE initiatives help to create interdisciplinary team members whose common goal is to improve patient outcomes (Bridges et al., 2011; Dillon et al., 2009; Greidanus et al., 2013). Many well established undergraduate programs exist in Canada yet the country is still in the early stage of development of IPE programs (Curran & Sharpe, 2007). IPE programs however have been largely inconsistent in areas such as the optimal time to implement an IPE course in the curriculum (CIHC, 2008).

The work of Leaviss (2000) supports early introduction of IPE in a curriculum to maximize potential positive attitude change. Several studies (Bassoff, 1983; Dillon et al., 2009; Ker, Mole, & Bradley, 2003) concur that early exposure creates a collaborative culture and has a greater influence on the learner's ability to effectively collaborate as a member of a health care team. In contrast, Hean, Clark, Adams, and Humphris (2006) believe that students entering the first year of a pre-licensure program harbor preconceived ideas that may lead to stereotyping other health professional groups. Introduction of interprofessional learning activities early in the curriculum could constrain the effectiveness of the intervention due to students' limited understanding of health professionals' roles (Bridges et al., 2011). The debate continues as other researchers believe that students in the upper levels of education have a firmer understanding of their own professional identity and role; an understanding that is

necessary to appreciate the contributions of other professions (Bridges et al., 2011; CIHC, 2008; Charles et al., 2010; Gilbert, 2005; Reeves et al., 2007).

Students' Perceptions of a Learning Experience

Perception is the way an individual understands or interprets an experience (Prosser, 2004). Perceptions of the same experience can vary from person to person. Researchers have revealed that a key factor of the quality of student learning is not how courses and academic programs are designed, but how a student perceives, understands and experiences that design (Pace, 1984; Prosser, 2004; Rosenfield, Oandasan, & Reeves, 2011). Students adopt different learning methods depending on their prior experiences of studying, as well as the context in which the studying occurs. These prior experiences of learning as well as the current context have a substantial impact on a student's perception of learning. A student's perception offers important information about their learning that cannot be obtained another way (Prosser, 2004). The decision to see students' input for this research is both value driven and pragmatic. Given the limited time frames of the varying health care programs at GBC, a pragmatic or realistic way for the researcher to obtain rich, qualitative data is from students' perceptions. Pace (1984) emphasizes the importance of taking into account a learner's experience when evaluating an educational program. He believes that "the value of experience is inherent in the experience itself" (Pace, 1984, p. 5).

Implications for Research

Research studies have shown that the use of simulated IPE programs which facilitate practice and learning of real life health care experiences in a safe environment, assists students in meeting the core competencies of collaborative care (Cox et al., 2012;

Curran et al., 2010, Dillon et al., 2009; Horsburgh et al., 2001; Leavis, 2000; Leipzig et al., 2002; Ker et al., 2003; Reese et al., 2010; Thistlethwaite & Moran, 2010). Researchers measured changes in students' attitudes, knowledge, and skills about teamwork. However, what the researchers did not capture was how the students perceived this experience. A qualitative descriptive method will fulfill this need, by describing an experience in the same language as those having the experience would describe it (Sandelowski, 2000).

Chapter IV

Research Method

All researchers using qualitative methods seek an understanding of complex data (Richards & Morse, 2013; Smythe, 2012; Trochim & Donnelly, 2008). The choice of research design is dependent on the analytical process that best constructs new understanding of the particular type of data (Trochim & Donnelly, 2008). A common feature across all methods of a qualitative study is that the researcher starts analyzing the data as soon as the research begins (Richards & Morse, 2013). The key difference between qualitative research methods "is in the way the researcher thinks about the data and subsequently 'thinks up' from the data" (Richards & Morse, 2013, p. 49). Varying qualitative research approaches such as phenomenology, grounded theory, case study and ethnography have been the methods of choice selected by the researchers in studying simulation and IPE. These methods do not target description exclusively; they also tend to explain the phenomenon. This qualitative study that will provide new knowledge to answer the research question — What are pre-licensure health care students' perceptions of teamwork when exposed to a simulated interprofessional education program?

According to Sandelowski (2000), a pioneer of qualitative descriptive methodology, this method is the least encumbered qualitative research method, as it does not require a pre-existing philosophical or theoretical backing. Researchers have argued that qualitative description lacks a theoretical framework, thereby labeling it as the "poor cousin of health research" (Neergaard et al., 2009, p. 1). Neergaard et al. (2009) clarify that this is an issue only when qualitative description is used for the wrong purpose . For example, a study where an in-depth, theory based analysis is required, qualitative

description is not an appropriate choice. The words of Wolcott as translated by Sandelowski (2000) profoundly capture the extent to which some researchers will go to in order to achieve "epistemological credibility" (p.334). "Methodological acrobatics" (Sandelowski, 2000, p. 335) are what researchers resort to, when qualitative descriptive studies are erroneously labeled as phenomenological, grounded theory, narrative or ethnography. It is recommended that the researcher acknowledge and describe where the overtones of phenomenology, grounded theory, narrative, or ethnography are and should appropriately label the study as qualitative description (Sandelowski, 2000).

The qualitative descriptive research method was adopted to "understand an experience as it is understood by those who are having it" (Dowling & Cooney, 2012, p. 25). In the qualitative descriptive approach, during the analytical process and presentation of data, the researcher stayed close to the data, the words, and events (Magilvy & Thomas, 2009; Neergaard et al., 2009; Sandelowski, 2000), making this research method less interpretive than an interpretative description (Sandelowski, 2000). In doing so the researcher captured the richness of the phenomenon through the participants' voices. This method provided the researcher with a straight description of the phenomenon. The focus, primarily on the personal experiences of the phenomenon in a descriptive manner, deepened the understandings of teamwork as experienced by pre-licensure health care students.

A qualitative descriptive study draws from the tenets of naturalistic inquiry (Sandelowski, 2000). This rich description of a students' perspective is essential for designing successful collaborative care training. The data can inform educators if simulation is the best practice to address the instructing and learning of interprofessional

skills (Aase et al., 2014; Hall et al., 2014). This methodology is the best way to provide the answer to the question — What are pre-licensure health care students' experiences of teamwork when exposed to a simulated interprofessional education program?

Context and Participants

This study was conducted in GBC, a community college in the province of Ontario. The college offers multiple health care programs, such as nursing, dental hygiene, fitness and lifestyle management, personal support worker, and hearing instrument specialist. A primary focus of this educational institution is to create innovative and interactive opportunities whereby students and faculty from different health professions can collaborate (GBC; n.d.-a). One such interactive, interprofessional activity focused on practicing and developing competency in specific shared clinical skills between dental hygiene and nursing students in the simulation laboratory at GBC. This environment was deemed suitable to conduct the research.

The strategy of participant selection, purposive sampling was the method by which the researcher pursued valid representation of information rich cases related to the phenomenon of interest (Leedy & Ormond, 2010; Richards & Morse, 2013; Trochim & Donnelly, 2008). Purposive sampling ensures a good qualitative inquiry (Magilvy & Thomas, 2009; Richards & Morse, 2013). Through purposive sampling, the researcher hoped to recruit 8-10 individuals in order to obtain cases deemed information rich for the purpose for the qualitative descriptive study. The researcher believed that with appropriate open-ended interview questions, quality information would be obtained from this number of participants. The eligible students for this study belonged to two multiple disciplinary health care programs, nursing and dental hygiene. Both these programs have

a simulated IPE component as part of their course requirement. These suitable participants were of varying ages and of either sex.

Recruitment for this study initially targeted all students who participated in the Dental Hygiene and Bachelor of Science Nursing simulated interprofessional activity in GBC. During ethics approval it was brought to the researcher's attention that the first year nursing students who were participating in the simulated interprofessional session would be involved in two research studies: one by another researcher and the other by the principal investigator of this study. In order to prevent survey/interview fatigue of participants, the lead nursing faculty decided to divide the participating nursing students into groups. This faculty member was responsible for selecting which group of students could participate in which study. The researcher had no involvement in the section of these groups. The nursing students were already divided into four pre-organized clinic groups for their program. Groups one and two were allocated for the other research study, while groups three and four were assigned for this study. This ensured that there was no overlap of the nursing participants in both studies. Conversely, this research study was open to all the second year dental hygiene students who participated in this simulated study. It was noted that dental hygiene students volunteered to participate in the simulated session while it was mandatory for the nursing students to take part in this activity.

Ethics

The researcher obtained ethics approval from Athabasca University and GBC's ethics committee before initiating the study (Appendix D and E). The Chair of the Dental program at GBC was the gatekeeper; the person who helped the researcher gain access to

the faculty conducting the simulation session and the students that the researcher wished to study (Leedy & Ormond, 2010). The study was introduced to both dental hygiene and the assigned nursing cohorts during their respective theory classes. At this time, the students were invited by the researcher to voluntarily participate in the study. All students were given a Letter of Information (Appendix A). This letter included details about the research project, expectations of the participant, contact information of the researcher, as well as the Consent form (Appendix A). In addition, a poster with details of the study, as well as the researcher's contact information was posted outside the simulation centre (Appendix B). A total of twelve participants consented to participate in this study; five dental hygiene students and seven nursing students. A mutually suitable date and time to conduct the telephone interviews were arranged. On receipt of consent from faculty and students, the researcher observed the briefing and debriefing sessions of the dental hygiene students. In addition the researcher also observed two one hour simulated sessions that were conducted in the Nursing simulation laboratory at GBC.

Scenario Development

A week prior to the simulated activity the six dental hygiene students who volunteered to participate in the simulated interprofessional activity had a one-hour pre-briefing with their faculty. During the pre-briefing session students' were given a hand out that documented the objectives as well as expectations for this simulation activity. The researcher had no control or input into design of the simulation. The objectives of the simulation activity focused on GBC's main IPE learning outcomes. This followed an in-depth discussion of students' expectations. Expectations included theoretical preparation for the simulated activity, a timetable for respective activities, items to be brought, and

setting up demonstration stations. Students were shown videos taken during previous similar activities so that they could visualize the layout as well as gain an understanding of how to facilitate the activity. The handout and verbal instruction by the facilitator outlined clear learning outcomes for the simulation.

A total of eight simulated sessions were conducted during the week. Each session was an hour in length. The same six dental hygiene students participated in all eight sessions, whereas approximately twenty-five different nursing students participated in each session. Also present were four dental hygiene faculty members, a practicing dental hygienist who was a former student of GBC and a nursing faculty member. The activity was conducted in the Nursing simulation laboratory where there were twelve hospital beds. The simulated activity was to provide oral assessment and oral care to a co-operative long-term care patient. Each dental hygiene student was assigned two beds. The nursing students were asked to randomly position themselves two students to a bed. The hygiene students had the flexibility to collaborate and work together as a pair of "instructors" if they so desired.

The simulation activity commenced with both groups of students gathering around a fixed suction canister on the wall. A dental hygiene instructor demonstrated to the students the use of this medical device to extract saliva from an individual. Following this the hygiene students showed their respective groups the techniques of oral assessment, denture care, brushing and flossing on a typodont. A typodont is a model of the mouth with artificial teeth, gums, cheeks and a tongue that is used for dental education. After this, one nursing student role-played as a patient sitting up in the bed, while the other nursing student provided oral assessment and care. The nursing students

then switched roles. The dental hygiene student facilitated the process and guided the nursing students to gain comfort and confidence with these procedures. A week following this simulated activity; the dental hygiene students met with their faculty and participated in a one-hour debriefing session. The researcher was informed that due to time restraints in their course work the nursing students did not have a debriefing session following this activity. A second debriefing, which the researcher did not attend, was held among faculty members from both health care programs.

Data Collection

Data sources employed in this study included telephone interviews with voluntary participants, observation of two simulation sessions in which students from more than one health care discipline were present, learning objectives set out for the simulation session, observation of briefing and debriefing session for the dental hygiene students and researcher's own field notes.

A total of twelve students volunteered to participate in the telephone interviews, five dental hygiene students and seven nursing students. Telephone interviews were identified as the most appropriate interview method because of students' tight school constraints, as well as the ability to reach geographically dispersed participants. The interviews were conducted at a pre-set time that was suitable for the student. The researcher used Skype to interview each student. The students had the option to talk to the researcher either using the free Skype download on their tablet, mobile or computer, or using a landline phone or mobile phone. The conversations were recorded using G-Recorder. The researcher also made notes during and immediately following the conversation. This ensured accuracy and completeness of the data collected (Glesne,

2011; Sandelowski, 2000). Practice recording sessions prior to the interviews enabled the researcher an opportunity to trouble shoot any issues related to recording the interviews and enabled her to be comfortable and confident working these systems.

At the interview stage all participants had participated in the simulated IPE session. An interview guide comprising of open-ended questions guided the researcher (Appendix C). These questions were designed around the qualitative descriptive approach. The questions facilitated participants' descriptions of the phenomenon and its context (Smythe, 2012). The interview questions were developed based on a literature review and the researcher's experience with the topic (Hunt, 2011; Richards & Morse, 2013) and guided by the researcher's thesis supervisor. A few broad questions were asked, as they provided richer and more relevant information (Richards & Morse, 2013). Samples of open-ended, in-depth questions directed to the participant's experience, beliefs, and convictions about the theme in question include:

- What does teamwork mean to you?
- What was your experience working alongside health care students from other professions?
- Can you describe in detail, a situation in which you experienced teamwork.
- What value, if any, did you derive from the collaborative effort?

Multiple questions allowed participants to provide rich data as they had time to reflect on their previous responses (Hunt, 2011; Leedy & Ormond, 2010). The interview guide questions changed depending on the information that emerged from the

conversations. Questions were modified, based on previous conversations, to focus on areas that required further inquiry.

The researcher kept a journal of her own experiences, past knowledge, and emerging awareness of any assumptions and reactions that she may have had. This is reflexivity, a process where the researcher was able to self-evaluate and develop explicit awareness of one's self (Clancey, 2013; Creswell, 2012). Memoing, which is the researcher's field notes, captured what the researcher saw, heard, experienced, or thought in the process of collecting data or reflecting upon it (Creswell, 2012). In this qualitative descriptive study, the researcher describes the phenomenon in the participant's voice (Sandelowski, 2000). This was important to prevent the data from being "pushed" into the researcher's bias. Shenton (2004) recognizes the risk of an investigator's judgment being influenced when they get too immersed in the culture they are studying. The researcher consciously bracketed, whereby prior knowledge and experience with the phenomenon was set aside, in order to avoid inappropriate subjective judgments (Creswell, 2012; Glesne, 2011). The multiple data sources that converged into consistent conclusions (a method known as triangulation) increased the credibility and dependability of the study (Leedy & Ormond, 2010; Richards & Morse, 2013). These data sources enabled the researcher access to the participants' experiences and to gain a richer understanding of the topic (Creswell, 2012).

For the purpose of this study the students' critical reflection relating to their simulation exposure was pertinent. Critical reflection may have occurred during their simulation exposure or began much after the simulation experience. As part of this simulation activity, a briefing and debriefing session between the dental hygiene students

and the respective dental hygiene faculty members was conducted. Participants were requested to voluntarily share their experiences with all present. The facilitator of the briefing and debriefing sessions promoted further critical self-reflection by engaging the students in thought provoking dialogues (Cranton, 2002; McGonigal, 2005). The researcher visually observed and memoed these discussions with consent from all present.

Data gathering continued until rich and thick description was obtained. Thick description is the detailed account of field experiences of the phenomenon (Richards & Morse, 2013; Symthe, 2012). The researcher used a reflective diary to capture non-verbal information, such as a participant's facial expression or body language seen during the observation sessions. In addition the researcher's journal captured the researcher's thoughts, reflections, decisions and perspectives.

Table 1: Data Collecting Timelines, Activities and Objectives

Timeline	Activity / Location	Objective
17 Nov2015	Briefing session at GBC	Expectations of this project. How to prepare for the activity Learning outcomes
26 Nov 2015	Simulated interprofessional activity conducted in the Nursing Simulation Laboratory at GBC	Immerse oneself in the activity and it's surroundings
26 Nov, 2015 – 23 Dec, 2015	Phone Interviews – done at a pre-set time using Skype and recorded using G-Recorder	In depth understanding of student's perception of teamwork (in their own language)
08 Dec 2015	Debriefing session with Dental Hygiene students at GBC	Gain feedback from participants

Interpreting and Analyzing Data

In this qualitative method description was drawn from identifying themes, patterns and commonalities in the text (Glesne, 2011). The researcher using Microsoft Word transcribed the recorded interviews verbatim. Timely conversion of the spoken into written text by the researcher ensured authenticity of data as well as ethical integrity. Familiarity of the researcher with both subject matter and terminology used ensured accuracy of transcription. Each interview transcript was read over in its entirety several times to obtain a better understanding of the data (Elo & Kyngäs, 2008). Sandelowski (1995) encourages researchers to read through interviews multiple times in order to capture its essential features and feel comfortable with the data. After making sense of the data, the researcher analyzed the data. The data was also examined for opposing positions. The process involved three steps: open coding, creating categories and abstraction (Elo & Kyngäs, 2008, Creswell, 2012). The students' responses during the interviews, the researcher's audio and visual observations (during simulation, briefing and debriefing sessions), and written documentation (researcher's memoing) were assessed for significant descriptions that were extracted and coded by content. Initially the researcher hand coded the interview text data into content area aligned with the interview questions. The content areas included groups of words or phrases that reflected similar content and associated context was identified. The content was then grouped into subcategories based on their emergent themes, condensed, and coded using NVivo software. The analysis focused on the nature of interactions between the health professionals as well as the factors that facilitated or impeded the intervention. The coded data was organized into sub-themes that reflect interprofessional teamwork.

Data Management

In an effort to protect confidentiality, a unique identification number was assigned to each participant. This number in no way links to, or reveals, the identity of the participant. Name and contact information of participants were stored separately from the data. Although quotes from the participants were used with their consent, identities were not disclosed. Data collected from the study will be stored, in a password-protected file, for five years and then destroyed.

Strengths of the Study

Numerous features such as credibility, validity, transferability, and rigor ensure the strength of this qualitative descriptive study (Creswell, 2012; Hunt, 2011). Credibility, the internal validity of the study, was enhanced by persistent observation of the participants. While observing and listening closely to the participants' responses, the researcher was alert for meaningful cues in participants' expressions and questions (Hunt, 2011). In addition, purposive sampling strengthens credibility, as it provides the reader a detailed description of how participants were selected (Hunt, 2011; Richards & Morse, 2013). Member checking, considered the gold standard for credibility, gives participants the opportunity to review the data, data analysis, and data interpretation for accuracy (Creswell, 2012). Participants, though given the opportunity to validate that the study reflected their perspectives regarding the phenomenon that was studied (Glesne, 2011), none of them choose to do so.

The strength of a study is further enhanced if the study is transferable. Transferability is the extent to which conclusions of a study can be reproduced in other similar contexts (Hunt, 2011; Richards & Morse, 2013; Trochim & Donnelly, 2008).

Factors that boost the transferability of this study include data saturation, rich and thick description and comprehensive field notes (Hunt, 2011). As the interviews progressed, and no new information was identified and data was replicated, data saturation was achieved and the interviews were discontinued (Richards & Morse, 2013; Trochim & Donnelly, 2008). By providing this thick description the researcher ensured transferability of this study.

Dependability or reliability of this study refers to the stability of data over the passage of time. The study is dependable if it has the ability to produce the same results when replicated with similar participants in a similar context (Hunt, 2011). Strategies for dependability involve careful documentation such as logs, audit trails and triangulation (Richards & Morse, 2013). An audit trail is a researcher's ongoing documentation. It encapsulates all stages of a study, commencing from the start, and includes data collection process and decisions that the researcher makes regarding data analysis and report of findings (Wolf, 2003). Audit trails in this study included memo notes. The memo notes include observation notes, and interview notes — all of which are raw textural data. The audit trail provides a pathway of evidence for peer reviewers and readers to review and verify the path the researcher followed from raw textual data to results (Wolf, 2003). These analytical steps of an audit trail help establish the credibility and rigor of a study (Creswell, 2012). A rigorous research is one that is transparent and explicit (Glesne, 2011). Methodological rigor in this study was achieved through verification (literature review, bracketing, saturation of data, and memoing of researcher) and validation (triangulation of data, member checks, and the audit trail).

The rapid evolution of simulation technologies has resulted in a surge of simulation-based studies (Cant & Cooper, 2017; Harder, 2010). The increase in volume of these studies has been accompanied by great variance in the quality of these studies. Inconsistent and sometimes poor reporting of simulation based studies led Cheng et al. (2010), with input of multiple experts in the field, to develop *Reporting Guidelines for health care simulation research: extensions to CONSORT and STROBE statements.* To enhance the quality of this study the researcher used this guideline as a framework for the research design. In doing so, a clear and concise report was developed. This enables readers to have the ability to critically assess the study, interpret the results and replicate the intervention if so desired.

Ethical Considerations

Employing a qualitative descriptive approach to inquiry also requires ethical considerations. Participants had the option to withdraw from the study up to thirty days following the interview or to stop the interview at anytime. Participants were informed at the onset, that there would be no consequences if the participant chooses to withdraw from the study. In addition, the researcher had no influence over the academic grade of the selected participants.

All qualitative methods share the goal of deriving new understandings out of data (Richards & Morse, 2013; Smythe, 2012). The understanding of students' experiences is important as it has been shown that collaborative care is essential for better patient outcomes, more cost effective care and improved efficiency of care (Bridges et al., 2011; Heinemann, Schmitt, Farrell, & Brallier, 1999). Understanding students' perspectives of teamwork can enable educators to develop effective IPE initiatives (Broers, Poth, &

Medves, 2009). A systematic descriptive approach will bring order and understanding to the qualitative research project — What are pre-licensure health care students' experiences of teamwork when exposed to a simulated interprofessional education program?

Chapter V

Findings

The purpose of this study was to obtain an understanding of pre-licensure health care students' experiences with teamwork, when exposed to a simulated interprofessional education program. Using the qualitative descriptive methodology, the researcher describes the students' perceptions of teamwork and lived experiences, as a rich, straight description (Neergaard, 2009; Sandelowski, 2000). The use of qualitative descriptive methodology as a legitimate qualitative approach has often been challenged (Magilvy & Thomas, 2009). Qualitative descriptive studies however, have shown tremendous potential in addressing vital health care situations and providing clear knowledge on ways to improve care (Sulliven-Bolyai, Bova, & Harper, 2005).

Participants

Twelve college students voluntarily participated in this study. All participants were enrolled in a health care program in GBC. Of the twelve participants five were 2nd year dental hygiene students, and seven were 1st year nursing students. The participants varied in age, ethnic background, prior education and work experience. The groups consisted of two males and ten females participants. Each participant took part in an audio-recorded interview with the researcher. As Sandelowski (2000) recommended, the qualitative content was interpreted through the lens of the participants. In qualitative content analysis, the participants' experiences were analyzed to reveal various concepts. These concepts were further examined to find commonalities. Based on these commonalities five themes were established:

1. Teamwork
2. Methods of Communication
3. Developing Trust and Respect
4. Clinical Competency and Expertise
5. Students' Perception of Teamwork After IPE

Context

For the purpose of this study, the epicenter of support for collaborative learning opportunities was the simulation laboratory. The laboratory was set up to mimic an environment that a student might encounter as a professional in the future. Students were aware they were role-playing, but also understood that this could be a real-life situation they might face upon entering the workforce (Reese et al., 2010).

Each dental hygiene student was responsible for setting up a dental station with all his or her supplies and equipment for an oral care demonstration. Setting up the various dental stations took time as well as organizational skills. The dental hygiene students worked as a team to accomplish this. They retrieved items for each other and supported each other by helping set up other hygiene student's stations when one of them fell behind. Two dental hygiene students paired up for one aspect of the oral care demonstration, as they found their "joint presentation" more effective. The dental hygiene students believed that their collaborative, uni-professional efforts helped them accomplish the job quicker and more efficiently than if they had done it individually. When one of them forgot a part of their denture demonstration, the other dental hygiene student stepped in to help.

The bright large space generated a positive sensory impression. One nursing student, intimidated by her limited knowledge of the oral cavity, came into the session fearful at how little she knew. She found that the "friendly atmosphere [of the simulation laboratory] made it a lot more conducive" to learning. The simulation environment at GBC was familiar to the nursing students, but not to the dental hygiene students. During the simulation exercise, the prior exposure to the simulation laboratory proved beneficial to the nursing students. It gave them the opportunity to share a task they had learnt previously: adjusting a patient's bed.

A nursing student attributed the "timely way" that the IPE activity was conducted together with the organized set-up as key factors for the success of the IPE. She found that "everything was where it had to be, so it was less confusing for us to find things we needed". This, according to the student, eliminated confusion and proved to be a time saver. She believed this helped her focus and enabled her to learn everything she needed to learn in the given one-hour session. The same student concluded that if more dental hygiene students had been allocated to each group of nursing students, the addition would have proved to be beneficial. The student's concern was that, at times, when a dental hygiene query came up, the dental hygiene student in the group was attending to another pair of nursing students. As a result she and her partner had to wait to have their question answered. Conversely for another nursing student the "sharing" of a dental hygiene student was not an issue. The arrangement of the beds made it possible for her to look over, listen and learn from the dental hygiene student's interactions occurring in the adjacent bed. For a few students the initial large group demonstration, with all the students huddled near the suction canister, proved to be less than ideal. A nursing student

found it chaotic as she could neither see nor hear the facilitator. A dental hygiene student, who felt the same, suggested that rotating in smaller groups through this demonstration would have been more successful from an observation and learning perspective.

Themes

Data for the study was collected from transcribed telephone interviews, visual observation by the researcher during the simulation, briefing and debriefing sessions, as well as written documentation by the researcher. The verbal, audio and visual data was studied using context analysis. This method of analysis used in qualitative descriptive studies gives understanding to the meaning of experiences described in text (Elo & Kyngäs, 2008; Sandelowski, 2000). The verbatim transcripts of the telephone interviews were read multiple times to get an in depth understanding of each participant's experience during the simulated IPE session. Following thoughtful exploration of the data, the researcher extracted significant phrases and descriptions. Through this exploration certain themes and subthemes emerged from the data. As a result of numerous re-visits to the data, there were instances when data that had already been coded (by the researcher), needed to be re-coded as the analysis proceeded. The researcher repeatedly returned to the literature to clarify and expand upon findings.

During the first level of coding the researcher used NVivo to highlight sentences that contained a single idea, a meaning unit and applied a code (Colorafi & Evans, 2016). In addition to the use of NVivo for data analysis, the researcher also did multiple manual checks; thereby improving the validity, trust worthiness and credibility of the findings. The second level of coding involved the researcher asking more questions and analyzing relationships betweens the codes set in level one. As a result codes were added or

collapsed, others expanded and some revised. Through this reanalysis of the data from level one, the level two codes were determined. The researcher further condensed the level two codes into five broad themes: (1) teamwork, (2) methods of communication, (3) developing trust and respect, (4) clinical competency and expertise, and (5) students' perception of teamwork after IPE.

Using content analysis, the researcher analysed the extensive raw text data, summarized and synthesized the contents of the data and identified themes while maintaining the rich description of the data (Braun & Clarke, 2006; Neergaard et al., 2009; Sandelowski, 2000). Each theme captures key ideas of the data in relation to the research question and is discussed below in relation to the educational literature (Braun & Clarke, 2006). The themes, though listed under individual headings, are all inter-linked. The first four themes: teamwork, methods of communication, developing trust and respect, and clinical competency and expertise, are all collaborative competencies that underpin effective IPE collaboration (Burling et al., 2009; IPEC, 2016, 2011; Oandasan & Reeves, 2005). Of the five emergent themes, the researcher chose to list "teamwork" and "students' perception of teamwork after IPE" as the first and last theme. The rationale behind this was to keep the focus on "teamwork", specifically as it relates to IPE, which is the building block of this study. Key factors relating to the students' perceptions of teamwork, both before and after the IPE session were noted in these two themes. In developing these five themes, the researcher gained an understanding of the students' experiences during the IPE sessions (Dowling & Cooney, 2012).

Table 2: Example of Content Analysis

Data (from telephone interview)	**Level one coding**	**Level two coding**	**Final Themes**
(1) I am not sure how much we were really able to contribute, cause it was really (2) their area of expertise. But (3) we could help them with the bed mechanics. Which (4) I guess was not much. But (5) we are also first semester students, so we don't have that level.	1. Reaction of student – uncertainty, unsure of her value 2. Acknowledgement of other profession. Confidence in dental hygiene student's skills, Trust of hygiene student's ability. 3. Realization of her own skills (increased confidence) 4. Evaluation of student's skills, her perception – that nursing knowledge was not of much value. 5. Acceptance and realization of her education and clinical skills level. Understanding why it is so different from the dental hygiene student's skills	1. value, attitude 2. knowledge 3. knowledge, skills, communication 4. attitude 5. knowledge, skills, attitude	1.Developing Trust and Respect 2.Teamwork Clinical 3.Competency and Expertise

Teamwork

As no one definition of teamwork exists (Oandasan, 2005), the researcher's first interview question posed to the participants, "What does teamwork mean to you?" was asked in an attempt to gain an understanding of the students' perception of teamwork prior to this IPE session. The definitions of teamwork provided by the students did not distinctly indicate that teamwork could involve working with people from another profession. A typical response was, "teamwork is collaborating with other people in a timely and respectful manner." The word "other", although used a few times in the students' responses, did not precisely refer to another profession.

Multiple nursing students identified teamwork as working with their fellow nursing students. Such a team is often referred to as a uni-professional team where all members of the team fall under the same professional umbrella (Barrow, McKimm, Gasquoine, & Rowe, 2015; Oandasan, 2005). One nursing student chose to define teamwork as "a bunch of people working together to achieve a common goal". She went on to clarify that the "people" she was referring to, were specifically her nursing classmates. Another nursing participant perceived that "teamwork was just working within the nursing parameters".

In contrast the dental hygiene students neither confined the definition of teamwork to just their profession, nor did they suggest that teamwork could encompass other professions. Quotes from two dental hygiene students exemplify the comments made by these students in general. "A group of individuals who all have some sort of common goal in mind. Working together everyone brings different elements and skills to the table to essentially achieve a set goal that they have in common." and "we have to work together as a team and respect each others' opinions . . . and learn from each other so that we can improve ourselves in a way that benefits everybody."

As time progressed in the session, the chemistry between the students increased resulting in positive collaborative relationships. The nursing student shared, "As more time goes on, the more experience, the more comfortable you kind of get with other people and other professions" These included relationships between students of the same profession as well as students of different professions. Oandasan (2005) points to teamwork as a product of collaboration. Following this frame of thought, the words of a dental hygiene student identified the need for greater teamwork. "The more that we can

collaborate, the more we can get a sense of how we work with each other." He firmly believed that successful teamwork requires a better understanding of the collaborative process. A nursing student further affirmed the intricate partnership between collaborative learning and teamwork. For her, sharing of knowledge between a learner and a teacher equated to collaboration. In her words, "If somebody else understands something better than you and they can explain that, that's teaching and that is still teamwork." According to Oandasan (2005), collaboration, a process that enhances teamwork, "requires relationships and interactions between health professionals regardless of whether or not they perceive themselves as part of a team" (p. 4).

The six dental hygiene students, each worked with different groups of nursing students over a span of four days. At the onset, these students viewed themselves as leaders or teachers. One dental hygiene student initially commented that the IPE experience "was pretty much only [the dental hygiene students] teaching [the nursing students]". In the early stages of the activity, the dental hygiene students worked individually in their own little silos, educating the nursing students on oral care. Shortly into the session this perceived role of leader or teacher changed into that of a "team" player. "We gathered resources . . . and we worked together to increase the likelihood [of success] of [our] health goals for the patient . . . we collaborated together." The same student's viewpoint on being a teacher had clearly changed, stating, "It was a two-way thing because just interacting with the nursing students we saw how they learnt what they were doing and it kind of helped out." Similarly a nursing student valued the interprofessional collaborative aspect of the IPE session, stating that she "really liked having the different perspective".

In the second session, one pair of dental hygiene students found it easier and more time efficient to work as a team. When one person forgot parts of the demonstration, her partner jumped in to fill the gaps. The two of them supported each other in their strengths and weaknesses, and believed that they were stronger together than they were as individuals. This concept of being a team member in your own professional field also took place among the nursing students. A nursing participant, who had difficulty trying to access the patient's mouth from behind, got increasingly stressed when she could not get the attention of the dental hygiene student who had stepped away to monitor the adjacent bed. Noticing her agitation, the patient, a nursing student who had previously been the operator, came to her aide and gently instructed her partner on the ideal way to access a patient's mouth. Here we witnessed uni-professional teamwork, collaboration among people from the same profession.

Methods of Communication

Communication, an integral mechanism for exchanging information (Oandasan, 2005), is vital for effective collaboration (Reising et al., 2017). The 2016 Core Competencies for Interprofessional Collaborative Practice identifies interdisciplinary communication as one of the four core competencies of IPE.

Observation was a key tool for collecting data in this qualitative research study (Creswell; 2012). During two of the IPE sessions the researcher was physically present as an observer. Field notes captured the researcher's observations as well as reflective notes. The observations recorded as memos included, but were not limited to: participants, faculty, setting, activities and interactions. A variety of methods of communication to impart or obtain information were observed. The primary mode of communication was

verbal, where English was the spoken language. Dialogues were observed between instructors and students from both programs, students from the same health care program, and between students from the two different programs. Dental hygiene and nursing faculty were present on site to assist when questions arose.

The secondary method of communication was visual, using demonstration and sign language. The dental hygiene students set up tables to demonstrate oral assessment and care to the nursing students using various oral hygiene aides and props. A simulated role-play followed, in which one nursing student played the role of an immobile patient and the other nursing student was a health care provider. The health care provider had to perform oral care for the patient. There were occasions during the IPE session when participants were unable to speak due to an operator's hand or oral aide being in their mouths. At such times sign language became the primary method of communication. For example, a nursing student who was the patient found that when her partner was doing the oral examination, had her lips pulled too far to the side. This proved to be uncomfortable. Unable to talk, as there were instruments in her mouth, the patient waved to the operator to get her attention. She then further proceeded to point to her lips with a pulling action to indicate that her lips were stretched too far and it hurt.

Written communication, a tertiary method of communication, was sporadic. Some nursing students wrote down questions. The written questions were later taken and shown to a dental hygiene student or faculty members for clarification.

Students and facilitators used these various methods of communication to collaborate with each other. Regardless of the method used, communication was recognized as fundamental to the collaborative process (IPEC, 2016). The nursing

students commended the dental hygiene students' attention to detail and willingness to communicate. They were impressed at how observant the dental hygiene students were. Comments such as "[the dental hygiene students] were very observant, not just in their own kind of expertise, but a generic type of observance" reflected this. The nursing students noticed that the dental hygiene students were always "walking around, watching, giving tips and feedback". In addition they appreciated them being systematic in the way they delivered the information to the group. "I learnt step by step what to do" one nursing student commented. This same nursing student felt confident that she had learnt everything that she needed to learn in this session, and believed that no information was missed. However, not all nursing students felt the same way. One student expressed annoyance at the constant feedback from the dental hygiene students. For him the feedback occurred "a little too often". As a result of this overload, he withdrew himself mentally from the IPE session as his enthusiasm waned.

Establishing and maintaining clear and concise communication was identified as an important contributing factor to effective collaboration between two or more health care groups (IPEC, 2016). As one nursing student confirmed, "I think a lot of communication between one another helped with the teamwork." Elaborating on effective communication with one another, a nursing student shared how she, her partner and a dental hygiene student "jointly" shared pertinent information with each other.

> I feel like for this assessment we all worked together. For example my partner . . . knew what I did not like. She knew . . . I did not like people spreading my mouth too much. So she told the dental hygiene student. She helped work a way around my anxieties. So I guess we all worked together to satisfy each other.

Similarly one dental hygiene student chose to team up with a fellow dental hygiene student to do a denture demonstration. This student believed that the communication between she and her partner was their forte. Their presentation would therefore be enhanced through their collaborative effort.

> When we did the denture part . . . we showed them how to clean the patient's denture. That was when we really communicated. Even though we really did not say who does which part, it was . . . [understood] who does what.

The same student describes how she had to repeat instructions to the nursing students multiple times. She attributed this to a possible lack of communication on her part. She believed that her "lecturing" style combined with her inability to explain things well enough, negatively affected her. She perceived that extra time and energy was wasted in repeating herself multiple times.

The openness of the physical space for this collaborative activity was especially conducive for face-to-face communication among the participants. There were no physical barriers or partitions present. Not only could the students, see each other when in their respective groups, but they could also observe the other groups around them. A dental hygiene student who could visually see an adjacent group across the room, stated that "watching" the way the nursing student set up the bed, and how the nursing students interacted with each other helped him learn "how a nurse would take care of their client or patient."

The distance between the participants in a given group was ideal for group communication. The participants did not have to raise their voices to be heard. The researcher observed the facilitators moving around constantly providing easy access to

the students should they so wish to communicate with them. A nursing student appreciated this effort. For her "the instructors who were there made it a little easier . . . they kept going around and pointing out anything that we may have missed." It made her feel like she was not alone. However, multiple students did describe one circumstance when both hearing and vision was compromised. A nursing student recalled, "I remember in the beginning of the lab we all kind of stood together and then they showed us how to brush the teeth with the suction. But I couldn't see because I was at the back." At the start of the IPE session students from both groups, dental hygiene and nursing, congregated in front of a wall mounted suction unit for a demonstration. A dental hygiene faculty member was the presenter. During this phase, the voice of the facilitator did not carry over to those who were in the back. It was also noted that those at the back seemed distracted and did not appear to pay attention.

A large majority of the students reported that they gained a better understanding of the need for interprofessional communication and listening following this IPE activity. Foronda, MacWilliams, and McArthur, (2016) advocate that interprofessional skills, like communication can be improved with training. "Teamwork means work together, communicate, ask questions and to just go ahead, let your teammates know what you are doing. Most importantly I think it is just the communication part." these words from a dental hygiene student echo the students' value of communication.

Developing Trust and Respect

Staying in the same group for the entire activity gave the students' group stability, as less turn over promotes more interactivity (Reeves et al., 2007). At the start of the session, students from each health profession turned to their fellow classmates, a uni-

professional collaboration for support. When a student was faced with a question they did not know the answer too, their first instinct was to reach out to someone within their own profession.

The dental hygiene students found out quickly that they needed to collaborate with their colleagues to ensure success. Communication was the tool they used to help them better manage the dental stations. Good communication helped them look out for each other, manage their time and support each other. This form of teamwork among the dental hygiene students was a revelation for one student. He did not expect this kind of support from his colleagues. The student was therefore very surprised when they helped him set up his station when he was running late. He claimed this support helped him to "settle down" and enabled his presentation to go forward smoothly.

As the focus of this session was delivery of oral care, several nursing students came into the session believing that the dental hygiene students "owned" the knowledge for the simulation activity. Many nursing students firmly believed that they would be the "learners" in this activity. One nursing student, who acknowledged the "leadership" role of the dental hygiene students, appreciated the positive attribute that the leader brought to the team. In her words,

> [The dental hygiene students] . . . assumed . . . a guiding role for us, a leadership role in my personal opinion. But just because one group assumes more of a leadership position doesn't mean that it . . . [is] not teamwork or collaborative or it is one sided.

As time evolved in the session, some students found they knew more than they thought. One nursing student initially considered the delivery of oral care as the dental

hygiene students' "speciality". The same student changed her opinion when she realized that her knowledge of adjusting the bed was extremely valuable to the dental hygiene student's demonstration. Another nursing student mentioned how anxious she initially was, as she felt she would likely be judged because of her perceived lack of knowledge on the topic. She had no idea that the dental hygiene students both trusted and appreciated the nursing students knowledge of operating the beds. Her knowledge ensured both the operator's safety as well as the safety of the patient. In the end she confirmed that this team building experience was "really, really friendly and a lot more fun" than she thought it was going to be. This acquired confidence in another health care student's ability was demonstrated in the words of a dental hygiene student. "When we were working with the beds, we didn't really know how to handle the beds and [the nursing students] kind of taught us cause they were already used to working with those beds." Unbeknown to the dental hygiene student, his acceptance of the nursing student's clinical recommendations in adjusting the height of the patient bed likely made the nursing student feel validated and respected (van Wyk & de Beer, 2017).

Other nursing students were pleasantly surprised when they discovered that they could teach the dental hygiene students varying aspects of nursing. Something as simple as putting an arm around the patient's head to support them as they brushed the patient's teeth was a new concept to the dental hygiene students. The dental hygiene students have always worked with patients lying down on dental chairs with a headrest to support the head. This improved the nursing students' self-confidence and made them feel proud of their profession. This was reflected in their comments:

Nursing students

- If [the dental hygiene students] have something about nursing that they want to know then I can share knowledge about nursing too.
- Typically the bed height is something that we nursing students are attuned too.
- We could help [the dental hygiene students] with the bed mechanics.

Dental hygiene student

- Sometimes I feel that we limit ourselves to one group of people, but you can really get a lot, or learn a lot from talking to people with different professions.

Some nursing students ventured into the simulation laboratory with other insecurities. One fear was attributed to never having looked into anyone else's mouth. "I've never watched anyone's teeth before, never done oral hygiene on someone else before". This, accompanied with the fact that the mouth they had to look into was their fellow classmate, further heightened their uneasiness. Upon the realization that this was the first oral care exposure for most of their classmates; their apprehension was even greater. A nursing student described it as "getting out of my comfort zone". A hygiene student assuming that the nursing students would be more comfortable working on each other, was surprised to find that "even when [the nursing students] were working with each other . . . they did not want to get the fingers in the mouth, they were kind of scared". Another nursing student felt insecure with her own professional identity. As a first year student she was not as yet comfortable being attached to the nursing profession label, and she felt unprepared as to what she had to do. She felt that this perception of ignorance on her part hindered her ability to contribute to the team activity. van Wyk and de Beer (2017) urge participants to contribute in order to feel confident and improve teamwork.

At the early onset, many of the dental hygiene students felt they did not get the respect they deserved from the nursing students. One dental hygiene student identified a lack of engagement from the nursing students in his group. He attempted to engage them by being "enthusiastic about the whole learning activity". He questioned if their lack of enthusiasm was associated with them being out of their comfort zone; the nursing students "being a little self-conscious about going into someone's mouth", as well as not being comfortable with each other, as this was their first experience working together in a clinical setting. As time progressed the same student perceived the nursing students becoming more comfortable, as if "they were . . . in safe hands". He believed a sense of trust had developed between himself and the rest of his group. A corresponding mutual interprofessional respect was validated from the nursing perspective. The nursing student felt that she got a "better experience because [the dental hygiene students] really . . . knew exactly what they are doing and [knew] all the kind of dental principle [*sic*)] behind it as opposed to just nursing principles".

The simulation centre was an area where the students could practise teamwork safely without fear of making mistakes or getting a poor grade. Armed with the knowledge that no marks were assigned to this activity, the students could freely ask questions of their peers without risk of failure. When a grade is attached to an activity, it often translates to diminished participation and less collaborative work (Mellor, Cottrell, & Moran, 2013). Mellor et al. (2013) further elaborate that working with fellow students helps alleviate the fear of working under a teacher or someone in power. All these factors, as the quotes below demonstrate, helped in nurturing an environment of trust and respect.

Nursing students

- I think the peer relationship was a factor that helped a lot. Because if we were working with people who weren't students, but who were established professionals I think that would be a lot more intimidating. And we would feel a lot less competent.
- So I think the kind of peer factor was a nice sort of comfort level thing.
- The dental hygiene students were kind of more like our peers, so it was a little bit more comfortable. Like you didn't worry so much about making mistakes. Because it was a little bit more low key.

With the passage of time the level of trust for the other profession increased and the level of discomfort dropped. As a result many of the nursing and dental hygiene students set aside their different professional priorities and were able to coalesce knowledge from both professions. Having completed the simulation activity a dental hygiene student now had faith in the nursing students ability to go out and "teach [oral self care] to whomever they interact with in the nursing field". Surrounded with trust and respect, students from both professions worked together to collectively take care of the patient. This was echoed in their words:

- I feel that I gained a new respect for...other health professions.
- I feel honoured and respect that you guys gave up your time to teach us these new set [*sic*] of skills.
- We both collaborated on the end goal to help [with] the patient's well-being and health.

One aim of the IPE curriculum was to "participate collaboratively as a health team member to support patient's/client's achievement of their expected health outcomes."

(George Brown College [GBC], November 17, 2015). As evidenced, several students reported that they had gained a more in-depth understanding of the roles and responsibilities of the other profession as well as an increased pride in their own. For some, this entailed a more positive view of their own role within the team. For others it was an understanding of how the collective efforts of a health care team can benefit patient care.

Clinical Competency and Expertise

The variance in clinical exposure for both health care groups was repeatedly put forth as a major issue by the students. The nursing participants perceived that their clinical competence was sub-par in comparison to the dental hygiene students due to their lack of exposure in this type of setting. These students had just begun to be introduced to the basics of a clinical environment, such as what attire is appropriate to wear and what the expectations are in a clinical setting. In contrast, the 2nd year dental hygiene students had been exposed to a clinical setting for over a year. The dental hygiene students had had the opportunity to practice working on actual patients for the past six months. They were just eight months shy of graduating from the dental hygiene program, while the nursing students were only a few months into the start of their program.

During the interviews, multiple students addressed this discrepancy. A nursing student believed that “having less experience” was the reason that nursing students “had a little less to offer.” This perspective was echoed by a dental hygiene student who said, “I guess it is just the whole experience of [the nursing students] not having [clinical experience] with one another yet. I think it has a lot to do with them being first years.”

The same participant also believed that since the nursing students were in their first year of study, they had not yet built up relationships among themselves.

> It is their first year and . . . if they were within their 3rd or 4th year, where they had more of that clinical experience or placement experience outside, I think they would be a lot more comfortable with each other and have more confidence in that way.

During the debriefing session, in which the dental hygiene students and faculty were present, along with the researcher who was an observer, a dental hygiene student confidently shared that she "felt [the dental hygiene students] would have a bigger impact if we showed [oral care] to nurses more advanced in their education".

The clinical exposure, or lack there of, made the students experience a variety of emotions. One nursing student suggested that there was an element of intimidation when dealing with the more experienced dental hygiene students because of the discrepancy in clinical experience. Another dental hygiene student described how her confidence grew with the passage of time. "I found that in . . . the initial parts of our sessions, like the first couple, we were all pretty nervous. The more time we got in, we were a little more comfortable doing the whole process."

At the commencement of the simulation activity, several nursing students assumed that the dental hygiene students were the ones in-charge, the ones leading the session. They made this assumption based on the belief that the dental hygiene students were there to teach them oral care. As a nursing student explicitly stated, "Because [the dental hygiene students] are more comfortable in that position, they have more experience. They took a little bit more of a leadership position since they were kind of

directing . . . or giving ideas of what we should do next." As the participants got more comfortable with each other and focused on the task at hand, the clinical hierarchy seemed to fade. There was an increased acceptance of the others' skill set and a willingness to participate with and learn from each other irrespective of prior clinical experience. As students shared in their interviews:

Nursing students

- But I also feel like we got a better experience because they just really, really know exactly what they are doing and all the kind of dental principle behind it as opposed to just nursing principles. The other thing was they were kind of more like our peers, so it was a little bit more comfortable. Like you didn't worry so much about making mistakes. Because it was a little bit more low key.
- As more time goes on, the more experience, the more comfortable you kind of get with other people and other professions, which is also a good thing about this interprofessional kind of activity.

Dental hygiene student

- I think the peer relationship was a factor that helped a lot. Because if we were working with people who weren't students, but who were established professionals, I think that would be a lot more intimidating and we would feel a lot less competent. So I think the kind of peer factor was a nice sort of comfort level thing.

The simulation sessions spanned over a period of four consecutive days. During this time all six dental hygiene students participated in all the eight IPE sessions. The nursing students each participated in only one IPE session. This gave the dental hygiene

students the opportunity to practice multiple times and gain confidence in their presentation as well as teaching and sharing capabilities as each session progressed. A dental hygiene student described her transition from nervous to confident in four days with these words: “By the third day I was like, I know exactly what I was saying, exactly what I am demonstrating. So I felt more comfortable by Friday, it was great.” Another dental hygiene student reflected upon his experience in this way: “The first time was . . . kind of like . . . I was stuttering and . . .thinking about what I wanted to say. But as I went on it was just natural. You just got more comfortable with it.”

The dental hygiene students’ prior clinical experience involved working on clients seated in dental chairs. This simulation activity offered them the opportunity to work on clients in a hospital bed. At the onset of the session, all the dental hygiene students identified adjusting the hospital beds as a primary challenge.

> I didn't know how to work with the bed. It was a whole different experience. So I had one of the nursing students kind of show me. Kind of just a quick demo of how everything works and that kind of helped out.

The simulated environment provided an opportunity for the nursing students to show and share their knowledge. However, the nursing students undervalued this sharing of knowledge. One student commented, “I am not sure how much we were really able to contribute, because it was really [the dental hygiene students’] area of expertise. But we could help them with the bed mechanics. Which I guess was not much.”

The discrepancy in clinical exposure and experience was noted by several students and indicated as a challenge in the simulation activity. Challenges mentioned were loss of time, lack of confidence and language difference. The nursing students were

not aware of common clinical terms such as sterilization, contamination, and asepsis. These are common terms that any health care student would learn at the onset of their clinical program. The dental hygiene students found that they were spending a significant amount time explaining these terms and the importance of these actions to the nursing students. As a result they had to constantly keep watch to ensure that the environment was safe and clean for all parties concerned. For example, a dental hygiene student discussed how he had to ensure that a nursing student removed the gloves that had been in the patient's mouth prior to touching the counter top. This role of being in the position of the "Safety Police" as he called it, was distracting and wasted considerable amount of time. The dental hygiene students also noticed that the nursing students addressed the patients in the beds very casually. The dental hygiene students pointed out the lack of professionalism by the nursing students when working on clients. A few times the nursing instructor reminded the nursing students of bedside manners.

Students' Perception of Teamwork After IPE Session

The final theme gathered data from the students' perception of teamwork *after* the IPE session. As discussed earlier, students provided a variety of definitions for teamwork at the beginning of the interview sessions. The bulk of the interview questions targeted students' experiences during the simulated IPE. It was noted that many students either paused to reflect for a few minutes, giving them time to think back before they answered, while others choose to reflect back on their previous responses and then added additional information about their experience as the interview progressed. The researcher continued to ask the participants open-ended questions in order to gain an understanding of their perceptions of teamwork *after* they attended the simulated IPE sessions.

There is much discussion in the literature surrounding a health care student's professional identity at the pre-licensure stage. At the onset of the simulated IPE activity, students from both health care programs entered the session with preconceived boundaries and expectations of each other's professions. The dental hygiene students were there "to teach" while the nursing students' role was "to learn". Research shows that IPE sessions, which provide students opportunities to interact with learners from other health disciplines (WHO, 2010), can contribute to professional self-identity as well as change a students' understanding of professional roles: their own and others (Wang & Petrini, 2017). These changes can be observed independent of where they occur in a curriculum.

At first, the dental hygiene students seemed more certain and confident about their professional role than the nursing students. An example of this is given by a dental hygiene student:"When [the nursing students] started asking me questions . . . I knew what I was actually saying [about oral care] and they didn't know [about oral care] . . . It is important to share my knowledge about dental health". Oral care, as confirmed by a nursing student was "[dental hygiene students'] area of expertise". Many nursing students placed the dental hygiene students ahead of themselves on the hierarchical structure of health care. The nursing students attributed this to the dental hygiene students' existing experience with clinical exposure.

As time elapsed, there seemed to be a blurring of these defined boundaries. Acknowledgement, respect and acceptance of the other profession became more visible. A nursing student who wore braces was anxious about her partner, who was also a nursing student, working in her mouth. She recounted that her anxiety was lessened

because her partner was, “collaborating with the dental hygiene student [and] she [the nursing student who was the operator] was able to assess my teeth properly”. The students found that sharing responsibilities, with an occasional overlapping of competencies, proved beneficial to the team. Finding that the “joint effort worked well”, a dental hygiene student encouraged the nursing students in her group to “do it [brushing the client’s teeth] together”. Students noted that with time their comfort level with the other profession, as well as pride in their own profession, had increased (Oxelmark et al., 2017). For some students, working alongside the other profession helped them understand “what [the other profession] are learning”. Others commented that they “got more used to talking to people with different experience [professionally] and knowledge”. The nursing student was elated that she “could help [the dental hygiene students] with the bed mechanics. She believed that “if you are able to teach someone that means you know your stuff.”

The researcher interviewed participants a few weeks after the IPE session in order to gain a better understanding of the participants’ perception of teamwork, after having completed the simulated IPE activity. The short time frame between the learning experience and interviews was preferred so that learners had the opportunity to effectively reflect (Fougner & Horntvedt, 2011) and recall their experiences (Oxelmark et al., 2017; Wang & Petrini, 2017). Three categories of learning were observed. They were professional, social and personal learning.

Professional learning. The participants validated the importance of working with members from other health care programs, not just to enhance their own learning of the other profession, but also to work together as a team for the betterment of the patient

(Greidanus et al., 2013; WHO, 2010). A concluding remark from a nursing student reinforces this: “After that experience I feel that I gained a new respect for [the] other health profession that we got to collaborate [with] for patient well-being”. Several nursing students who initially questioned their levels of competence coming into this exercise, left with a positive attitude towards teamwork. One nursing student elaborated:

> I found collaborating with the dental hygiene students very helpful. I feel like not only did we learn from them, but they also learnt how to teach others the procedures doing the dental assessment. So I think it is a win-win situation for both of us.

The students recognized and acknowledged that different team members’ contributions were important in achieving a common goal. No longer was one profession considered to have more expertise than the other, instead both groups combined their knowledge for a better overall outcome (Sims, Hewitt, & Harris, 2015). Diversity in knowledge, skill and expertise, helped team members problem solve while, at the same time, expanding each members own skill set (Mellor et al., 2013; Oxelmark et al., 2017). A nursing student who just had braces put on was concerned about her fellow classmate working in her mouth. She found her anxiety level was heightened when she discovered that there had been no discussion on how to treat a patient with braces.

> There was anxiety even before the lab simulation room, when I was reading the notes because most of the notes was [*sic]* on normal teeth. So I knew that when the nursing student did it [oral care] on me, she wouldn’t really know how to do the oral assessment because of my braces.

At first, her partner's lack of experience in "doing it" caused her concern. However, having a dental hygiene student included in the group helped to reassure her. Her fears were alleviated "because [she] knew that the dental student knew what [her nursing partner] was doing". In the end, the same learner attributed the dental hygiene student's expertise together with interprofessional collaboration for the success of her oral assessment. "[The nursing partner] learnt from observing [the dental hygiene student] first and next doing it".

Teamwork has been shown to benefit patient care (Gafà, Fenech, Scerri, & Price, 2005; Oandasan, 2005). A nursing student was excited to share that "[the dental hygiene student and her]. . . collaborated . . . [on the] end goal to help the patient with well-being and health." Other participants' responses clearly indicated the importance of teamwork as an essential factor for effective interprofessional collaboration to take place (Mellor et, al., 2013; Sims et al., 2015).

Nursing students

- With teamwork I believe that the more that we can collaborate, the more we can get a sense of how we work with each other. Knowing their [the hygiene students] strength and weaknesses definitely will make a better team.
- Teamwork, co-operation, collaboration was a nice . . . element.

Dental hygiene students

- Learn from each other so that we can improve ourselves in a way that benefits everybody.
- If you have a common goal you can work as a team to get what you are trying to do completed.

Students described a number of changes in their understanding of teamwork after the IPE activity. A nursing student reflected:

> I feel like, through this experience, I learnt that teamwork not only requires one to respect the rules and norms . . . [but] that teamwork also requires you to understand . . . other people. Because [the] dental hygiene students had to understand that the . . . nursing student who was working on me did not know what she was doing. Because [the dental hygiene student] understood [my partner's] anxiety, it helped them collaborate better to perform the oral assessment.

Participants tended to use the term "different perspective" when asked how they felt about teamwork after the simulation session. One nursing student said the session provided her "a different perspective seeing and working with other people [professionals]." A dental hygiene student was of the same opinion. He shared, "I didn't think that you would get . . . more into depth with teamwork with other members, but you do and you get to learn new things. In teamwork we all need to fit the same goals." Some participants described how combining strength could optimize teamwork. For example, a dental hygiene student requested the nursing student (the operator) to grasp the patient's "mandible". The nursing student had no idea what she was requested to do, as she did not understand the professional-jargon. However the patient, who was the nursing student's partner, translated "mandible" to "lower jaw", a term that was understood by all.

Personal learning. As shown previously, several students reported that they had gained a more in-depth understanding of the roles and responsibilities of the other profession as well as an increased pride in their own. The collaborative participation gave

the students a sense of their own professional responsibility (van Wyk & de Beer, 2017). Professional self-identity for one nursing student was "figuring out your own skills . . . and how you are able to serve the client".

A dental hygiene student was pleasantly surprised upon seeing his profession through a different lens, that of the eyes of a nursing student. He was complimented for his "quality of leadership". A skill he believed contributed valuably to teamwork. "I felt that I was . . . coordinating them, putting them more into step, the process of how they should do [oral care]". This boosted his self-confidence. He experienced a newfound appreciation of knowledge sharing. The simulated experience "gave [me] a different perspective". Prior to this activity, he saw oral care as treating a patient in the dental chair. The IPE session "opened my eyes . . . and made me question how do they [patients] get their mouth cleaned if they are bedridden?" This query, as he confirmed, was linked to prior knowledge, that an increase in oral bacteria can be detrimental to one's overall health.

On the contrary, the topic of the IPE activity, oral care, a comfort zone for the dental hygiene students, had a humbling effect on the nursing students. The topic proved to be a challenge specifically to one nursing student. She was alarmed at her discomfort in caring for the patient's oral cavity. She had perceived that she was comfortable touching any part of a patient's body from her professional learning. " I have the experience of brushing my own teeth or flossing my own teeth, it is kind of different when you have to do it on someone else." She found that it was more than just "getting out of your comfort zone in order to do that type of thing". It frustrated her that she was insecure and lacked confidence in this situation. Her dental hygiene partner

acknowledged her fear saying: “I guess there was a little bit of nervousness from other people [the nursing students] when they were actually doing it.”

Social learning. Interdisciplinary communication, a core competency of IPE is necessary for teamwork to succeed (IPEC, 2016). As the session progressed, participants broke away from their individual professional silos and created new professional friends (van Wyk & de Beer, 2017). The atmosphere made up of participants who were peers, created an environment students described as kind and non-judgmental. “The friendly atmosphere made it a lot more conducive to learning. It was a lot of fun”. This created a sense of security that encouraged participants to speak more freely (Mellor et al., 2013). A nursing student shared, “As more time goes on, the more experience, the more comfortable you kind of get with other people and other professions which is also a good thing about this interprofession kind of activity.” Another nursing student felt that the dialogue with the other profession brought her into her comfort zone. “The fact that being exposed to different kind [*sic*] of people with different skills, you get more used to talking with people with different experience, knowledge and so on.” This student believed that open conversation, which elicits discussion between all team members, “flew on both sides” and was beneficial to collaboration (IPEC, 2016).

Social interaction also took place between two health care programs, during the IPE session. The nursing students appreciated having more than one dental hygiene student to teach them oral care. “I think that there were multiple people who were from the dental hygiene program who were helping us, so we could basically do smaller groups”. Smaller groups meant more interaction with the team members. “So the fact that there was [*sic*] more interactions, it was more of a teamwork experience. If it had been

just one person [dental hygiene student] and all of us nursing students I feel it would be a little less balanced."

In the sharing of their personal learning experiences, the researcher was able to get an insight into the students' perception of teamwork after the IPE session. As shown the students' perceptions of teamwork varied greatly. Many factors contributed to this variance. Roles and responsibilities of the nursing and dental hygiene students were not clearly spelled out. However, both parties did gain some understanding of their own individual role as well the role and responsibility of the other profession's. Exchange of knowledge increased with the passage of time as the two groups of students became more comfortable with both the environment and each other. Fears associated with working with another profession, were gradually reduced, as students began to feel safe asking questions and sharing their concerns. For some, limited confidence in their own professional abilities proved to be a hindrance. However, students shared at least one positive attribute regarding teamwork no matter what their total experience was. An ideal interprofessional team is one whose collaborative efforts share perspectives to achieve a common goal (IPEC, 2011).

Chapter VI

Discussion

The WHO (2010) has identified interprofessional education as a strategy to facilitate collaboration among health care professionals. A significant impetus to integrate interprofessional education into health care curricula is based on the belief that it will alleviate many health care challenges (Gilbert, 2010; WHO, 2010). Challenges such as patient complications, outcomes for patients with chronic diseases, patient injury and even death have reduced as a result of interprofessional care (WHO, 2010). Because of these changes in health care, it has become essential for academia to either adapt existing programs or create new innovative ones in an effort to promote interprofessional education (Oandasan, 2005).

As seen in this study, perceptions of the same experience can vary from person to person. Researchers have revealed that a key factor of the quality of student learning is not how courses and academic programs are designed, but how a student perceives, understands and experiences that design (Pace, 1984; Prosser, 2004; Rosenfield, Oandasan & Reeves, 2011). The question then arises, "If IPE is done, is it being done effectively?" To determine the success of an IPE program one needs to understand how the program has influenced the attitudes and behaviors of its participants (Horsburgh et al., 2001; Mellor et al., 2013; Oandasan & Reeves, 2005). This has lead to an increase of research that evaluates interprofessional education programs and it's initiatives (Foronda et al., 2016; Mellor et al., 2013).

For this study, the researcher chose a qualitative descriptive method of analysis. This method was used in order to explore the perspectives of health care students, with

respect to teamwork, when exposed to a simulated IPE session. In doing so, a straight descriptive summary of students' perceptions was presented (Neergaard et al., 2009). To maintain the richness of the original data, numerous supporting excerpts were included (Elo & Kyngäs, 2008). In using participants' own words, the researcher stayed as close to the data as possible during analysis (Kim, Sefcik, & Bradway, 2017; Neergaard et al., 2009). When reporting the results, the aim was to describe the analysis process in as much detail as possible to increase the study's validity (Elo & Kyngäs, 2008). This study adds to the research literature on students' perspectives on teamwork in a simulated IPE environment.

Participants

Age of the participants was not identified for this study, however the entry criteria for both health care programs at GBC requires the students to be high school graduates. Saying that, students who had completed additional education such as a graduate or undergraduate program, or who came from practicing other professions such as massage therapy, dental assisting, social work etc., could also participate in this study. If the previous education and work experience of the students was known, it could be informative in an effort to find out if and how, higher education and/or experience in a health care field affected their attitude and perceptions to teamwork (Ker et al., 2003). The analysis suggests a dichotomy between the nursing and dental hygiene students in their definition of teamwork prior to the simulated activity. Some nursing students alluded to teamwork as working with other students from the nursing profession. Conversely the dental hygiene students did not associate teamwork solely within their own profession.

The five dental hygiene students in this study participated in all eight IPE sessions, while each nursing student participated in just one session. In Oxelmark et al.'s (2017) study of undergraduate nursing and medical students participating in a simulation based educational activity, the students benefitted from participating in multiple scenarios. As with each new scenario, the students felt that their skill level and understanding improved. While in Wang and Petrini's study (2017), the undergraduate nursing and medical students also reported improved perception of their professional roles and responsibilities after only one simulated IPE activity. Wang and Petrini (2017) however concluded that one short simulated IPE session was insufficient to improve students' role perceptions. The authors of that study noted that common stereotypes of professional roles described by the students after the IPE session were still present.

While the simulation activity provided the dental hygiene and nursing students the opportunity to work with another health care profession, the activity will require more development before it can achieve the goal of providing interprofessional collaboration. Some students identified and acknowledged their inability to achieve the set learning outcomes of this IPE session. The limited duration of the IPE session and variance in clinical competency were often stated as contributing factors for this outcome. In this study each IPE session was one-hour in duration. The challenge faced by academic institutes is discovering space in an already crowded health specific-curricula in order to provide interprofessional education opportunities (CIHC, 2008). Timetabling such interprofessional activities can prove to be a logistical challenge (Oandasan & Reeves, 2005). The dental hygiene students and the nursing students also varied greatly in their respective stage of curriculum learning. The nursing students, at this point in their

program, had no prior clinical exposure. In contrast, the dental hygiene students had several months of clinical experience working on each other as well as on clients. The nursing students attributed the dental hygiene students' expertise and increased knowledge of oral care to this perceived discrepancy in clinical competency.

Context

Sims et al. (2015) highlight that teamwork is context dependent. Similarly Barrow et al. (2015) recognize that the success of teamwork is dependent on the participants, processes and contexts within a given situation. The Centre for Health Sciences at GBC, an example of an institutional context, houses multiple health care programs under one roof. Oandasan (2005) refers to this as a "bounded team", where the various health care disciplines co-exist in the same building ensuring close physical proximity of the participants within the team. Such co–existence has been shown to benefit collaboration (Sims et al., 2015).

Studies have shown the use of numerous learning activities have been adopted into IPE programs to promote interaction between the students (Reeves et al., 2007). Jeffries (2005) describes organizational factors that support teamwork. These include, but are not limited to simulations, role-play, and e-learning such as video conferencing or virtual patients. A growing body of research suggests simulation-based education as a methodology for students from different health care disciplines to practice collaborative skills in a safe environment (Jeffries, 2005; Reese et al., 2010). Using simulation as a learning methodology to promote interprofessional collaboration provides students an opportunity to observe the real world, learn about one's own profession and actively participate with another health care profession (Van Soeren, 2011). The Centre for Health

Sciences at GBC where the study was conducted has a well-established simulation center that is primarily used for nursing education. The simulation technology in the college though available for IPE is not used to its' full capacity.

Simulated IPE, a form of shared learning, provides students with a structured educational opportunity that mimics a real life scenario (Horsburgh et al., 2001). The goal of this type of learning is to enable students to acquire the knowledge, skills and attitude that lead to enhanced, professional working relationships. The simulation training was designed with these objectives as the primary focus. The session provided the students with opportunities to develop skills related to their own profession, as well as skills necessary for effective teamwork. Some students gained an understanding of the role of other disciplines while participating in the collaborative care exercise. Several students identified that the mere observation of other health profession students enhanced their learning. Many of dental hygiene students noted that observing a task performed by a nursing student, such as adjusting the hospital bed, helped them envision how a nurse would take care of a long-term care patient. The students' perspectives reflected their appreciation for this collaborative form of learning.

Teamwork

A discrepancy in the definition of teamwork between both groups of health care students raised the question of what made the nursing students' specifically categorize teamwork as a group of people from the same profession coming together to accomplish a task? Bearing in mind that this IPE session was the first time the nursing students' worked together in a clinical setting; was this perception simply the result of their lack of experience working in such a setting? Barrow et al.'s (2015) study explored the

experiences of interprofessional collaboration between nurses and doctors. In this study the researchers found that their participants, a group of established doctors and nurses who had worked together, when asked to describe members of their team tended to consider only members of their own profession. The same participants however, when asked to describe their "collaborative working team", then included members from the other profession. This simulation was the first attempt to facilitate a collaborative working team among this group of nursing and dental hygiene students in this setting.

Interdisciplinary teamwork is central to the rapidly changing landscape of health care, as health care professionals are now more than ever collectively responsible for client-centered care (Blue et al., 2010; Greidanus et al.; 2013, Oandasan, 2005; Reeves et al., 2007; WHO, 2010). Oandasan (2005) pinpoints the hallmark for building and maintaining effective teamwork as the ability to clearly identify the task to be done. The author further elaborates that success of effective teamwork, is dependant on active participation of all team-members and good communication.

Success in sustaining and maintaining teamwork is dependent not just on the team members, but also on an organizational culture that supports the teamwork (Blue et al., 2010; Oandasan, 2005). Multifaceted organizational factors have been shown to either facilitate or hinder teamwork (Mellor et al., 2013; Oxelmark et al., 2017; van Wyk & de Beer, 2017). These include context (Sims et al., 2015) and institutional support such as curriculum, human resources and technology (Oandasan, 2005). It has been shown that a well-structured and organized simulated interprofessional activity can improve interprofessional teamwork and skill, which in turn could lead to better outcomes in health care (Oandasan & Reeves, 2005).

Team-based health care has been shown to effectively meet the demands of today's health care challenges (Blue et al., 2010). IPE, which enhances team-based care, fosters the competencies of collaboration, which are attitude, knowledge, skills and behaviors (Reeves et al., 2007,). As a result, there has been an increased push for IPE in academia (Palaganas et al., 2014). WHO (2010) accentuates curriculum reform to better prepare health care students to deliver patient-centered care. Processes have to be built into the school's curriculum to accommodate this change and introduce an IPE experience into the curriculum (Oandasan & Reeves, 2005). The simulated IPE activity is an example of introducing an interprofessional experience into the curriculum to further hone students' collaborative skills (Van Soeren, 2011). The curriculum developed by GBC was designed so that nursing and dental hygiene students could increase their knowledge about interprofessional collaboration through the use of simulation (GBC, 2015). An institutional learner goal was for students to gain an understanding of the roles and responsibilities of other professions. Oandasan and Reeves (2005) classify this type of learning as multiprofessional learning, where "students are brought together, to learn in parallel" (p. 24).

Methods of Communication

Effective information sharing is a fundamental practice of interprofessionalism (Bridges et al., 2011; IPEC, 2011). In fact, it is clear that interprofessional communication is an integral part of good health care (Foronda et al., 2016; McCaffrey et al., 2012). Throughout the search of the literature pertaining to "interdisciplinary communication", it has become clear that poor communication can result in poor collaborative relations and compromise learning (Foronda et al., 2016; McCaffrey et al.,

2012). McCaffrey et al. (2012) further elaborate that in order for effective communication to take place, a basic understanding of the components of communication is required. The authors identify clear and accurate communication between health care professionals as an important component of collaboration.

Discipline specific terminology has been identified as a major barrier to communication (IPEC, 2016). Several nursing students perceived the use of professional jargon by the dental hygiene students as a major difficulty. For instance, terminology such as lateral border of the tongue, plaque, and gingiva, all common words to a dental hygiene student, were unknown to the majority of nursing students. As observed, the IPE activity provided students the opportunity to become aware of and reduce their use of discipline specific terminology. In addition they learnt how to explain professional jargon to individuals outside of their profession.

Foronda et al.'s (2016) integrative review of interprofessional communication in health care, spotlight ineffective communication as the primary cause for misdiagnosis, medication error, delayed treatment, or patient death. The authors raise awareness of the great variance in communication styles. They trust that armed with this information, educators will be able to create a curricula that will address these differences. The authors assert that "teaching sound communication skills must be inclusive of a multi-faceted approach that accounts for the many variables at play including diversity and human factors" (Foronda et al., 2016, p. 39).

The dental hygiene students participated in multiple, consecutive simulation sessions, while each nursing student participated in only one session. The hygiene students noted that their communication with the nursing students improved greatly from

day one to day four. The multiple sessions of simulation offered them increased opportunities for practice and experience. As a result their confidence level in presenting improved with each session. With time the hygiene students recognized that their use of dental terminology was unfamiliar to the nursing students and consequently limited its use. Reising et al. (2017) found that sequential interprofessional simulations in pre-licensure programs have helped health care students develop communication and teamwork skills that will be beneficial to them in the future. The authors conclude that with repeated practice of skills in sequential simulation "learning is more likely to occur and persevere" (Reising et al., 2017, p. 84). Sequential simulation provides learners multiple opportunities to reflect and construct new meaning through de-briefing.

Developing Trust and Respect

WHO (2010) proclaims that an effective IPE not only fosters respect among the health professionals, but also enhances communication skills of the participants. Literature on teamwork has shown that one of the barriers to collaboration include a limited or lack of knowledge about the roles of health professionals (Oandasan & Reeves, 2005). Role clarity enables students to gain a better understanding of the roles, responsibilities and expertise of other health care professions as well as their own (Sims et al., 2015; WHO, 2010).

With role clarity comes respect for oneself as well as other health professions, as students understand the team's contribution to patient well-being (WHO, 2010). A few nursing students affirmed that coming into the IPE they did not know much about the dental hygiene profession. However, with the completion of the IPE, they were happy to not only identify the role of a dental hygienist in health care, but also appreciate the

dental hygiene profession. Some students inadvertently got to reflect on their own profession. A nursing student who felt she was here to learn from the dental hygienist was pleasantly surprised when she was able to demonstrate how to adjust the bed to a dental hygiene student. This act of explaining prompted the student to reflect on the significance of her own role (Mellor et al., 2013). Many health profession students in this study, as well as the health profession students in Oxelmark et al.'s (2017) and Reising et al.'s (2017) studies found that mutual trust and respect were necessary elements for successful teamwork. Similarly fourth year undergraduate students in van Wyk and de Beer's (2017) study realized "that they knew more than they had thought" (p. 38). Their realization was accompanied with an increased pride of their own profession. This varies from the research of Horsburg et al. (2001) where profession-specific knowledge and skills among first year nursing, pharmacy and medical students was assessed. Based on the students' responses the researcher found that nursing and pharmacy students were more certain about their professional role than the medical students.

With the establishment of an environment of mutual respect, trust developed between the two professions. Students' beliefs of teamwork were altered, to include working collectively with members from other professions towards the same goal: client care. Students reported increased knowledge of teamwork skills as well as improved interprofessional communication. The students generally felt that this learning was valuable to them. A few students commented that the absence of a grade attached to this activity enabled them to be more at ease. Mellor et al. (2013) suggest that it is often the various assessment systems that discourage collaboration among learners. In their IPE study students' clinical skills and knowledge were not formerly assessed. Mellor et al.

(2013) found that going against the commonly held belief, "assessment drives learning" (p. 296), proved beneficial to the students' learning. The students confirmed that the absence of a grade created a stress-free learning environment. They summed up their collaborative learning as a positive experience that included respect and trust of team members' opinions.

The facilitators on site were both dental hygiene and nursing faculty members. Bleu et al. (2010) elaborate on this idea, saying in an academic environment, faculty members who have the knowledge, skills and value of interprofessional collaboration have shown to be effective interprofessional mentors. The faculty members, educators at GBC, had all participated in previous IPE activities. Mellor et al. (2013) in their study found that students appreciated facilitators sharing their personal experiences and giving a "real face" to teamwork. Their work supports the notion that on-site facilitators should have a background similar to that of their learners. The authors believe that such facilitators would strengthen the learning environment through familiarity, understanding and credibility. In this study, the students appreciated having the faculty at hand to guide them and did not hesitate to approach them when the need arose.

Clinical Competency and Expertise

In this study, a common role perception at the onset, labeled the dental hygiene students as "teachers" and the nursing students as "learners". Many nursing students were cautious coming into this IPE. Not only did their lack of clinical exposure hinder them, they also felt insecure about their existing, limited knowledge of oral health. For several of them oral care was the dental hygiene students' area of expertise. As a patient, another nursing student was hesitant to open her mouth very wide. She attributed her

nervousness to the fact that a fellow nursing classmate, with no dental experience, was going to work in her mouth. In contrast, a different nursing student trusted and validated the dental hygiene students' ability in delivering oral care.

Understanding roles and responsibilities of team members is a core competency of IPE (IPEC, 2011). Professional hierarchies, based on various factors such as stereotypical notions and level of education, were well supported in Wang and Petrini's (2017) study where the medical students dominated the nursing students. Conversely, Oxelmark et al. (2017) were happy to find that this was not the case in their simulated interprofessional study, which also used medical and nursing students. Oxelmark et al.'s (2017) study reported equal power relations between the nurses and medical students. The authors attribute the design of their simulated interprofessional learning environment for this unexpected outcome.

An unequal power setting was also noted in this IPE session. The dental hygiene students participated in all four days. As a result they attended eight IPE sessions each. As each day progressed, the dental hygiene students increased their understanding of the material they presented. With each repetition of oral care they gained confidence in their professional ability. The nursing students on the other hand only participated in one session, thereby having a considerable disadvantage with regards to the frequency of intervention.

Pooling, according to Sims et al. (2015) is the sharing of multiple perspectives. Successful pooling is dependant on open communication, where all team members are valued equally and respected for their input (Sims et al., 2015). In this study a nursing student felt extremely anxious as she worried about other students judging her for how

little she knew about oral care. Sims et al. (2015) found that those professionals who were less confident in their professional role were more hesitant to cross or blur a professional boundary. In contrast, a second nursing student in this study felt respected as a professional rather than judged for her limited knowledge of oral care. Pooling has been shown to be beneficial to collaboration as team members contribute their diverse knowledge and skills (Oxelmark et al., 2017). Conversely, it has been shown that professional hierarchies, which create a power imbalance among team members, can be detrimental to pooling (Mellor et al., 2013).

Some experts argue that students entering into a health care field who lack clinical exposure, such as the nurses in this study, also lack professional identity (Horsburg et al., 2001). Others debate that students may commence a health care program with preconceived, or stereotypical notions about their own or other professions (Sims et al., 2015). Irrespective of the presence or lack of professional identity, studies suggest that these perceptions, which can affect collaborative working practices, can be altered through multi-professional learning (Barrow et al., 2015; Horsburg et al., 2001; Sims et al., 2015). Experiential learning, similar to this IPE activity, provides students with opportunities to understand different professional roles (Charles et al., 2010; Greidanus et al., 2013; Walsh & van Soeren, 2012).

Students' Perception of Teamwork After IPE Session

Several studies have shown that learning and growth occurs during teamwork activities (Barrow et al., 2015; Oandasan, 2005; Sims et al., 2015). Similarly, in van Wyk and de Beer's (2017) qualitative study of final year under-graduate health care students' experiences in an IPE program, many students identified teamwork as beneficial to their

growth and learning. The authors further elaborate that the growth and learning by the students occurred in three different angles: professional, social and personal. As the researcher in this study coded and re-coded the data, there emerged three categories of growth and learning in the nursing and dental hygiene students from exposure to this IPE event, which were similar to the van Wyk and de Beer's (2017) study.

Reeves et al. (2007) outline how students perceive some learning as "remote" when it does not fall under their concept of relevant learning. This perception can inhibit a participant's involvement in IPE. The qualitative findings from this study indicate that some nursing students perceived that delivery of oral care belonged to the dental hygiene profession. Simultaneously a few nursing students became more interested and involved in teamwork when they saw the hospital beds and realized that they could help the dental hygiene students adjust the beds. As a result the activity now became a relevant learning experience for them and had value (Reeves et al., 2007). A nursing student confirmed that the simulation experience expanded her definition of teamwork. After the session she was eager to learn about other health professions, because she recognized their value in relation to her own role. Interprofessional reciprocity as Barrow et al. (2015) explain occurs when "there is mutual and respectful exchange of information and expertise leading to an adjustment in care benefiting the patient or service" (p. 120). As diversity is inherent within all aspects of health care Foronda et al. (2016) encourage educators to "emphasize the value of diversity and unite the professions as care partners in a team" (p. 39).

The concept of working across professions was introduced, through this exercise, for the first time for the nursing students. Upon completion of the simulation several

students felt in a better mood and were enthusiastic about future IPE activities. When the dental hygiene students were asked if they had participated in an IPE experience prior to this, all but one said "No". Unbeknown to the majority of the dental hygiene students, their prior shared learning experience with the denturism students constituted interprofessional learning. Denturism, although under the umbrella of dentistry is a profession in itself.

IPEC (2011) recommends a proper understanding of team members' roles and responsibilities for effective collaboration. As shown previously, several students in this study seemed to appreciate what they learnt about interprofessionalism and teamwork within the simulation environment. This activity gave the participants a glimpse of what it is like working with another health care profession. The interviews showed hesitancy among some students about whether or not they would be able to work in interprofessional teams, while at the same time revealing that others felt confident that, with exposure to activities similar to this one, they would be able to work collaboratively with other health care professions. The interviews demonstrated a change in the students' attitudes towards interprofessional teamwork skills as well as perception of their own teamwork skills.

Limitations of the Study and Potential for Future Research

This is a small-scale study, drawing on the experiences of two health care groups, in a formulated context. Researchers have shown that teamwork varies greatly depending on participants, context and the processes involved (Barrow et al., 2015; Sims et al., 2015). Expanding this study to include other health care professions, at varied stages of

their education would be of value. The participants were all students from one college. Further research is needed to explore the perspectives of students from other colleges.

Telephone interviews were selected as the most appropriate method to conduct the interviews due to wide spread geographic locations of the students' as well as their tight time constraint. However this method limited the researcher observing non-verbal cues such as participants' facial expressions and body language. Future studies might use face-to face interviews to examine non-verbal cues.

De-briefing an integral component of simulation was not a part of this simulated IPE activity for the nursing students. This limited the nursing students' an opportunity post simulation to discuss with their facilitators and peers, as well as reflect and analyze their performance. The Standards of Best Practice: Simulation Design stipulates de-briefing as an essential phase when designing and developing simulation (INACSL Standards of Best Practice: SimulationSM Simulation Design [INACSL], 2016). It has been shown that essential learning in simulation is dependant not solely on the experience, but also through reflection (INACSL, 2016). The risks when one does not adhere to the recommended standards for simulation design include ineffective assessment of participants as well as participants' inability to achieve expected learning outcomes (INACSL, 2016). Future studies might stipulate an inclusion criterion that all health care students participating in the study participate in de-briefing. In doing so, the participants would be standardized in their exposure to all phases of simulation: preliminary briefing, the simulation activity and de-briefing.

Conclusion

An aging population (WHO, 2010), environmental changes (Wang & Petrini, 2017) and challenging health demands of today's population has witnessed a paradigm shift in health care (Gafa et al., 2005). IPE and collaborative practice play important roles in improving global health (WHO, 2010). The frequency and scope of IPE in academic institutes has been rapidly increasing to keep up with current health demands (Blue et al., 2010, Oandasan, 2005, Palaganas et al., 2014). Many academic institutes have favorably adopted simulation, a methodology to teach IPE, as it provides a controlled safe environment for students to practice real life scenarios (Palaganas et al., 2014).

The simulated IPE activity at GBC provided the opportunity for the nursing and dental hygiene students to work as a team to provide oral care to co-operative long-term care patients, in a non-traditional practice setting. The institutional learner goal was for team members to collaborate and use their diverse knowledge and skills to provide appropriate care for the patients (GBC, 2015). Each of the dental hygiene students voluntarily applied to participate in this IPE activity. They registered for this activity believing that it would be beneficial to their learning, but were not sure exactly how. Conversely, attendance for the nursing students was mandatory.

The dental hygiene students found that the allocated time for the IPE was restrictive. As one student shared, "I feel like the given amount of time, the one hour session, was a limiting factor as to how much we could show them [the nursing students]." Horsburgh et al. (2001) found that increased exposure to similar interprofessional activities irrespective of their duration have resulted in more positive attitudes towards other professions. Students shared that the simulated session gave them

an insight into what they may encounter professionally in the future, when they have to interact with other health care professionals. A nursing student felt confident that when the time comes for her to perform oral care on a patient, she would know what to do as she has "experienced it".

In general, students validated the benefit of having a simulation activity, as they could "put into action" what they had learnt in class and read about. A large number of them indicated that they are visual, kinesthetic learners, where they learn things by seeing and doing. Showing them how to do something helped them learn better. One nursing student emphasized the importance of having to "do something in order to learn it". She elaborated upon this, saying: "unless you are actually doing it, you don't know how to do it". Another nursing student commented, "I am a visual learner". She found that by having a dental hygiene student "show [her] how to do it [oral care]" helped her learn better. A different nursing student professed that she could "retain the information better" if she could follow up and practice what she had just learnt theoretically. The hands-on experience gave her an opportunity to practice techniques she already knew as well as those she had just learnt. She felt confident that if asked, she could, "do the task . . . because [she had] experienced it".

Knowledge acquisition occurred in different forms and at different times during the IPE session. One nursing student, knowing that she did not have the same level of knowledge as the dental hygiene student, with regards to the topic of oral care, "wanted to be more prepared" before coming into this activity. As a result she did all her readings a few times over, as well as watched the recommended videos prior to the session. She felt confident that she had done her part in preparing herself for what was to come.

Some students who initially felt they did not have enough interprofessional skills to work in a group, gained confidence in their ability. Students also learned to trust and respect other health professionals after this IPE activity. A nursing student attributed the improvement of her skills in working with other people to this session. It showed her "how to take criticism and give criticism". Alternatively a dental hygiene student was shocked that the nursing students in his group did not "look at the oral cavity as really important". Instead, they looked at the body as a whole, while for him the oral cavity was his profession. It pleased the student greatly when the nursing students started asking him questions about their own oral health. "Is that really the proper way . . . when we use floss piks . . . to use a fresh part for every single tooth?" He observed that the nursing students were finally less dismissive about the mouth.

Both the dental hygiene and nursing participants expressed their desire for more opportunities to practice collaborative learning in a simulated environment. The interviews revealed that both sets of students believed that investing time and energy in collaborative projects during their training would reap better, more well rounded clinicians who would in turn provide better care for patients. The following two quotes express this: "When you teach other people, you share their knowledge and strengthening [*sic*] knowledge for yourself." And "You gain new respect for other people and other people's roles in the health care team." The twelve students who participated in this study unanimously stated that they benefitted in at least one way from the IPE session. Phrases such as "it was very valuable", "I got to learn a lot of things", " [it] gave me a different perspective", "feel like it is beneficial for both of us" and "helped me understand" all reflect a positive aspect of the IPE session.

Collaboration "is not only about agreement and communication, but about creation and synergy" (WHO, 2010, p. 36). A program that produces collaborative practice-ready health care workers is a successful one (Horsburgh et al., 2001; WHO, 2010). Studies have shown that effective simulated IPE enables effective collaborative practice (Oxelmark et al., 2017; Mellor et al., 2013; Wang & Petrini, 2017). This study shows that the simulation activity provided rich opportunities for the promotion of interprofessional collaboration. The research describes the participants' experience of working with other health care professionals, while addressing the contribution the activity made to the students' learning. The researcher believes that the rich source of information from this study will assist facilitators in the development and implementation of future interprofessional education initiatives. WHO (2010) encourages academic institutes to adopt the strategy of "renew and revise" existing curricula in order to move IPE forward.

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APPENDIX A
LETTER OF INFORMATION / INFORMED CONSENT FORM
Pre-licensure Health Care Students' Perceptions of Teamwork When Exposed to a Simulated Interprofessional Education Program

Principal Investigator (Researcher)	Thesis Supervisor
Preethi Williams Graduate Student in Masters of Health Studies Centre for Nursing and Health Studies Athabasca University Phone: 416.419.0738 Email: pd4d@sympatico.ca	Dr. Caroline Park Professor, Chair, Graduate Programs Centre for Nursing and Health Studies Athabasca University Email: clpark@athabascau.ca

October 15, 2015

You are invited to take part in a research project that investigates perceptions of pre-licensure health care students towards teamwork when exposed to a simulated interprofessional education program.

This form is part of the process of informed consent. The information presented should give you the basic idea of what this research is about and what your participation will involve, should you choose to participate. It also describes your right to withdraw from the project. In order to decide whether you wish to participate in this research project, you should understand enough about its risks, benefits and what it requires of you to be able to make an informed decision. This is the informed consent process. Take time to read this carefully as it is important that you understand the information given to you. Please contact the principal investigator, Preethi Williams if you have any questions about the project or would like more information before you consent to participate.

It is entirely up to you whether or not you take part in this research. If you choose not to take part, 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 Preethi Williams and I am a student in the Masters of Health Studies at Athabasca University. In addition I am also a clinical Dental Hygiene instructor at George Brown College, Toronto. As a requirement to complete my degree, I am conducting a research project that investigates the perceptions of pre-licensure health care students towards teamwork when exposed to a simulated interprofessional education program. I am conducting this project under the supervision of Dr. Caroline Park.

Why are you being asked to take part in this research project?
You are being invited to participate in this project because you are a pre-licensure health care student at George Brown College, who has participated in a simulated interprofessional education program as part of your academic curriculum.

What is the purpose of this research project?
The purpose of this study is to present health educators a straightforward description of pre-licensure health care students' experiences with teamwork when exposed to a simulated interprofessional education program. This study will provide useful new knowledge for educators to understand if current non-simulated interprofessional education programs should be redesigned to include simulation as a teaching methodology.

What will you be asked to do?
As a participant, you will be asked to participate in a telephone interview with the principal investigator (Preethi Williams). The researcher will be using Skype for the interview. Participants however have the option to interview (1) Skype to Skype - using the free Skype download on their mobile, tablet or computer, or (2) Interview using their mobile phone or landline phone. The telephone interview will be audio recorded. The interview will be conducted at a date and time convenient to your schedule between November 26, 2015 and December 23, 2015. The interview will take between thirty to sixty minutes. The interview questions will aim to gather information regarding participants' experiences of teamwork. Any personal information and or identifying details will be kept confidential. If a participant so chooses, at a later date a follow up telephone conversation will be scheduled to review the interview transcript as an opportunity for participants to alter or clarify their comments.

What are the risks and benefits?
We do not think there is anything in this study that could harm you or be bad for you. Some of the questions we ask may seem personal and you do not have to answer any question if you do not want to. We do not think taking part in this study will help you. However, in the future, others may benefit from what we learn in this study. It is hoped that the result from this study will provide health educators important information to determine if current interprofessional education programs need to be re-designed to include simulation.

You will receive a $10 gift card from Tim Hortons as a thank you for participating in the telephone interview.

Do you have to take part in this project?
Your involvement in this project is entirely voluntary and in no way will effect your academic grading. You have the right to refuse to participate in this study. If you decide to take part, you may choose to withdraw from the study up to 30 days following your interview by contacting the principal investigator, Preethi Williams via telephone (416.419.0738) or email (pd4d@sympatico.ca). All data collected will be removed from the data collection. If you decide to withdraw from the study, you do no not have to give a reason and there will be no negative consequences for you.

How will your anonymity, privacy, and confidentiality be protected?
Participants will be identified through identification numbers. Publications or reports from this study will not include personal information of the participant. Every reasonable effort will be made to maintain your confidentiality; you will not be identified in publications without your explicit permission.

The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use or disclosure. All information collected during the study period will be kept strictly confidential and will be stored in a locked file cabinet in the researcher's home office. Data will be kept for five years as stipulated by AUREB and then destroyed.

How will the data collected be stored?
Hard copy data (print) will be stored in a locked file cabinet. Data housed electronically will be stored on a password-protected computer that will only be accessible to the principal investigator and the thesis supervisor. The primary investigator will code each participant's personal information with a unique identification number. The Master list will link the participants' personal information with their unique identification number. The Master list will be stored electronically on a password-protected computer. Data will be kept for five years and then destroyed.

Athabasca University

Who will receive the results of the research project?
The final results of this research project will be shared with the George Brown College. The results may also be submitted to a scholarly journal for publication and presented at a professional conference.

The existence of the research will be listed in an abstract posted online at the Athabasca University Library's Digital Thesis and Project Room and the final research paper will be publicly available.

The focus of this study is to use data reported in the aggregate and summarized form, however, direct quotes may be used to assist readers in better understanding the participants' experience. Use of direct quotations will be done anonymously with participant's permission.

Upon completion of the study, if participants are interested, they can receive a copy of the study by contacting the principal investigator, Preethi Williams via email (pd4d@sympatico.ca).

Who can you contact for more information or to indicate your interest in participating in the research project?
Thank you for considering this invitation. If you have any questions or would like more information, please contact me, Preethi Williams by e-mail pd4d@sympatico.ca or by phone 416.419.0738 or my supervisor Dr. Caroline Park by email clpark@athabascau.ca. If you are ready to participate in this project, please complete and sign the attached Consent Form. Please scan and return it to Preethi Williams by December 10, 2015 via email (pd4d@sympatico.ca).

Thank you.

Preethi Williams

This project has been reviewed by the Athabasca University Research Ethics Board, File No. *[21951].*
Should you have any comments or concerns regarding your treatment as a participant in this project, please contact the Research Ethics Office by e-mail at rebsec@athabascau.ca or by telephone at 1-800-788-9041, ext. 6718.

This project has been also been approved by the George Brown College Research Ethics Board, Approval No. *[6004173]*
Should you have any concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted please get in touch with the Chair of the REB at ResearchEthics@georgebrown.ca.

Athabasca University

Informed Consent:

Your signature on this form confirms that:

- You have read the information about the research project and understand the risks and benefits.
- You have had time to think about participating in the project and had the opportunity to ask questions and have those questions answered to your satisfaction.
- You understand what the research project is about and what you will be asked to do.
- You understand that participating in the project is entirely voluntary.
- You understand that you are free to withdraw your participation in the research project without having to give a reason, and that doing so will not affect you now, or in the future.
- You understand that if you choose to end your participation **during** data collection, any data collected from you up to that point will be destroyed.
- You understand that if you choose to withdraw **after** data collection has ended, your data can be removed from the project at your request, up to 30 days after your interview.
- You consent to having your telephone interview conducted using Skype and audio-recorded.
- You agree to provide your phone number and email address so that the researcher can contact you.
- You have been given a copy of this Informed Consent form for your records.

	YES	NO
I consent to having my telephone interview conducted using Skype and audio-recorded.		
I agree to the use of direct quotations.		
I am willing to be contacted following the interview to verify that my comments are accurately reflected in the transcript.		
I agree to provide my mailing address, so that the researcher can mail the $10 Tim Hortons gift card given as a thank you for participating in the telephone interview.		
I consent to the researcher observing the debriefing session.		

Name of Participant (Printed): _____

Email of Participant: _____ Phone Contact of Participant: _____

Signature of Participant : _____

Date Consent is signed: _____

I have explained this project to the best of my ability. I invited questions and responded to any that were asked. I believe that the participant fully understands what is involved in participating in the research project, any potential risks and that he or she has freely chosen to participate.

Principal Investigator

Preethi Williams

Athabasca University

APPENDIX B

Participants needed for research in simulation and teamwork

Volunteers are needed to take part in a study that will investigate pre-licensure health care students' perceptions of teamwork when exposed to a simulated interprofessional education program.

As a participant in this study, you would be asked to participate in a telephone interview. In addition, you have the option to present your student clinical journal to the researcher to review your self reflection notes of the simulation session.

Your participation is entirely voluntary and would take up approximately 30-60 minutes of your time for one telephone interview. By participating in this study you will help us to present health educators evidence to determine if current non-simulated interprofessional education programs need to be re-designed to include simulation.

In appreciation for your time, you will receive a **$10 gift card from Tim Hortons**.

To learn more about this study, or to participate in this study, please contact:
Principal Investigator: Preethi Williams
email: pd4d@sympatico.ca Phone: 416.419.0738

This study is supervised by: Dr. Caroline Park
Email: clpark@athabascau.ca

This study has been reviewed by the Athabasca University and George Brown College Research Ethics Boards.

APPENDIX C

Interview Guide for Dental Hygiene and Nursing Students

1. What does teamwork mean to you?
2. In the simulation exercise, what was your experience working alongside health care students from other professions?
3. Can you describe in detail, a situation within the simulation in which you experienced teamwork.
4. What value, if any, did you derive from the collaborative effort?
5. What interprofessional interactions have you had to date?
6. *Prior* to this experience, what did "teamwork" mean to you?

The interview guide questions changed depending on the information that emerged from the conversations. Questions were modified based on previous conversations to focus on areas that required further inquiry.

APPENDIX D

Athabasca University
RESEARCH CENTRE

CERTIFICATION OF ETHICAL APPROVAL

The Athabasca University Research Ethics Board (AUREB) has reviewed and approved the research project noted below. The AUREB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and Athabasca University Policy and Procedures.

Ethics File No.: **21951**

Principal Investigator:
Ms. Preethi Williams, Graduate Student
Faculty of Health Disciplines\Master of Health Studies

Supervisor:
Dr. Caroline Park (Supervisor)

Project Title:
Simulated Teamwork: A Qualitative Description of Pre-Licensure Health Care Students' Experiences

Effective Date: October 13, 2015 **Expiry Date**: October 12, 2016

Restrictions:

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date:** October 13, 2015

Sherri Melrose, Chair
Faculty of Health Disciplines, Departmental Ethics Review Committee

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Athabasca University Research Ethics Board
University Research Services, Research Centre
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca
Telephone: 780.675.6718

Athabasca University
RESEARCH CENTRE

CERTIFICATION OF ETHICAL APPROVAL - RENEWAL

The Athabasca University Research Ethics Board (AUREB) has reviewed and approved the research project noted below. The AUREB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and Athabasca University Policy and Procedures.

Ethics File No.: **21951**

Principal Investigator:
Ms. Preethi Williams, Graduate Student
Faculty of Health Disciplines\Master of Health Studies

Supervisor:
Dr. Caroline Park (Supervisor)

Project Title:
Simulated Teamwork: A Qualitative Description of Pre-Licensure Health Care Students' Experiences

Effective Date: September 28, 2016 **Expiry Date**: December 31, 2017

Restrictions:

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

Ethical approval is valid *for the period specified*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date:** September 28, 2016

Sherri Melrose, Chair
Athabasca University Research Ethics Board

Athabasca University Research Ethics Board
University Research Services, Research Centre
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca
Telephone: 780.675.6718

Athabasca University
RESEARCH CENTRE

CERTIFICATION OF ETHICAL APPROVAL - RENEWAL

The Athabasca University Research Ethics Board (AUREB) has reviewed and approved the research project noted below. The AUREB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and Athabasca University Policy and Procedures.

Ethics File No.: **21951**

Principal Investigator:
Ms. Preethi Williams, Graduate Student
Faculty of Health Disciplines\Master of Health Studies

Supervisor:
Dr. Caroline Park (Supervisor)

Project Title:
Simulated Teamwork: A Qualitative Description of Pre-Licensure Health Care Students' Experiences

Effective Date: November 28, 2017 **Expiry Date**: April 30, 2018

Restrictions:

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date:** November 28, 2017

Joy Fraser, Chair
Athabasca University Research Ethics Board

Athabasca University Research Ethics Board
University Research Services, Research Centre
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca
Telephone: 780.675.6718

APPENDIX E

Applied and Institutional Research

Research Ethics Board

November 13, 2015

Dear Ms. Williams,

RE: REB file # 6004173 Title**: Simulated Teamwork: A Qualitative Description of Pre-Licensure Health Care Students' Experiences**

Ethics Approval	Original Approval Date: November 4, 2015. Expiry Date: November 4, 2016.

We are writing to advise you that the Research Ethics Board (REB) has granted approval to the amendment provided for the above-named research study, for a period of **one year**, under the REB's expedited review process. Please note that approval is based on the following:

a) The REB must be informed of any protocol modifications as they arise.
b) Any unanticipated problems that increase risk to the participants must be reported to the REB immediately.
c) The study is approved for one year: if needed, apply for a renewal before the expiry date.
d) A study completion form must be submitted to the REB upon completion of the project.

The following documents have been approved for use in this study: the information letters and consent form. Please insert the ethics approval number (6004173) into these documents. Each participant should receive a copy of his or her consent form.

Please quote your REB file number (6004173) on future correspondence.

Best wishes for the successful completion of your project.

Yours sincerely,

SEvans

Sarah Evans, RN, MN, EdD
Chair, Research Ethics Board
cc: Applied and Institutional Research, George Brown College

It is the responsibility of the Principal Researcher to keep the file complete and up-to-date at all times.

Applied and Institutional Research

Research Ethics Board

September 28, 2016

Dear Ms. Williams,

RE: REB file # 6004173 Title**: Simulated Teamwork: A Qualitative Description of Pre-Licensure Health Care Students' Experiences**

Ethics Approval	Original Approval Date: November 4, 2015. Renewal Date: September 28, 2016 Expiry Date: September 28, 2017

We are writing to advise you that the Research Ethics Board (REB) has granted continued approval to the above-named research study, for a period of **one year**. Please note that approval is based on the following:

a) The REB must be informed of any protocol modifications as they arise.
b) Any unanticipated problems that increase risk to the participants must be reported to the REB immediately.
c) The study is approved for one year: if needed, apply for a renewal before the expiry date.
d) A study completion form must be submitted to the REB upon completion of the project.

The following documents have been approved for use in this study: the information letters and consent form.

Please quote your REB file number (6004173) on future correspondence.

Best wishes for the successful completion of your project.

Yours sincerely,
Barbara Godfrey
Barbara Godfrey RN, MScN
Chair, Research Ethics Board
cc: Applied and Institutional Research, George Brown College

It is the responsibility of the Principal Researcher to keep the file complete and up-to-date at all times.

Applied and Institutional Research

Research Ethics Board

September 28, 2017

Dear Ms. Williams,

RE: REB file # 6004173 Title**: Simulated Teamwork: A Qualitative Description of Pre-Licensure Health Care Students' Experiences**

Ethics Approval	Original Approval Date: November 4, 2015. Renewal Date: September 28, 2016 2nd Renewal Date: September 28, 2017 Expiry Date: September 28, 2018

We are writing to advise you that the Research Ethics Board (REB) has granted continued approval to the above-named research study, for a period of **one year**. Please note that approval is based on the following:

a) The REB must be informed of any protocol modifications as they arise.
b) Any unanticipated problems that increase risk to the participants must be reported to the REB immediately.
c) The study is approved for one year: if needed, apply for a renewal before the expiry date.
d) A study completion form must be submitted to the REB upon completion of the project.

The following documents have been approved for use in this study: the information letters and consent form.

Please quote your REB file number (6004173) on future correspondence.

Best wishes for the successful completion of your project.

Yours sincerely,
Barbara Godfrey
Barbara Godfrey RN, MScN
Chair, Research Ethics Board
cc: Applied and Institutional Research, George Brown College

It is the responsibility of the Principal Researcher to keep the file complete and up-to-date at all times.