# Describing student threshold learning experiences in interprofessional contexts: A phenomenographic study

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By
Natasha Hubbard Murdoch MN CMSN(C) RN

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University of Saskatchewan
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Abstract

The purpose of this research was to describe the threshold concept of interprofessionality. Threshold concepts are often troublesome learnings but, once understood, transform the way students see the world. Interprofessionality is the deployment of innovative team knowledge toward a common goal at the crux of education and practice and is based in values and professional codes. Thirteen healthcare students from eight different professional programs relayed their experiences of working with others from 15 different healthcare backgrounds about crossing the threshold from a uniprofessional bounded perspective to interprofessional learning and working. This threshold was an a-ha!-moment or significant learning experience. The method employed was phenomenography based in a social constructionist epistemology. Phenomenography is research into how humans experience phenomena through the creation of a unique hierarchy of categories based on the similarities and differences in student learning from superficial to deep. The participants were a convenience sample of students from three educational institutions in Saskatchewan. Students were invited to share a reflective writing or be interviewed regarding an interprofessional experience that included a patient. Students were interviewed in a stepwise approach with the subsequent student contributing to category development as each interview was aggregated. Students reported on serendipitous learning opportunities but also provided critique of the limited structured experiences available within their educational programs. The student experiences reflected the liminal chaos of being a healthcare student, moving through the stages to becoming a professional. The phenomenographic categories reflect student conceptions of their interprofessional learning about the patient experience from individual through community to global interactions. The short names for the four learning steps were: 1) community vision, 2) leadership expectations and obligations, 3) trust and value, and 4) ‘connect the threads.’ Emerging from this phenomenographic outcome space, which was the threshold moment of interprofessionality, was the resultant ontological shift, the change in worldview from being a student to becoming an interprofessional team member. This research led to conclusions about authentic structured IPE for students as a bridge between education and healthcare settings, differentiating the experience of being a student or a healthcare student, and the delivery of patient care or patient-centred care.

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….look what you started

To Laura and Thomas

No two better people to discuss philosophy with...love you!

Brian

❤the life we build❤

*Few people have the imagination for reality*

- Johann Wolfgang von Goethe

*It's OK to be a glowstick,*

*sometimes we have to break before we shine.*

- Anonymous

Table of Contents

List of Tables

List of Figures

## Chapter 1: Introduction

There is a recurring argument about labelling interprofessional education (IPE) and the most accepted definition is when diverse student or practitioner groups learn with, from and about each other in the contexts of health and education with the purpose of providing quality care for patients, families and communities (Centre for Advancement of Interprofessional Education [CAIPE], 2017). The use and meaning of words in this definition were not lost on healthcare students. In the study by Bainbridge (2008) of interprofessional health education, students representing nine different professions described learning as difficult because each word — with, from and about — reflected a complex learning process with a range from superficial to deep engagement. Additionally, practitioners attending the Global Forum on Innovation in Health Professional Education (Institute of Medicine [IOM], 2013) focused on transdisciplinary professionalism, defined as "an approach to creating and carrying out a shared social contract that ensures multiple health disciplines working in concert, are worthy of the trust of patients and the public" (IOM, 2013, p. II-2). Both definitions highlight the struggle to combine education, practice and community, which means allowing practitioners to retain a sense of professional identity while sharing a transcendent ideology (IOM, 2013). In retrospect, decades before this iteration of IPE being defined as with, from and about, Hammick (1998) encouraged the recontextualization of professional knowledge into collaborative practice.

By applying the sociology of pedagogy by Bernstein (1996), Hammick (1998) extrapolated that the power of a profession rested in its organized body of knowledge; the creation of clear boundaries between other professions and the concomitant ability to insulate itself. Bernstein (1996) described this process of boundary building as, "how power relations are transformed into discourse and discourse into power relations" (p. 12). In even earlier work than Berstein and Hammick, the World Health Organization (WHO, 1988) reported awareness that during education programs, students were taught to think and encouraged to focus on a view of health that was either physical, mental or social. WHO (1988) stated, despite knowing the *scope* of the definition of health, students "actually practice as though their beliefs were narrower" (p. 14). Therefore, the suggestion is that health education programs encouraged a narrow focus for each discipline to assist students to articulate their value as a provider, albeit to solidify the worthiness of that profession (Khalili, Hall, & DeLuca, 2014). Students must exhibit confidence in their clinical judgment according to their discipline because whether working individually or

on a team, that contribution is how they will be judged by other professions (Falck, 1977). Authors have surmised that this withdrawal into disciplinary boundaries was a way of no longer being considered in a 'handmaiden' role to medicine and was also an expected phase in development of a profession (Kane, 1975; Rogers, 1932; Witz, 1990) including a method to attain legitimization through autonomy (Baldwin Jr., 1996/2007; Kane, 1975; Salhani & Coutler, 2009). The resultant paradox is that learners have always been expected to contribute as individuals and as group members, where the learned behaviours involve "adaptations to each other's differences around such variable [sic] as profession, method, use of knowledge, skill, and professional goal" (Falck, 1977, p. 36). Proponents of familiarizing students to interprofessional education continue to cite the adage, learning as a team assists in working as a team (Barr, 1998; Freeth, Hammick, Koppel, Reeves, & Barr, 2002; Hammick, 1998; Romanow, 2002).

Learning to collaborate is a process as well as an outcome (Goldman, Zwarenstein, Bhattacharyya, & Reeves, 2009). In completing a scoping review on IPE and interprofessional collaboration (IPC), Goldman et al. (2009) suggested a move from educating with individualistic psychological theories to sociocultural complex learning in teams. Changing the pedagogical approach may assist the change from teaching in silos to integrating IPE into curricula as "it is incumbent upon health professional educators to determine whether IPE competencies are competencies that all health professional students must share" (Oandasan & Reeves, 2005, p. 31). Faculty embody the cross-over between the health and education contexts, by the nature of their roles as educators and professionals, and therefore require understanding of the student experience of learning interprofessionality to be able to facilitate those experiences.

In this chapter I provide an overview of this dissertation. First, I define the nature of interprofessionality. I introduce the concept of liminality as an experience of crossing a threshold and bounding the learning experience. I provide a statement of the research problem, delimit the research gap, and offer the purpose and research questions, as well as suggesting the significance of the dissertation.

## Interprofessionality: Threshold Concept

Despite a differentiation between academia and practice, both contexts struggle to integrate IPE. Frodeman (2013) stated, "higher education is on the cusp of major transformation, driven by the defunding of the public university, technological innovation, and changing societal expectations. Cost overruns, privatization, and the Internet are undermining the twentieth century

model of higher education" (p. 1922). Collaborative health education has been viewed as an 'expensive luxury' which is perceived as undermining "professional autonomy and disciplinary identity" (Baldwin Jr., 1996/ 2007, p. 28) as well as minimizing the focus on specialized versus generalized knowledge. Health practice transformation is required to meet the inadequacies of the current system exhibited by inadequate staffing, the escalating cost of healthcare, low community engagement and poor patient outcomes (Baldwin Jr., 1996/ 2007; O'Brien-Pallas, Tomblin Murphy, Shamian, Li, & Hayes, 2010; WHO, 1988). Over the last 60 years, the most sustainable health teams were created for ideological reasons, especially increasing access to care for community, geriatric, rural or veteran populations (Baldwin Jr., 1996/ 2007). Rather than the pragmatics of developing teams, both education and health contexts require a refocus on the ideals of collaboration through interprofessionality.

Interprofessionality is "innovative knowledge deployment" (Brooks & Thistlethwaite, 2012, p. 405). Interprofessionality was considered an emerging concept described as a counterpoint (Royeen, Jensen, Chapman, & Ciccone, 2010), or an interdependence between education and practice with "unique characteristics in terms of values, codes of conduct, and ways of working" (D'Amour & Oandasan, 2005, p. 9). Practitioners strive for a common purpose, commitment to the team and respect for others including the patient. This team identity, based in practice, connotes innovative working and marks interprofessionality as a different concept from interdisciplinarity.

But how is interprofessional working defined? Most definitions "fail to capture the underlying complexity of working across disciplinary boundaries" (Brooks & Thistlethwaite, 2012) and lack the required criteria for professionals to work well together and the systems to support collaborative working. Building on the movement away from the focus on uniprofessional roles, Brooks and Thisthlethwaite (2012) suggested that interprofessionality is co-configuration work that has an element of organizational disruption — where professional values have a higher priority than the structure of systems. Therefore, they suggested that rather than consensual collaboration which encourages teamwork and minimizes tension, yet perpetuates the status quo of professional boundaries, an element of conflictual collaboration promotes transformative practice.

Interprofessionality, then, is a threshold concept; a core learning outcome which transforms the way a student understands and interprets a concept, subject or worldview (Meyer

& Land, 2003). More than a core concept, which is a building block required to progress in knowledge development, Meyer and Land (2003) stated a threshold concept is similar to a portal, the opening of a previously locked door to an understanding that is transformative, irreversible, integrative, bounded and potentially troublesome. Davies (2006) suggested that threshold concepts denote a way of thinking and practising that is more than just applying or understanding concepts. He stated this way of thinking is how members see and experience their community. The binding of thinking and practising is "the way in which [key professional] concepts are related, the deep-level structure of the subject which gives it coherence and creates a shared way of perceiving that can be left unspoken" (Davies, 2006, p. 71). This community ideology must be learned to gain entrance as a member but can prove troubling to learn and teach. Troublesome knowledge may be conceptually difficult, an alien perspective, or at a level of complexity such as tacit knowledge (Perkins, 1999). Davies (2006) believed there are distinctive ways of thinking and practising which was often left tacit and it is the role of the educator to assist students to recognize those tacit concepts. Teaching students to connect abstract concepts to real world situations is a crucial function but difficult to factor into disciplinary learning environments (Meyer & Land, 2003).

**Liminality**

Learners who are unable to understand threshold concepts may remain in a state of liminality; an ambiguous or suspended state (Meyer & Land, 2003) often described as being betwixt and between (Turner, 1967). A concept originally from anthropology, liminality was described as a process through tribal rites of passage for youth becoming men. The three phases of liminality are separation, margin and aggregation and oft cited examples include cultural, religious or social experiences of becoming, analogous to entering or leaving a community, such as being birthed, religious ceremonies, or death rituals. Individuals are separated from who they were prior to entering a state of change, cross the threshold, and then are reconstructed within a new world view, leaving the past behind. "During the liminal period [individuals] are alternatively forced and encouraged to think about their society, their cosmos, and the powers that generate and sustain them" (Turner, 1967, p. 53) breaking up the process into constituent parts, questioning and then repatterning to a coherent whole. Therefore, passage through the liminal threshold is "a source both of creativity and critique of the prevailing forms of thought and being" (Palmer, 2001). Similar to youth learning to become community members, learners

on the cusp of the threshold may mimic or portray a lack of authenticity as either a way of testing the future role (Oandasan & Reeves, 2005) or to reveal misunderstanding (Royeen et al., 2010). Alternatively, through the threshold, learners redefine the boundaries of their knowledge to embody and integrate threshold concepts. In this case, through interprofessionality, students no longer mimic teamwork as in multiprofessional working, but collaborate, communicate and co-configure teams.

**Statement of the Problem: The Threshold Moment**

The relationship between attaining the threshold and progressing through liminal stages is depicted in Figure 1.1, the threshold concept framework (Meyer, Land & Baillie, 2010). Linearly represented the student encounters troublesome knowledge in the preliminal or separation phase. As the student reconfigures the newly integrated knowledge, in this marginal phrase, an ontologic shift occurs. The resultant transformation is revealed through irreversible knowledge translation that is exhibited as bounded ways of thinking or practicing as a re-aggregated professional. This process, however, is not necessarily linear. As stated, students may not attain the threshold becoming 'stuck' in a preliminal phase or oscillating between and amongst phases until the threshold concept is understood. The threshold moment, as depicted, is within the liminal phase with dynamic tendrils dynamically reaching through and spreading across phases.

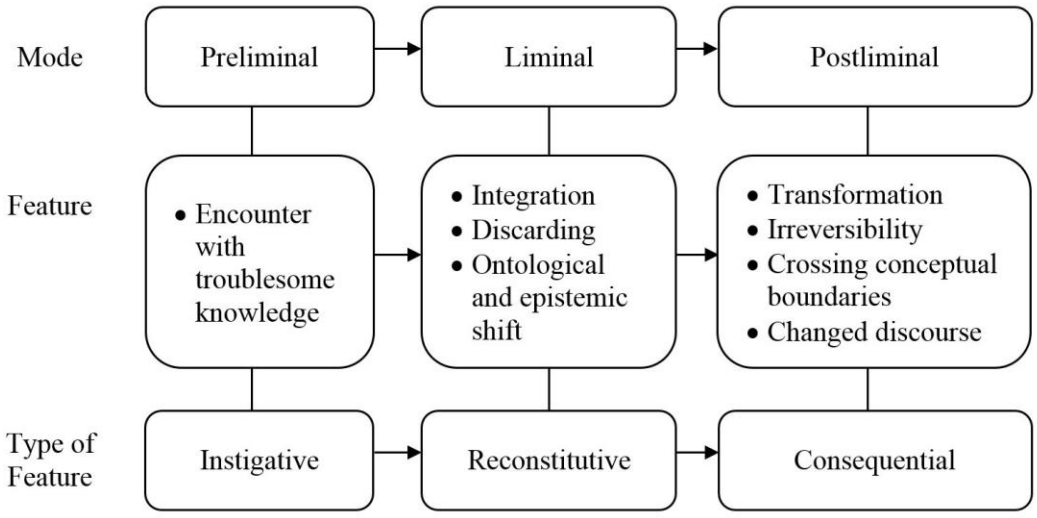


Figure 1.1. *The relationship of liminal phases to threshold concept criteria.* From "Editor's preface: Threshold concepts and transformational learning," by R. Land, J. H. F. Meyer, and C. Baillie, in J. H. F. Meyer, R. Land, and C. Baillie (Eds.), *Threshold concepts and transformational learning* (p. xii), 2010, Boston, MA: Sense Publishers.

Those students who attain the threshold may have mixed emotions. In describing the liminal threshold, Palmer (2001) stated, "truth or insight may be a pleasant awakening or rob one of an illusion; the understanding itself is morally neutral. The quicksilver flash of insight may make one rich or poor in an instant" (p. 4). The feelings before and after this transformative learning moment may be memorable, but the student may not realize what specifically was learned, just that an important moment was reached. Royeen et al. (2010) stated that health education should allow "students to experience that 'A-ha!' moment, after which they cannot imagine the provision of health care from any perspective other than one of interprofessionality" (p. 252). There is a gap in the literature and research between interprofessional learning (IPL) activities and the student experience of liminal interprofessionality in health education.

## Delimiting the Research Gap

Interprofessional education in Canada (Gilbert, 2010) began with the first initiative in the 1960s and spread to become movements in the UK and the US in the 1970s, through the first set of national funding at the turn of the century. The policy initiative, Interprofessional Education for Collaborative Patient Centered Practice (IECPCP) had objectives to promote and demonstrate the benefits of IPE, increase educator preparation and capacity, increase the number of trained health providers in IPE, stimulate networking and knowledge transfer and facilitate collaboration in education and health settings (Gilbert, 2010; Oandason et al., 2004). The next step was the development of the Canadian Interprofessional Health Collaborative (CIHC), which, because of initial federal funding began 'mainstreaming' IPE, culminating most recently in a national competency framework (CIHC, 2010). The six competencies within this CIHC framework reflect the education and socialization efforts of researchers and educators worldwide, best evaluated in a review "to develop a theoretically based and empirically tested understanding of IPE and [interprofessional collaboration]" (Reeves et al., 2011, p. 168). The six competencies in the CIHC framework are: role clarification, collaborative leadership, interprofessional communication, interprofessional conflict resolution, team functioning and patient/client/family/community centred care. The interprofessional framework maps interventions for education, practice and the organization, from pre-practice to practice and levels outcomes from intermediate (the intervention itself), to the patient and for the system. This empirical framework begins to address the issue of proving whether IPE has a direct impact on the patient experience.

The current focus in IPE research worldwide is on this patient experience of collaborating in healthcare, improving population health outcomes and reducing healthcare costs (Brandt, Lutfiyya, King, & Chioreso, 2014). Research and education shifted to understanding the types of IPE appropriate for context (Freeth et al., 2002) and student cohorts. A unique review covered the models of IPE for university-based allied health programs, specifically addressing student characteristics and context (Olson & Bialocerkowski, 2014). The researchers suggested:

> re-imaging IPE as a process moves the research agenda away from single factor cause-effect thinking towards understanding how different types of IPE produce different types of outcomes within the particular learning environment and how these lead to long-term behaviour and system changes. (Olson & Bialocerkowski, 2014, p. 243)

Their primary concern was that IPE modules are focused on medical and nursing students and these cannot be transferred to allied health students, or health and education delivery models.

Within the context of healthcare education there is a newness to threshold concept theory (Burchmore, Irvine & Carmichael, 2008). The appropriate definition of threshold concept was inconsistent in the literature, pointing to a lack of consensus on which characteristics are required to delineate a threshold concept. My study begins to address the gaps noted above by revealing the phenomenographical learning experience of healthcare students in interprofessional contexts with a patient centered focus.

## Study Purpose and Research Questions

The purpose of this study was to explore healthcare student threshold learning experiences within the context of interprofessional education. Questions which guided the research include the following:

1. What were the experiences of students, in specific situations, in which there has been a threshold moment?
2. What was the context before and after the threshold moment?
3. What were the individual experiences of change associated with the threshold moment?
4. What were student perceptions of the significance of the learning experience (knowledge, skills, and appreciations)?
5. What subsequent reflection or change occurred among these students following the experience relating to their learning?

## Description of the Study

This study was a phenomenographic analysis from a social constructionist epistemological lens. Healthcare students were sequentially interviewed and invited to contribute to the development of four hierarchical categories showing their learning through an interprofessional experience, from superficial to deep. Analysis was performed by comparing similarities and differences of experiencing a threshold moment in the presence of a patient. The final set of four categories represent the learning steps students encountered to pass the threshold toward understanding interprofessionality. In phenomenography, the learning steps are set within an outcome space which encompasses the process of learning but also acknowledges the transformational change that occurs from the learning experience.

## Delimitations of the Study

Interprofessionality is conceptualized in the interprofessional education for collaborative patient centred practice (IECPCP) framework (D'Amour & Oandason, 2005). The interface between education and health systems is often the focal point for patient participation. The framework recognizes the micro, meso and macro level factors, including culture that impacts and is impacted by, both systems as well as the individuals working and learning within. D'Amour and Oandason (2005) note that educators and students should reflect on culture and values but also note that rigorous research would lead to rigorous conceptualization of the components of this framework. My study was delimited to the healthcare student experience at the micro level describing the variety of contexts rather than organizational and systemic cultures as a way to narrow the focus of the study to learning.

The results of this study are delimited to the phenomenon of the threshold moment within the context of interprofessional learning for 13 healthcare students in Saskatchewan who attended one of the three main educational institutions. Saskatchewan is a province with approximately one million people with the two largest urban settings being inclusive of almost 60% of the entire population. Therefore, a large number of people live in rural and remote settings. The institutions are Saskatchewan Polytechnic (Sask Polytech), University of Regina (URegina), and University of Saskatchewan (USask), with respective yearly student enrolments of 12 400 (Saskatchewan Polytechnic Institutional Research and Analysis, 2018), 15 500 (University of Regina Office of Resource Planning, 2018), and 22 400 (University of Saskatchewan Data Warehouse, 2019). All three institutions deliver programs at multiple sites

across the province. There are also numerous regional colleges. The majority of healthcare students are enrolled in the seven programs at USask, the only medical university in the province. URegina has more programs related to community safety, including nursing and social work. Sask Polytech delivers certificate through diploma to degree programs for assistants and counselors, through technicians to the psychiatric nursing degree. Data were collected from April 2018 through February 2019. While participants were from across the province in mostly urban centres, the experiences described may be too few to extrapolate to a provincial view of healthcare education in the province. However, considering the lack of structured IPE delivered to healthcare students, this study was a useful snapshot of whether interprofessionality occurs.

### Limitations of the Study

Despite a plethora of approaches to recruitment and the large number of students in healthcare education programs across the province, a convenience sample of thirteen students was attained. The variety of experiences suggested an understanding of the threshold moment, even if serendipitous, rather than structured, learning occurred.

Phenomenography is traditionally employed in hard sciences and limited in use for health concepts. Interprofessionality is a complex construct that is defined by systems, contexts, and a multitude of individual personal and professional perspectives. Phenomenography allows for this variety in approaches to learning.

There was no structured acute clinical IPE experiences for any healthcare students in the province. There are two student-run clinics where an interprofessional approach is the focus. There have been a few community- or school-based interprofessional clinical or patient mentor experiences in the last decade which have struggled to be maintained without faculty champions. The majority of structured IPE is delivered through educational institutions with minimal if any patient involvement in design or delivery. The sustainable events include problem-based learning, SPICE, or the One Health Leadership conference. Research in specific learning contexts is further described in Chapter 2.

## Significance of the Dissertation

The significance of this dissertation is fourfold, having implications for educational practice, policy, theory and research. Despite the plethora of research in interprofessional education and practice in the last few decades, researchers continue to state that patient and/or system outcomes continue to be omitted in the evaluative literature (Reeves, Perrier, Goldman,

Freeth, & Zwarenstein, 2013). As well, the majority of literature is evaluative rather than knowledge creation or emerging outcome research (Freeth et al., 2002). The widely published experts suggested that positivist designs dominated, and more interpretive and critical research is necessary to "help to identify the contextual mechanisms for the impact of interprofessional education" (Freeth et al., 2002, p. 44). Thistlethwaite (2012) agreed, calling for constructionist underpinned studies answering research questions such as "How is professional identity constructed and experienced? How is collaborative practice developed and experienced? [and] What is the nature of interprofessionalism?" (p. 66). This dissertation addressed this interpretive constructionist gap by searching for interprofessionality as a threshold concept.

Believing that interprofessional education will eventually show a relationship to better health care and patient experiences, Brandt et al. (2014) touted the development of the Triple Aim strategy (Berwick, Nolan, & Whittington, 2008) in the United States. The Triple Aim highlighted the focus of interprofessional education and collaboration in its goal to create better health, better care and better costs. The intent was to "to fix the US healthcare system by simultaneously improving patient experiences of care (including quality and satisfaction), improving the health of populations and reducing the per capita cost of healthcare" (Berwick et al., 2008, p. 2). Because there was little research tying pre-qualification IPE to improved patient and team experiences in healthcare, this dissertation begins to address the connection between the student and patient experience.

To make that patient experience a more explicit focus, Thistlethwaite and Moran (2010) searched the literature for learning outcomes appropriate for interprofessional education. Those learning outcomes include "the patient's central role in interprofessional care (patient-focused or centred care), understanding of the service user's perspective (and family/carers), working together and cooperatively in the best interests of the patient, patient safety issues, recognition of patient's needs, [and] patient as partner within the team" (Thistlethwaite & Moran, 2010, p. 511). All the participants in this study worked with patients. However, four students in this study had threshold moments that were with patient actors or from a public health research perspective. Students were able to transfer that transformative learning to experiences they were having in clinical with patients. The interviews in this dissertation revealed the student experience of being with a patient to achieve interprofessionality.

Authors have stated that negative outcomes are rarely reported in the IPE literature, postulating that students may tie a negative educational experience to their perception of IPE (therefore suggesting that quantitative measures do not properly address both educational and interprofessional outcomes) (Freeth et al., 2002). Steinert (2005) stated that the 'learning together to work together' adage also relates to interprofessional education teams designing interventions for students that model collaboration and authentically address professional practice. To that end, she suggested three foci for faculty development: "a) interprofessional education and collaborative patient-centred practice, b) teaching and learning, [and] (c) leadership and organizational change" (Steinert, 2005, p. 66). Encouraging faculty development of excellence in teaching may result in positive learning experiences. This dissertation seeks to describe the threshold experience of interprofessionality, for in understanding the construct, educators may more appropriately design student experiences.

## My Nursing Background

My memories of my early nursing career are shaped by successful team environments. In long-term care, nurses listened to demands of coworkers, striving to enhance workflows *for* the chance to hear stories from the residents. On orthopedics, nurses shared the physical work of assisting others to relearn how to move, often with foreign metal tools; joints, crutches and wheelchairs. In oncology, nurses shared knowledge and emotion with a variety of team members, but most strikingly with patients and families. My work life has been a combination of good communication, everyone in the room had a voice, and acceptable decisions, which were based in well applied best evidence. The best teams ensure equal communication and problem-solving and shared power with the patient.

The next evolution of my career was teaching these fundamental nursing concepts such as listening, teamwork and the power of knowledge to affect a care plan. As I mastered my teaching of those concepts, education became about interprofessional rather than uniprofessional perspectives. My increasing involvement on education teams at Saskatchewan Polytechnic and the University of Saskatchewan which develop and deliver interprofessional problem-based learning (iPBL) has furthered my mastery from teaching to facilitating team concepts. I often feel that the PBL development teams exist to support faculty development, unlearning of uniprofessional skills, and support student attainment of what they already inherently know, strengthening of interprofessional skills. Current planned iPBLs for healthcare students in

Saskatoon, across Saskatchewan Polytechnic, the University of Regina and the University of Saskatchewan, are based in the concepts of community-focused family intervention, chronic obstructive pulmonary disease, First Nations health, HIV/AIDS, palliative care, student stress and are inclusive of students in the following programs: continuing care assistant (CCA), dentistry, disability support worker (DSW), medicine, nursing, nutrition, pharmacy, pharmacy technician, physiotherapy (PT), practical nursing, public health, social work (SW), veterinarian, and youth care worker (YCW) diploma. The significance of this scope is that interprofessional competencies are required of iPBL developers to share leadership and perform cross-boundary work to achieve successful student experiences. The knowledge required to successfully contribute to iPBL development teams with such a wide scope of healthcare experience and student variety has arisen out of my work (and/or personal experience) over the years in health and education with each one of these professional groups.

## Definition of Terms

For the purposes of this study and as a point of departure, several terms are defined.

***Health and Social Care Worker:*** "A wholly inclusive term which refers to all people engaged in actions whose primary intent is to enhance health" (WHO, 2010). This includes regulated, unregulated and support workers who engage in health promotion or prevention, conventional or complementary delivery of health services, diagnosis and treatment or health management.

***Healthcare student:*** An individual undergoing a program of preparation in any health or social care education program. According to Gilbert (2010), Statistics Canada reports over 65 different health professions and clinical science occupations which is commensurate with the definition of *health and social care worker*.

***Interdisciplinarity:*** The integration and synthesis of knowledge between disciplines; a process of creating new knowledge (Klein, 1990). Etymologically, the root word discipline relates to an academic field. The focus is the pertinence of knowledge and how it affects society (Frodeman, 2010). The prefix inter- serves to identify the boundaries and crossovers among disciplines. Alternatively, the suffix –ity is a quality or a state of being (Harper, 2019), and that quality is being engaged in learning about an academic field (Weingart, 2000). Therefore, from this etymological argument, the disciplinary context is typically learning, teaching and research in higher education (Brooks & Thistlethwaite, 2012).

***Interprofessionality***: "The development of a cohesive practice between professionals from different disciplines. It is the process by which professionals reflect on and develop ways of practicing that provides an integrated and cohesive answer to the needs of the client/family/population" (D'Amour & Oandason, 2005, p. 9). It involves continuous communication and knowledge sharing with optimized patient participation and interaction between team members whether in education or practice.

***Interprofessional collaboration:*** "A partnership between a team of health providers and a client in a participatory, collaborative and coordinated approach to shared decision-making around health and social issues" (CIHC, 2010, p. 24). Participant evidence of IPC during the threshold moment was described as patient or patient actor contribution, including advocacy, shared communication with another healthcare student or provider and an approach to care that was determined or changed because of the interaction with the patient and collaborators.

***Interprofessional education:*** The most widely cited definition of IPE was the object of a study in which students and faculty determined that each word used has particular meaning (Bainbridge & Wood, 2012). Incorporating the results of that study, the definition of IPE used for this dissertation is students learning about, with and from each other (CAIPE, 2017) with two caveats. First, that professional is widely defined, incorporating the World Health Organization definition of *health and social care worker*, and second, that the interprofessional team includes the patient. IPE is both a process and an outcome (Olson & Bialocerkowski, 2014).

***Interprofessional learning*:** "Learning arising from interaction between members (or students) of two or more professions. This may be a product of interprofessional education or happen spontaneously in the workplace or in education settings" (Hammick, Freeth, Koppel, Reeves, & Barr, 2007, p. 7).

***Interprofessional practice:*** "occurs when practitioners from two or more professions work together with a common purpose, commitment and mutual respect" (Interprofessional Professionalism Collaborative, 2011) to make "different, complementary contributions to patient focused care" (Leatherd, as cited in McCallin, 2001, p. 419). This term is used differently across the globe and remains inconsistently defined. For the purposes of this paper this term was used to also mean interprofessional working.

***Interprofessionalism****:* "The deconstruction of professional knowledge and identity and its recasting in new forms of knowledge and action" (Bines, as cited in Barr, 1998, p. 184). This is

best accomplished through a competency-based approach where the focus moves toward the attainment of collaborative skills which requires not just a focus on knowledge, but social engagement.

***Liminality***: The experience of passing through the three phases of separation, margin and aggregation (Turner, 1969). The separation phase is denoted by detachment from society structure. The second phase, crossing the threshold, is ambiguous and chaotic compared to the first and third phases. The final phase of passage is a re-aggregation with corresponding stability.

***Patient:*** The etymology of the word relates to suffering (Neuberger, 1999). A debated word and definition suggesting a submissive power relationship with health care providers, yet a word more descriptive of a relationship based on decisions supporting everyday health. Alternative words are client, customer, consumer, resident and user which all have unique connotations based on context (i.e., long-term care) or country. For consistency, this term is used throughout.

***Threshold concept*:** A core learning outcome which transforms the way a student understands and interprets a concept, subject or worldview (Meyer & Land, 2003). More than a core concept, which is a building block required to progress in knowledge development, a threshold concept is similar to a portal; the opening of a previously locked door to an understanding that is transformative, irreversible, integrative, bounded and potentially troublesome. The related notion of passing through the threshold moment is the experience discussed throughout this dissertation.

## Overview of the Dissertation

In this chapter I gave an overview of the field of interprofessional education and research including the continuing argument over terminology, the conceptualization of interprofessionality as a threshold concept and how that may be revealed through the liminal experience of healthcare students. In chapter two, I provide a literature review in three parts: the context of interprofessional education, which includes students and patients collaborating together, the experience of liminality in healthcare and the threshold concepts for healthcare students. Chapter three delineates the phenomenographic research design within a social constructionist epistemology with subsequent chapters reporting the findings (Chapter 4), and summary, discussion, and implications (Chapter 5).

## Chapter 2: Literature Review

The purpose of this study was to explore healthcare student threshold learning experiences in interprofessional contexts. The literature review is presented in three sections, interprofessional education experiences, liminality experienced in health care education and threshold concepts in health care education. The scope of literature in pre-qualifying interprofessional education is quite large and therefore has been narrowed in two ways. Because an exemplar in pedagogy and structure exists to create a highly authentic learning experience, the interprofessional training unit section is a thorough synthesis of its design and subsequent deployment across the world. For these interprofessional training units, the scope of literature culminated in the Canadian experience. Decreasing in authenticity, and because a multitude of student run clinics exist in North America, the literature was limited to Canadian design. Secondary to the Canadian experience, IPE literature was narrowed further and only included when reporting on the patient experience in some way.

The CIHC (2010) stated that patient-centred care was when the interprofessional team sought engagement and participation for creating a patient-practitioner partnership in the design and implementation of care. However, there is a diversity of ideas about what patient participation is for both patient and practitioner making the concept of participation elusive; negatively impacting the care relationship. The concept analysis of patient participation by Cahill (1996) differentiated a hierarchy that progresses from patient involvement/collaboration, through participation, to partnership where health providers work to acknowledge that the patient is a worthy contributor. The purpose of *involving* the patient is not a token act, but a response to patient dissatisfaction with care delivered in a bureaucratic and patronizing way that minimizes patient rights and the responsibility to take ownership of health outcomes. Cahill (1996) suggested that patient involvement is where the patient voice is elicited. Alternatively, patient *collaboration* is where the working relationship includes the patient in decision-making. The ultimate goal is patient partnership which suggests commitment, a contract and reciprocity (Cahill, 1996). For patients to be full partners in care, rather than the current gap of being recipients of care, Cahill (1996) stated that nurses must relinquish power and sense of clinical autonomy to focus on communication, facilitation and empowerment skills.

As the gap between patient and provider began closing in the late 90s, the realization arose that a similar gap existed within professional education programs. The professional health

culture promoted being responsible and accountable which often translated to control (Farrell, Towle, & Godolphin, 2006). For practitioners to enact partnership, they required an education foundation that mitigates the 'us versus them' dichotomy in care (Tew, Gell, & Foster, 2004). Focusing on patient-centred care changes both the culture of how education is delivered and the value base; rather than practitioners with expert knowledge, the patient is a partner in recovery. "The immediacy of input from service users [patients] and carers is likely to mean that students taught **by** users and carers will be equipped to work in a more effective or qualitatively different way than those taught **about** relating to users and carers" (Tew et al., 2004, p. 11). The 'patients as partners' philosophy in health education offers a more challenging and enriching learning environment within which patients value the chance to reconcile their understanding of their illness experience and students remember authentic patient narratives (Farrell et al., 2006).

In general, patient involvement in health student education is reported more often as *evaluation* of the process of increasing involvement rather than as an *outcome* (Rhodes, 2012). The five-step ladder of involvement (Tew et al., 2004) shows increasing participation by patients from "non-participation, to tokenism, to citizen control" (Rhodes, 2012, p. 186) where level 1, 2 and 3 move from no involvement through limited to growing involvement. Level 4 is collaboration where patients and carers are valued as team members, involved in multiple ways to plan or evaluate student experiences, are compensated as equals for their contributions, and receive training and support (Tew et al., 2004). Level 5 is partnership which is deemed to be systematic and strategic decision-making toward patient experiences in health student education which includes organizational infrastructure such as funding, induction, and employment contracts (Tew et al., 2004). As part of her concept analysis, Rhodes (2012) conceded that few programs evaluated in the literature achieve level 5 partnership although that might be the goal over time. Rhodes' (2012) concept analysis raised a question about the utility of interprofessional health student groups collaborating with patients as well as the implications for design of IPE placements.

Towle et al. (2010) warned against a tokenistic approach to partnerships which may promote stereotyping and highlight the higher education induced health hierarchy. In their recent review of patient involvement, the authors advocated for authentic active participation rather than the historical approach, stating, "patients have always been central to medical education, but have usually been used to provide passive illustrations of interesting conditions or as part of

students' experiential learning in clinical settings" (Towle et al., 2010, p. 65). The review used a taxonomy which included six attributes of patient involvement (degree of involvement, duration of contact, patient autonomy, training for the patient, patient involved in planning, and institutional commitment) in a matrix with six levels of educational engagement (paper based, standardized, shared experience, teaching or evaluating students, equal partners in education, evaluation, curricular development and at a sustained institutional level) (Towle et al., 2010). Every healthcare profession espouses patient-centred care (Towle et al., 2010), but students in practice placements are not collaborating, merely engaging with patients; this interaction represents a level 1 lack of participation because the attributes of patient involvement, including developing an authentic relationship and recognition of that contribution to education are not met (Rhodes, 2012). Therefore, a judicious approach was taken in excluding literature in this review. The focus of this literature review was on the pre-qualifying student experience of interprofessional education which involved and engaged patients in the experience.

## The Literature Search

This synthesis of the literature is described in three sections: the students' experience of interprofessional education, liminality in healthcare education and threshold concepts in healthcare education. The database Scopus was used. Narrowing the interprofessional literature was difficult because authors often do not differentiate pre-qualifying to practitioner IPE, or they comment on patient-centred care as a desired outcome but not on patient inclusion in IPE, and health education is varyingly described in unique combinations of allied health, medical, and non-medical programs. As well, interprofessional versus interdisciplinary are terms used with inconsistency. Therefore, the search included combinations of the following terms:

(inter*, multi*, trans*) and (*professional or *disciplinary)

Health student

Education

Patient experience

Pre-qualifying, pre-licensure, undergraduate

Post-secondary or higher education

The literature describing the exemplar interprofessional student experience, interprofessional training units (ITUs), was not limited by date, thereby showcasing the historical and contextual scope. Because ITUs were developed and continue to be delivered in the Nordic countries and

represent the most authentic interprofessional learning experience, the global literature was retained to show ITU development as it moved through different countries toward implementation in Canada. While ITUs, or similar such experiences, do not exist in Saskatchewan the literature presented outlined the significance of moving toward pedagogic authenticity. The remaining Canadian literature on student interprofessional experiences was limited to a decade. The final sections of liminality and threshold concepts in healthcare had so few results that neither date nor country were limited, but the context was limited to healthcare education.

Other than the section on interprofessional training units, inclusion criteria was research or program evaluation that addressed student and/or patient response. Excluded were any IPE events that did not include the patient voice, such as case-based or problem-based learning and simulation. The literature is presented in three sections because no one study was found describing the interprofessional threshold concept, with corresponding liminal transition, for pre-qualifying healthcare students.

## The Student Experience of IPE

Two subsections were expounded in this literature review: 1) IPE in experiential learning settings, where students met patients in clinical environments, and 2) IPE in educational settings, where the perception was that patients met students in a learning environment. Interprofessional education in experiential learning settings was split into areas of focus: 1) interprofessional training units, 2) student run clinics, 3) acute care placements, and 4) community-based placements. Again, for the chosen literature, the patients in these settings have varying levels of engagement, from passive recipients of care, to evaluating student care, to assisting with design.

### IPE in Experiential Learning Settings

Healthcare education is driven by clinical experience where students can practice and receive role modelling on skills, behaviours, and interactions with patients and other providers. Since the majority of student time is directed at clinical which is often specifically tied to patients, the literature was reviewed for IPE in experiential learning settings. Interprofessional teams with a variety of members and increased accessibility were found in urban institutional settings. The following literature presents the exemplar interprofessional learning experience first, the interprofessional training unit, followed by examples of IPE in settings which have less

authenticity in the design. The exemplar chosen is based on the previous section on the taxonomy of patient involvement and engagement in interprofessional education.

**Student teams on interprofessional training units.** Interprofessional education can be designed for education settings and simulation but the most authentic learning of interprofessional practice is on interprofessional training units because work-based learning:

> in a dynamic real-time context where the students under supervision of trained staff are considered as professionals in a team, can provide the students more powerful learning scenario because they in such a setting have the possibility to assess the patient needs and act from these when providing care for the patients. (Jakobsen & Hansen, 2014, p. 407)

This section of the literature gives a very explicit focus on the development of interprofessional training units in their birthplace, the Nordic countries, followed by the subsequent uptake elsewhere, ending with the only two examples which exist in Canada.

***Nordic experiences.*** A mandate from a government educational department required healthcare students to have interprofessional experiences in their training and this led to the creation of interprofessional training units (Hylin, Nyholm, Mattiasson, & Ponzer, 2007). The foundation of interprofessional training units (ITUs) worldwide is Linkoping which has been the structure and epitome of interprofessional prequalifying clinical goals for all other units noted in the literature. The Faculty of Health Sciences in Linkoping, Sweden (Wahlström, Sanden & Hammar, 1997) has integrated IPE for over twenty years which began with a 10-week course for all students to learn health, ethics and the 'conditions of life,' and culminated in a two-week rotation on an interprofessional training unit.

This mandatory two-week clinical placement has teams comprised of one to two medical students, two to three nursing students, one physiotherapy and one occupational therapy (OT) student (Wahlström et al., 1997) with other settings creating teams dependent on the context and availability of professional students such as SW (Lidskog, Löfmark & Ahlstrom, 2007). For the majority of ITUs, the student team works with older adults who have undergone surgery for hip fracture or knee replacement on an orthopedic or rehabilitation ward because it is a priority to rehabilitate clients back to their previous level of functioning. These teams are generally supervised by an orthopedic consultant (also university faculty), a junior orthopedic surgeon and a nurse who are accessible full time, with occupational and PT available part time. Alternate contexts and patients included the emergency room (ER) for assessment of orthopedic conditions

(Ericson, Masiello & Bolinder, 2012) and long-term care (Lidskog et al., 2007). Student teams were responsible for the care of five to twelve patient beds which were a section of the larger institutional ward. This section had its own workspace for student teams which did not obstruct the flow of patients or work on regular wards. In general, the daily routine included team planning, prioritizing care, and taking part in rounds, followed by team contributions to general nursing care, profession specific tasks, then team debriefing. Care conferences were organized for reporting between student groups on the next rotation. The goal of the ITUs was for students to leave the ward realizing "teamwork is the most natural method of working, and the benefits of working without prestige barriers and across professional boundaries [would] become evident" (Wahlström et al., 1997, p. 428). The basic pedagogical tenet was that the quality of care never dropped below what any patient would receive on any other ward.

The instructional design of the units was focused on integrative learning strategies (Wahlström et al., 1997) that assisted students to differentiate and discuss their professional roles and responsibilities (Fallsberg & Hammar, 2000) but also assist them to move from novice to expert in their awareness of interprofessional competencies. Integrative learning strategies included small group learning and working, because IPE can be learned from others, but cannot be taught (Wilhelmsson et al., 2009), or teamwork strategies such as dialogue, reflection and sharing care. Students appreciated time to discuss team performance, collaboration, and management of patient cases as this impacted their ability to meet goals of the clinical placement (Ericson et al., 2017).

Integrative learning strategies led to a process of development of interprofessional competencies. This development was promoted on ITUs through learning of 1) the student's individual professional identity, 2) understanding the roles of other professionals, and 3) awareness of the team as a bounded entity (Lindh Falk, Hult, Hammar, Hopwood & Dahlgren, 2013).

*Developing professional identity.* The value of an ITU in particular to develop a student's professional identity was noted in a study where students were asked whether they perceived they had achieved competence in interprofessional working with a focus on understanding individual and other professional roles (Hallin, Kiessling, Waldner & Henriksson, 2009). All students gained increased clarity of their own role, which is highly significant since all groups, but medicine were in their *last* rotation. "These findings strengthen the assertion that acquired

knowledge, skills and attitudes differ between IPE and uniprofessional education" (Hallin et al., 2009, p. 156). Depending on the health and education contexts, IPE may be the first opportunity to expose professional roles to others. In articulating their role to others, students can strengthen the understanding of their own professional identity.

The increased awareness for students of the roles of others arose in unexpected situations as compared to the expected experiences that occur in their own profession. Ponzer, Hylin, Kutsoffsky, Mattiasson and Nordstrom (2004) reported medical students complained about a lack of autonomy in IPE and postulated this arose from receiving less attention than other members of the team such as OT. The goal for OT was prioritizing patient independence for discharge home. Medicine perceived the patient role as less important possibly because patient autonomy was not championed in medicine as compared to other professions like OT. The researchers stated this question "illustrates one of the cultural differences between the four professions involved" (Ponzer et al., 2004, p. 735) and hence highlights how dealing with conflicting roles in interprofessional and patient interaction can redefine partnerships.

Qualitative findings were reported in another study with a key theme being students moving from chaos to clarity in their personal, professional and interprofessional development (Hallin & Kiessling, 2016). Students gained self-confidence in taking responsibility for patient care and gaining a comprehensive view of practice but Hallin and Kiessling (2016) stated students had to adapt to a feeling of professional security in working on a team. Students were required to work through prioritizing their own professional responsibilities within team expectations.

*The roles of other professionals.* The second level of development is understanding the roles of others (Lindh Falk et al., 2013) often learned in comparison to a student's own professional identity. A series of unique studies, on understanding the roles of others as key to professional and interprofessional identity development, need to be singled out as no other study has described students' perceptions of others. The first study by Lidskog et al. (2007) determined that, "to learn is to change one's conception of, in this case, different professions" (p. 388). A variety of categories were revealed for each professional group from the interviews by Lidskog et al. (2007). Some students described the other professions based on tasks or the relation to the team while others describe the profession based on perspectives and the role of the patient. The description of nurses included their focus on medical tasks and getting them done at the expense

of caring. Even though the patient was described as the focus of care, the nurse arose as the actor to help, putting the patient in a passive role. The descriptions of occupational therapy students were about being task focused and practical. Their goals were toward better functioning instead of managing life, which made their wish to train in conflict with the patient's wishes. However, they were perceived as positive and always emphasizing possibilities. The setting, or arena for OT practice was on life outside the care environment, whereas for nurses it was in the moment at the bedside. Social workers were perceived as being directed by laws and guidelines and had a public authority. Patient wishes were the point of departure for SW and the arena was the social life of the patient. Student groups perceived that SWs could not make judgments without the contributions of others as they were dependent on medical insight and care. The researchers concluded that seeing the tasks of professions is not enough and can jeopardize collaboration.

Negative stereotyping can occur when learning is not balanced between professional and interprofessional identity development. The ultimate effect is reduced quality of patient care when the focus should be the role of the patient in planning and "the aim should be to see each other as resources in striving for high-quality patient-centered care" (Lidskog et al., 2007, p. 397). However, positive changes in attitude can occur on an ITU and may be the result of stereotypical views being challenged through reflection and discussion (Jakobsen, 2016), for example, whether other professions are caring versus subservient (Jacobsen & Lindqvist, 2009).

Stereotyping and social categorization can be positive and is useful to establish interprofessional identity (Jacobsen, Fink, Marcussen, Larsen & Baek Hansen, 2009; Lidskog, Löfmark, & Ahlstrom, 2008). Analysis in the second study by Lidskog et al. (2008) was on comparing ways of conceptualization but individually, rather than aggregate as in the first study. The researchers stated that "the members of each professional group need to be seen by others as they see themselves, at least with respect to valued characteristics where they see themselves as distinct from other groups" (Lidskog et al., 2008, p. 522), termed mutual differentiation. The researchers argued that students should feel professionally distinct, but that professional distinctiveness could be accomplished in comparison with others as this was a way to discern both the professional and interprofessional roles. The most obvious change in conceptualization, during this study, was in perceptions of SW students because their role was not as well known previous to the IPE experience. The focused learning outcomes on an ITU need to be on having

students ask questions of each other because these findings indicate that conceptions can be changed through IPE.

*Bounded teamwork.* The third level of development promoted by ITUs is interprofessional teamwork or understanding the team as a bounded entity (Lindh Falk et al., 2013). Working together and decision-making for the patients' interests provided a challenge of caring for patients as a team while still learning and implementing profession specific responsibilities (Lindh Falk et al., 2013). This continuous back-and-forth between unexpected and expected was referred to as a boundary zone, where the students struggled to negotiate their learning. Students learned about their own profession by experiencing a broader view and taking responsibility in working for others. Ultimately, students moved from their own professional view to focusing on a well-functioning clinical pathway for the patient (Jacobsen & Lindqvist, 2009). Students often perceived unexpected responsibilities on ITUs. This required student teams to negotiate boundaries. The resultant frustration may be because clinical educators were teaching from a traditional healthcare framework but also expecting the students to think non-traditionally. The implication of that statement is that interprofessional principles need to be deeply embedded in educational experiences to decrease the ambiguity for student learning and educator delivery.

However, a study by Ericson et al. (2012) in the emergency room utilized the ambiguity inherent in patients without diagnoses to show the strength of interprofessional teamwork. "The inflow of undiagnosed patients with a variety of complaints can give the students ample opportunities to collaborate on how to best address the patient's care on the basis of their different professional perspectives" (Ericson et al., 2012, p. 324). Medical students obtained profession-specific training moreso than others and made positive comments about team training, gaining responsibility and independence and learning about roles probably because there is constant participation of a physician in outpatient ER as compared to the other wards. The researchers do state that the prerequisite for teamwork is knowing one's own and each other's roles and competencies and this can only result from experiences where the "ability to assess one's own earlier knowledge and preconceived notions" (Ericson et al., 2012, p. 325) is attained.

These transformational learning ideas were corroborated in three studies which included longitudinal or retrospective evaluation by practitioners who had completed prequalifying IPE (Hylin et al, 2007; Jakobsen, Baek Hansen & Eika, 2011; Pelling, Kalen, Hammar & Wahlström,

2011). Hylin et al. (2007) found that all graduates had experienced interprofessional collaboration in the workplace and had found it stimulating. Participants suggested that early exposure to IPE might help students find their professional role in relation to others and help them with the connection to where they will work as practitioners. In another study, students prioritized uniprofessionalism, followed by interprofessionalism, then developing a professional identity as the most important learning outcomes, while alumni saw professional identity as the most important learning they gained from the ITU, followed by interprofessionalism then uniprofessionalism (Jakobsen et al., 2011). Finally, Pelling et al. (2011) found that medical students two years after graduation rated their ability to cooperate higher than those who did not participate in a training ward during their pre-qualifying education. These analyses indicated that while most practice environments may not yet be attuned to interprofessional working, students do strengthen their professional identity which prepares them for IPC when it does occur.

After decades of delivery, evaluation of ITCs showed consistent student development of professional identity, understanding roles of others and understanding of the interprofessional team as an entity in delivering care. The ITU, as a clinical approach, has become a well-designed pathway for patients. While most IPE studies have difficulty showing impact on patient outcomes, there was one study on the cost effectiveness of an ITU for treating patients as compared to a traditional ward (Baek Hansen, Jacobsen, & Larsen, 2009). The researchers for this study found that whether on a traditional ward or on an ITU, as long as the structure, principles, and pedagogy existed, an interprofessional approach provided more cost effective and potentially more efficient patient care. The study used a randomized concurrent intervention design where for the ITU, the organization was the same as a traditional orthopedic ward and the discharge criteria for patients was similar. The researchers used an activity-based cost analysis to look at 1) care, 2) rehabilitation, 3) diagnosis and treatment, 4) instruction and guidance, and 5) hotel management. The effect of the intervention was calculated by looking at the change in health-related quality of life (HRQoL) from preop to the three-month postop visit for particular orthopedic patients and their length of stay. The result was a significant and clinically relevant lower cost of $375 EU per patient for the ITU compared to the traditional ward. There was no significant difference in effect on HRQoL between the two patient groups. However, the patient path was more effective and less costly on the ITU, probably because of optimization of the process on the ward for the interprofessional education experience.

The link between IPE and patient outcomes may be weak because the ITU is less complex; more acute patients reduce the capability for the interprofessional teams (Baek Hansen et al., 2009). However, the ITU created favorable outcomes for patient stay and in clinical education. There was more opportunity for students to assist with patient mobility during the day which meant they went home more functional sooner. In this care environment "the students rapidly adapt to the skills needed for treating the patients because they are spared the complexity of several different patient types and patients with very complex and multiple diagnoses" (Baek Hansen et al., 2009, p. 240). Ultimately, students who had attained the level of interprofessional teamwork development impacted the economic, social and individual outcomes for patients.

The Nordic ITU experiences highlight the exemplary nature of for both quality pedagogical design and quality healthcare for patients. The ITU design has been enhanced for different environments when it was developed for other countries including the United Kingdom, Australia and finally Canada. Researchers have tended to focus on incorporating patient and caregiver evaluation into the ward design and reports.

***United Kingdom.*** Three studies evaluated unique ITUs in the United Kingdom (Dando, d'Avray, Colman, Hoy & Todd, 2011; McGettigan & McKendree, 2015; Reeves & Freeth, 2002; Reeves, Freeth, McCrorie & Perry, 2002). There were a wide range of student cohorts from 36 students in six teams on a 27 bed orthopedic ward (Reeves & Freeth, 2002), to 59 self-selected students for a palliative care rotation (Dando et al., 2011), to almost 400 students that rotated through 18 inpatient and 10 outpatient day beds on a rehabilitation ward (McGettigan & McKendree, 2015). Students were from medicine, nursing, OT, PT professional groups. All three studies looked at the impact of this learning environment on students and patients while one also assessed staff (McGettigan & McKendree, 2015) and one assessed faculty (Reeves & Freeth, 2002; Reeves et al., 2002). As per the previous evaluations of the Nordic experiences, similarities were found.

There was a mismatch between professional and interprofessional expectations in London. To begin with, the unit work seemed too focused on nursing care and not an authentic experience for all the students (Reeves & Freeth, 2002). Medical students in particular felt they were expected to be house officers and the associated anxiety affected their willingness to attend rounds or participate in the same care that the other students were giving. Students in OT and PT did gain from teamwork with nurses, but nursing students were concerned that the perception of

nursing work would be skewed based on this short two-week placement. In contrast to the Nordic ITUs, the placement seemed to be too short to create collaborative relationships or help the students focus on interprofessional rather than professional objectives. Ultimately, the student experience seemed to be affected by structure. The patients, however, were positively impacted stating they were more satisfied with the care, albeit that may have related to having more people on the unit to interact with and patients loved the student enthusiasm. Patients did state that student performance visibly improved over two weeks (Reeves et al., 2002).

Unit functioning was assessed through standard measures of care including length of stay, which was stable (McGettigan & McKendree, 2015). Student questionnaire results showed teamwork and patient-centredness increased and professional identity scores decreased which reflected increased readiness for interprofessional working through a decreasing sense of boundaries. Unique from the Nordic experience was the staff evaluation. The focus groups with staff revealed post experience themes of, 1) enjoyment, 2) learning in both directions, and 3) pride in ward performance (McGettigan & McKendree, 2015). Families also appreciated their quick access to care staff. These multi-perspective evaluations show the complexity of interprofessional learning and working because there are a multitude of players who impact patient care, but who also impact student interprofessional learning.

***Australia.*** Two reports took intriguing approaches to ITUs in Australia, both very focused on evaluation of student interprofessional learning and attainment of competencies (Anderson, Cant & Hood, 2014; Brewer & Stewart-Wynne, 2013). In Melbourne, 40 final year nursing and medical students were placed in emergency and rehabilitation wards and were responsible for managing patients over a two-week period (Anderson et al., 2014). The purpose of this study was to develop an instrument for evaluation of students' perceptions during a placement on an ITU. The researchers found no survey tool that assessed the salient parts of teaching and learning and therefore developed this questionnaire that covered: orientation to the ward, quality of teaching, optimal workload, achieving learning objectives, belonging, collaborative learning, role clarification, communication and patient centeredness (Anderson et al., 2014, p. 519). The researchers found there were implications for student education. The ITU was a rich and authentic version of professional practice. Nursing students found that other clinical placements were more task driven with less autonomy. The survey tool remained limited as more information is required on measuring educational outcomes, skill acquisition, and the

students' clinical performance to determine the true value of an interprofessional experience as compared to a traditional one.

A key interprofessional training unit development occurred on a general medical ward in Australia where students from medicine, nursing, occupational and PT, and SW completed three rotations of a six-week trial (Brewer & Stewart-Wynne, 2013). The purpose of this evaluation was to determine whether an ITU was sufficient for students to develop interprofessional practice capabilities which were observed and evaluated by the tutor with an Interprofessional Capability Assessment Tool (Brewer, Gribble, Lloyd, Robinson & White, 2009). The premise behind this study was that all previous work cited in this literature review on ITUs have not shown a change in students' capability in clinical. There were four domains used to measure practice outcomes: communication, collaborative practice, client-centred care, and professionalism. Students themselves completed 1) an interprofessional socialization and valuing scale, 2) a quantitative scale regarding the overall learning experience, and 3) an open-ended response about any concerns, gaps, or suggestions. Patients also provided feedback but of the 18 questions most were related to their stay in hospital. However, their median response was 5, on a 5-point scale, and they commented that they were shown more kindness and respect on the student ward.

Overall, students in this ITU excelled in communication, often working above standard (Brewer & Stewart-Wynne, 2013). Statistical evaluation of pre and post unmatched data found significant changes in ability to collaborate and valuing collaboration but no change in comfort with collaboration. Qualitative comments highlighted the authenticity of the experience because of the level of responsibility and autonomy granted to student teams, but also the conflict between professional and interprofessional commitments. A unique insight of this experience was that all staff were encouraged to adopt the facilitation style of the Nordic wards – stand back but take an active role in learning – which worked well for facilitator evaluating. But this also meant facilitators could focus and continually reinforce the delivery of interprofessional learning objectives. Another benefit of this design was having an external client advocate work with the patients on the ward and help the students focus on what patient-centred care looked like.

***Canada.*** Two experiences were found in the Canadian literature that represent ITUs similar to what has been developed in the Nordic countries. The first was a primary health care clinic covering a range of clients and developmental ages (Dubouloz, Savard, Burnett & Guitard,

2010) and the second was from a working group with the purpose of increasing the number of clinical placements available for students (Sommerfeldt, Barton, Stayko, Patterson & Pimlott, et al., 2011; Vanderzalm, Hall, McFarlane, Rutherford & Patterson, 2013).

The Interprofessional Rehabilitation University Clinic in Primary Health Care opened in 2006 in Ottawa (Dubouloz et al., 2010). The program evaluation highlighted the gaps in patient care, clinical education and research that were met by this initiative. Students in a diverse array of programs including, audiology, OT, PT, speech language pathology (SLP), human kinetics, nursing, SW, and medicine, were offered three types of clinical placement: 1) observation of one to two days to understand the roles of others, 2) rehabilitation of up to 60 days, and 3) health promotion where interprofessional student teams meet the needs of a community partner in up to 30 days. Assessment of the surrounding community was completed before embarking on the development of this clinic and found two subpopulations experiencing extended wait times for services. The first was older adults returning home from acute care after a medical intervention and who required community services. The second was school aged children with learning challenges who were waiting up to a year. There were three learning outcomes for interprofessional students on roles, teamwork and determinants of collaboration (collaboration, respect, communication, trust). Students realized some of the strengths of their own discipline as well as some of the limits. The researchers stated that "although all professions gain from IPE, the greatest gain is for the client who experiences a more integrated and complete intervention" (Dubouloz et al., 2010, p. 23). But they also acknowledged that a unique interprofessional clinic encourages students to reflect on what can be paid forward to the next clinical placement having had this experience.

Two reports in the literature describe the results of working group efforts to create a clinical placement in rehabilitation (Vanderzalm, et al., 2013) and in an acute care setting (Sommerfeldt et al., 2011). The first report described the community-based participatory research working group whose interprofessional focus was witnessing how others look at patient problems as a means to integrating care (Vanderzalm et al., 2013). To understand the pre-implementation context on the rehabilitation ward, data was collected from a wide range of practitioners, students and faculty members involving the professions of nursing, medicine, OT, PT, SLP, therapeutic recreation, SW, nutrition, clinical psychology, audiology, and dentistry. Eight themes were found including: communication, work environment, interdisciplinary

environment, learning environment, discipline specific and interdisciplinary roles, benefits and challenges, discipline specific focus and teamwork. These themes showed the lack of interprofessional learning opportunities and competencies to set the working group up for creating an interprofessional space. Post-implementation themes included: communication, informal interprofessional learning, role awareness, positive learning environment, logistics and challenges. The most significant learning was a need for formal interprofessional education and active participation and commitment. The authors also stated, "the process of involvement in the working group, where each discipline collaborated, communicated, reflected and evaluated their practice, encouraged a move beyond disciplinary silos toward full immersion in what it means to be interprofessional" (Vanderzalm et al., 2013, p. 183). Their key outcome was a change in unit culture, improved student learning, and enhanced patient care.

The same process by an acute care working group was utilized for a designated specialized stroke and acute geriatric medicine unit (Sommerfeldt et al., 2011). This working group tied specific group processes to the interprofessional education adage of learning with, from and about. The workplan included 1) enhancing awareness of roles and teamwork as well as the teaching and learning culture, promoting interprofessional communication and decision making and encouraging interprofessional reflection. Intentional change was accomplished over three phases. First, was development of the working group which included 21 members of the healthcare team and students involved in patient care. An appreciative inquiry approach was used over the course of the project such as dreaming big and imagining where the ward would be in a year. Phase two was development of an action plan while phase three was adapting and sustaining the plan. Multiple tools were created to help people work together as practitioners, with students and with patients. However, integrated care requires, not tools, but "intentional attentiveness to the structural and relational work necessary to ensure effective healthcare team functioning and optimal interprofessional patient care" (Sommerfeldt et al., 2011, p. 276). The authors came to realize that stakeholders need to wrestle with the theoretical underpinnings of IPE and that interprofessionalism is a cultural shift, as well as a shift in underlying structures.

***Summary.*** Despite the spread of training wards across Europe, Australia and Canada, training wards continue to be a novel concept in the IPE literature. The Linkoping experience is an exemplar model of interprofessional team delivery of patient centred care, which has been the model for other endeavors. IPE champions discussed having student interprofessional teams

work together in clinical as the best experience to learn collaborative competencies. However, the exorbitant cost, the coordination required and inconsistent student satisfaction reported keeps interprofessional training wards a novel concept rather than the standard. The latest study by Brewer and Stewart-Wynne (2013), adding the additional requirement of evaluating student capability to meet interprofessional competencies, helps prove that pre-practice interprofessional education impacts patient quality care directly and therefore may change the clinical standard.

Lessons learned from the models provided include the requirement of preparation for students, faculty and patients on the purpose of the training unit being for development of interprofessional competency. The easiest management of curricular requirements occurred when learning outcomes were focused on a clear patient pathway, which often meant students only worked with one or two primary medical diagnoses or were focused on rehabilitation. The reason for maintaining Linkoping's model in other centers and countries was the structure and focus on patient context. Once the model changed from orthopedic wards to long-term care, acute care or emergency, student and faculty satisfaction of the learning and working environment suffered, as reported in the qualitative findings. Interprofessional training units, as an exemplar of student IPE, highlights the integration of collaborative principles. Interprofessional training units are exemplars because patient quality care is assessed at the same time as student learning. All the studies in this section meet all six competencies of the CIHC (2010) framework from understanding roles, through interprofessional conflict resolution to patient centered care. However, all studies also highlighted the transformative, yet often difficult learning that students, and practitioners, experienced when dueling with professional and interprofessional identify development in the context of quality patient care on interprofessional training wards.

**Interprofessional student teams in student run clinics.** While interprofessional training units were developed in Europe and are working their way across to North America, student run clinics (SRCs) arose in North America to meet the needs of clients and are making their way to Europe and Asia as examples of interprofessional community practice settings for healthcare students. In North America, SRCs were developed in association with medical schools and focused on social accountability because many clients in the US had no healthcare coverage (Haggarty & Dalcin, 2014). As at 2014, there were 110 SRCs associated with 49 US medical schools, while in Canada, as at 2018, there were 13 operating SRCs (Canadian Federation of Medical Students & Ontario Medical Students' Association, 2018). This ratio reflects the

difference in approaches between countries because access to healthcare services are less of a barrier in Canada. However, if clinics arise to meet a need, it is interesting that all SRCs but one in Canada are run by interprofessional student teams (Campbell, Gibson, O'Neill, & Thurston, 2013) suggesting an IP approach is needed in Canadian healthcare. In Canada, SRCs in are often partnered with educational institutions, but are run out of community clinics or community partner organizations in core urban areas as the clientele are often marginalized populations such as homeless men in Toronto (Dugani & Mcguire, 2011), adolescents and young adults in Edmonton (Guirguis & Sidhu, 2011) or First Nations and Métis in Saskatoon (Holmqvist, Courtney, Meili, & Dick, 2012). Therefore, patients often require services from multiple providers (Haggarty & Dalcin, 2014) and because of the transient nature of volunteer students, patients are seen without the intention to follow up (Holmqvist et al., 2012).Subsequently, SRCs, then, operate like primary health care clinics, but unique because of added services and resources which are based on needs assessments of community issues (Ambrose, Baker, Mahal, MicFlikier, & Holmqvist, 2015).

In general, the work of seeing patients is done as a core interprofessional team. Student pairs often do the intake interview to the clinic, followed by a pair of students to take the history and primary concerns for the visit (Dugani & Mcguire, 2011). That pair then reports back to the entire student interprofessional team for care planning and decision making. Each student providing care is paired with a licensed preceptor or mentor who provides support for planning and is a role model of interprofessional collaboration. Each shift is concluded with a large group debriefing. SRCs also provide a variety of social services, such as food and showers (Ambrose et al., 2015), daycare (Holmqvist et al., 2012), and public lectures on health promotion topics related to the community needs (Dugani & Mcguire, 2011). The interprofessional student teams include clinical psychology, dental hygiene and dentistry, medicine, nursing, OT, PT and SW, but often include student volunteers from more than health and social programs (Ambrose et al., 2015). Most often medicine and nursing students are the majority cohorts and authors surmise that this is because these cohorts of students can conceptualize their interprofessional role more clearly than others (Ambrose et al., 2015). Students are part of every aspect of the clinic from fiscal management, recruitment of students, preceptors and clients, to maintaining partnerships and quality improvement, not just delivering health services to clients. Clinics are run between one and three half days per week with varying patterns of participation. The Winnipeg

Interdisciplinary Student-Run Health (WISH) clinic in Manitoba reported a range of six and 57 students volunteering for shifts with the median being 10 students (Ambrose et al., 2015). However, they report that SRCs often are closed during the summer while students are not in school because there are not enough volunteers to maintain clinic services. No literature has reported on the Student Energy in Action for Regina Community Health (SEARCH) clinic in Regina, but the report on Student Wellness Initiative Toward Community Health (SWITCH) in Saskatoon states that 300 patients are seen per year, over 1500 students have participated since its inception in 2005 and on average 64 clients walk through the door each shift; eight for health service appointments and the remainder for social reasons (Holmqvist et al., 2012)

Student run clinics have particular value for interprofessional learning. The setting, diversity of professionals and patients, partnerships with multiple organizations and variety of teaching strategies challenge students to collaborate with the community always in mind. Interprofessionalism in SRCs was described as a core pillar that provided these diverse opportunities; a multidirectional learning environment considering the network of people involved (Holmqvist et al., 2012). The multidirectional nature of conversations for checkins, debriefing, advocating and decision making led to shared leadership because students were required to collaborate during the care planning stage to provide the most appropriate care for the patient (Passmore et al., 2016). This service-learning environment ensured advocacy became part of interprofessional team development and often pushed students to go beyond their traditional professional boundaries (Guirguis & Sidhu, 2011). This authentic community-focused learning environment highlighted two benefits and aspects of interprofessional education as compared to traditional professional programs.

First, although research has shown that student interprofessional attitudes decreased as they move through their programs and socialized to their profession, there was research that SRCs mediated that effect (Ambrose et al., 2015; Sick, Sheldon, Ajer, Wang, & Zhang, 2014) through contact with other professionals, a common goal of working for the community and the immense infrastructure required for SRCs to function which ultimately supported student learning in an interprofessional atmosphere. Second, authors have suggested that students lose empathy (Hu, Cox, & Nyhof-Young, 2017), termed the ‘vanishing virtue’ (Holmqvist et al., 2012), because of the hidden curriculum in professional programs. Socialization to their profession eroded the altruism with which students entered the health care profession as

evidenced by students' complaints of witnessing "self-interest, emotional detachment, and cynicism" (Hu et al., 2017, p. e72). Authors suggested that the authentic service-learning nature of SRCs countered these effects (Holmqvist et al., 2012; Hu & Leung, 2016; Passmore et al., 2016) possibly because the interprofessional working required students to reflect on their performance individually and in relation to the team, including whether that collaboration was effective enough for patient needs (Hu et al., 2017), essentially reminding students of their purpose in providing care.

Student run clinics have value for each contributor; patients, the community, faculty and students. Patients were generally satisfied with the care partly because the health promotion education encourages empowerment and informed decision-making (Dugani & Mcguire, 2011). There were dichotomous assessments of patterns of patient attendance at SRCs. Haggarty and Dalcin (2014) reported that because of the relationships created between the team and the patient, concerns were addressed more thoroughly, which increased diagnostic accuracy and ultimately led to decreased return visits, a positive result to an issue oft cited as the major expense in Saskatchewan healthcare (Canadian Institute of Health Information, 2019). However, an alternate concern arose that wait times in SRCs were exponentially long because patients see numerous providers, students required learning time and preceptors required teaching time. In Hu and Leung's (2016) assessment of wait times in an SRC as compared to reported wait times in ER in Ontario, the finding was that the average wait to see a student provider in the SRC was 21 min compared to 120 min in the ER and the benefit was being able to see multiple providers in the SRC. As well, Holmqvist et al. (2012) asserted that even if the continuity of care cannot be provided in an SRC, patients seemed to return because they received exemplary care.

The main value of interprofessional SRCs to the community was the increase in social accountability (Haggarty & Dalcin, 2014) and the impact on health equity issues (Holmqvist et al., 2012). Alternatively, students reported varying expectations of learning outcomes when volunteering (Passmore et al., 2016; Hu, Cox & Nyhof-Young, 2018). Providing services and access to marginalized populations was reported from one SRC as an unintended learning outcome for students (Passmore et al., 2016) because students intended to work on their clinical and communication skills rather than learning about social justice. In contrast, students of Interprofessional Medical and Allied Groups for Improving Neighbourhood Environments (IMAGINE) in Toronto planned on learning about social justice and patient centred care skills,

such as communication, but ended up learning more about interprofessional working (Hu et al., 2018). The benefit for community members was exposure to positive healthcare experiences and team members (Holmqvist et al., 2012) which was critical considering the population that accessed the services of SRCs. Hu and Leung (2016) reported that 68% of patients that utilized the services of the SRC in Toronto had no family physician and 59% had no health card. The impact then of SRCs for patients and the community was appropriate use of health services and that SRCs met the needs of the correct groups (Holmqvist et al., 2012; Hu & Leung, 2016).

Concerns existed for faculty and preceptors in SRCs in relation to preparation and practice. The main issue was despite students being placed in interprofessional pairs, they tended to fall into traditional roles (Guirguis & Sidhu, 2011) and ultimately practiced in parallel (Passmore et al., 2016). Students came back to interprofessional practice when they were required to deliberate on care planning with the larger team, but often this was following role modelling or specific advocating by the preceptors on interprofessional collaboration. This fall back to parallel practice highlighted a specific concern, that of decreased evidence of clinical reasoning. Preceptors commented in multiple studies with SRCs that students fell back because of a lack of clarity in their role, a perceived hierarchy in the team, or the novice expectation that patients would be available for follow up and multiple sessions to deliver the plan of care. This has implications for IPE design and highlights why SRCs are often voluntary commitments; without faculty guidance interprofessional learning of competencies is difficult to maintain.

As mentioned previously, the value to students when initially volunteering for SRCs was to gain practice tools for use in future practice (Hu et al., 2017) and experience with clinical skills such as interviewing patients or charting, often because the majority of student volunteers were in the early years of their program and had minimal to no clinical experiences (Ambrose et al., 2015). However, what research reported was a series of skills with personal and professional impact. One report noted that a personal value gained was in the insight that patient perspectives can bring like the "similarities between clinic patrons and themselves" (Ambrose et al., 2015, p. 10). Professionally, students gained community awareness about resources (Dugani & Mcguire, 2011; Passmore et al., 2016) and the impact of the social determinants of health and their application in health promotion and protection (Ambrose et al., 2015; Hu et al., 2017; Passmore et al., 2016). Students also gained confidence (Guirguis & Sidhu, 2011), increased their ability to be sensitive and flexible to patient needs (Passmore et al., 2016) and exercised leadership and

management skills in both the clinical care planning determination and in the running of SRCs (Holmqvist et al., 2012).

The value of interprofessional student run clinics is the shared encounter (Haggarty & Dalcin, 2014). Students are investing in the health of their communities when they journey alongside patients. There is a mutual investment in not only patient health, community building and partnerships, but in student learning and gaining respect for others, including health care providers. For interprofessional education itself, the most significant finding is that SRCs can mediate the negative effect of professional socialization, suggesting that interprofessional socialization impacts patient and community care. But of note, SRCs are founded in the community, in partnership with providers focused on service and with education and care planning determined in relationship with patients as part of the team.

**Acute care clinical placements.** Canadian literature from 2009 onward reports little on interprofessional acute care clinical as differentiated from the interprofessional training units already discussed (Dubouloz et al., 2010; Sommerfeldt et al., 2011; Vanderzalm et al., 2013). As compared to ITUs, where the principles of IPE are part of the espoused design, the acute care placements described were integrations of IPE experiences into existing traditional healthcare paradigms. Four program evaluation or research studies were rigorous enough to be included here. All studies were evaluations of structured clinical placements in Ontario. Most studies were mixed methods except the autoethnography by a medical student (Gallé & Lingard, 2010) and one had comparison groups of students in a traditional ward placement (Pinto et al., 2012). All were evaluations of small clinical groups, around six students, but multiple iterations of the delivery for no more than (n=36) participants. Researchers noted that scheduling was a barrier requiring students to volunteer for the clinical placement and hence the low participant rate and offering of IPE clinical placements. All studies focused on specific populations suggesting that students were being integrated into already established interprofessional practice teams in geriatrics (Pinto et al., 2012), obstetrics (Meffe, Moravac, & Espin, 2012) and pediatrics (Gallé & Lingard, 2010; Hunter et al., 2015). None of the reported literature since 2009 discussed patients as collaborators on developing or delivering the clinical courses.

The traditional clinical placement entails a group of students in the same profession accompanied by a faculty member, or one student preceptored by someone in the same discipline. The nature of teamwork and interprofessional encounters are often incidental (Pinto et

al., 2012). Alternatively, structured interprofessional clinical placements are intentionally planned with collaborative outcomes and facilitated with the aim of meeting interprofessional goals, albeit along with meeting course specific outcomes. The programs described in the literature were generally five weeks long beginning with orientation and a focus on interprofessional theory, followed by weekly themed workshops or tutorials and all but one culminated in a final team presentation, usually of a collaborative care plan for a hypothetical case. The clinical component varied. Students were either in a designated clinical course for their profession and then participated in the structured IPE activities, shadowed a patient/family group or the interprofessional team on the ward, or worked multiprofessionally on the ward and rejoined the group for interprofessional conversations.

The purpose of IPE clinical placements, with the underlying premise that they are more authentic learning environments for students, is health system need: improving patient safety and efficient patient care with collaborative teamwork, increasing clinical placements and decreasing the knowledge/skills gap as students move into practice. Structured IPE clinical placements were stepping stones to existing best practice teams, impacting the ward and the patients, and providing value for faculty and students. Students in one study (Meffe et al., 2012) felt that because of an interprofessional clinical placement, they could affect a collaborative environment on future teams but acknowledged there would be effort and intention required.

In her autoethnography of being the medical student on an interprofessional student team, Gallé noted her developing understanding of the politics around IPC (Gallé & Lingard, 2010). Gallé had been a PT student before transferring to medicine and had socialized to that profession. Her experiences in this clinical made her aware of professional identities and how team as well as personal communication could impact perceptions of hierarchy or embed negative stereotypes. While IPE literature mentions the perceived hierarchy between professional groups, students sense an educational hierarchy (Gallé & Lingard, 2010). Gallé and Lingard (2010) mentioned an experience where the medical student could not meet with the patient prior to discharge. "Access to the patient creates a differential standing for us in the tutorial discussion – it sets up a hierarchy of knowledge, engagement and voice" (Gallé & Lingard, 2010, p. 727). A tension was created in the educational context despite what should have been the positive experience of having a 'live patient as a learning tool.' Collaboration was supposed to be easier in acute care where patients and other team members are easily accessible (Pinto et al., 2012).

The impact of IPE clinical placements for patients was in students turning their experiences of becoming an interprofessional team member into advocacy and patient centered care. The ability to advocate came from confidence in professional knowledge and the delivery of appropriate and concise information often because the family had been involved (Meffe et al., 2012). However, confidence was gained by working through the anxiety of asking for support from team members or speaking up at care conferences. Often, students were more willing to contribute and showed more confidence after structured IPE workshops and tutorials (Pinto et al., 2012). Increasing confidence meant trusting team members and taking risks. These experiences in tutorials and clinical on interprofessional student teams mirrored the practice teams who are role modelling in interprofessional clinical placements. What students witnessed and agreed to in Meffe et al.'s (2012) longitudinal study of students transitioning from maternity care clinical into practice was a willingness to collaborate. Students described actions and behaviours such as being sensitive, seeking out, taking responsibility and intentionally facilitating behavior change as means to create positive interprofessional working environments on acute care wards.

Pinto et al. (2012) stated there is a "tendency in Canada to expect effective IPC efforts in the clinical setting after educating HCP [health care professional] students independently of other professional student groups" (p. 146). Quantitative results reveal a lack of change in perception of competency and autonomy when case-based learning is used (Hunter et al., 2015) and qualitative narrative from the autoethnography revealed the student perspective of tutorials as passive learning (Gallé & Lingard, 2010). Students value IPE clinical placements because there is a direct impact on patient care. What affects a change in thinking about interprofessionalism is experiential learning in clinical. Even shadowing another professional had a profound impact on changing perceptions of the roles of others (Gallé & Lingard, 2010).

One study reported that professional status and respect offered to a professional was dependent more on years of experience rather than the perceived professional hierarchy (Pinto et al., 2012). Team members earned respect by their contributions and on whether the interprofessional practice team implemented those student recommendations. The reality of impacting patient care did not occur with hypothetical cases. Yet, contributing to clinical decision-making offered an opportunity to earn trust. This idea is a paradigm shift to a different

way of thinking. Students should be offered more than observational experiences because what students experience is that respect, not the profession, defines the hierarchy (Pinto et al., 2012).

**Community focused placements.** For the most part, community focused placements have a public health approach and the populations they serve benefit from interprofessional student placements. One short report was found of a student designed and delivered community service interprofessional learning experience (Tsang, Cheung & Sakakibara, 2016). Students from five professions developed outreach sessions delivered weekly in downtown Vancouver related to cardiovascular health but also included corresponding team building strategies. The authors found significant changes in learning about interprofessionalism pre to post. While nothing was reported about the impact of these 38 students on the patients or community this study was significant to note for its service design and student involvement. The remainder of the literature reported on partnerships with community-based agencies, work in schools and experiences in rural communities.

***Community-based agencies.*** The history and context of community-based agency placements provided perspective on the approach to interprofessional education.

The four current studies of community agency clinical placements involved work with vulnerable populations; the homeless (Rutherford, 2011), those living with cancer (Lefresne, Nelsen & Fairchild, 2011) or chronic illness (Mann et al., 2009), or those affected most by social determinants of health accessing community agencies for support (Richardson et al., 2010). Students assessed patients in teams, completed reflections and developed presentations, and met preceptors on a regular basis for debriefing. Preceptors were facilitators more than evaluators, continuing to advocate for patients, guide reflection, and ensure partnerships with community members. While placements had their challenges, the experience was mostly about the value for students and the impact for patients.

The value for students was the significant learning while working in community-based agencies. Students in OT and PT working with underprivileged patients in Ontario realized that once their clinical placement was complete, their patients would not access rehabilitation services because of system issues or lack of time and energy (Richardson et al., 2010). Students in this placement also learned about more obscure and cost-effective resources available for marginalized populations which a standardized traditional placement would not reveal. Students conveyed their concern about the vulnerability caused by lack of access to healthcare.

The two students placed in cancer care in Edmonton had more targeted impact (Lefresne et al., 2011). When working with and witnessing communication between the patient and the care providers, the students noted that perception of care was determined by the interactions, often providing relief that treatment may not give. The medical student stated, "I was surprised by the manner in which patients disclosed different details to each person" (Lefresne et al., 2011, p. 406), disclosures that were either determined by the scope of practice or the personality of the provider. These were specific instances that helped students reconstruct their perceptions of other providers and view the patient from a different lens.

The specific impact on patients was varied. In the Seamless Care experience (Mann et al., 2009) where patients were transitioning from acute care to lower levels of care, the patient focus was on assisting the transition to home and this was measured with a self-management tool. Patients rated the value of the goal, their confidence to achieve it and measured their satisfaction following its implementation. This was an example of evaluating the patient care as effected by an interprofessional team of students. However, context is important. With so any people affecting patient transitions it remains difficult to assess only the impact of the healthcare student interprofessional teams. An earlier report of the Seamless Care experience (Seamless Care, 2008) suggested that the patients did not feel students had any influence on their health. Despite the student teams creating transitional care plans, the health provider team for the patients had already done the work and set the plans in motion. Patients instead felt that they were there to help students learn.

In contrast, students and patients were co-learners in a grounded theory research study at a homeless shelter (Rutherford, 2011). The patient experience around engaging in learning with interprofessional students was about being open to vulnerability and in control of decisions for their own wellbeing. The patients required extra support as they travelled between dual roles, working toward rejoining mainstream society; dealing with the loss of the community that had sustained them on the streets.

All community-based placements were designed and assisted students to develop interprofessional competencies. Students developed their own professional identity and increased their understanding of others' roles to improve patient care (Rutherford, 2011). Collaboration and teamwork were developed through consensus building in patient assessment and plan development (Mann et al., 2009) but also supporting each other and appropriate utilization of

resources (Lefresne et al., 2011). Ultimately, students learned to view their roles and interactions differently, from a population rather than individual approach, from the perspective of colleagues, and from the position of strengths (Rutherford, 2011).

The sustainability of community-based agency placements remains an issue. Authors noted that agencies without an established interprofessional team or structure were less likely to be successful (Rutherford, 2011), which potentially speaks to how come there have been no reports in the literature on community clinical placements in the last five years. As well, students and preceptors noted that traditional clinical placements throughout health education programming was difficult to unlearn, making it harder to incorporate a patient centered approach to care (Lefresne et al., 2011). Also, except for the grounded theory including patient as a co-learner (Rutherford, 2011), all studies reported the attempt to fit the clinical placement into established interprofessional structure and competencies, where the students or preceptors guided the learning. The unique approach, and arguably most effective placement, was to acknowledge an interprofessional approach and have the students and patients determine a process for learning together (Rutherford, 2011), rather than making the patients fit the traditional mold.

***Schools.*** Clinical placements in Canadian schools was poorly represented in the literature (Fortungo, Chandra, Espin & Gucciardi, 2013; Ogenchuk, Spurr & Bally, 2014; Salm, 2017; Salm, Greenberg, Pitzel & Cripps, 2010). However, it was noted that provincial funding for health professionals in schools is varied, impacting the role played in the community (Ogenchuk et al., 2014), which ultimately also impacted the preceptorships of health care students. Three studies found included students from more non-traditional interprofessional groups such as kinesiology and justice studies with nursing for placement in inner city elementary or high schools with populations significantly affected by social determinants of health (Fortungo et al., 2013; Ogenchuk et al., 2014; Salm et al., 2010). The goal for all placements was to promote healthy lifestyles. Significant for these studies was the priority that the community health promotion model played, seconding IPE to an add-in or add-on, and highlighting that the focus was exposing students to public health (Fortungo et al., 2013).

The impact of IPC on students crossed these three studies in unique ways. One student reflection noted how stereotypes come easy, but the student was more surprised at the lack of effort that practitioners put into reframing those stereotypes (Salm et al., 2010). Students also

commented that they could impact care more and have advanced further in learning and working as a team if they had prior knowledge about professions before this placement (Salm et al., 2010). A second clinical group noted the balance required between personal and professional representativeness (Fortunga et al., 2013). Students in this group were active users of technology to communicate creating comfort with each other outside of clinical that affected professional conflict resolution and decision-making. Ultimately, successful teams respected diverse and professional contributions.

Unfortunately, two studies did assess the patient experience of interprofessional student placements in community agencies but did not report those outcomes. However, Ogenchuk et al. (2014) noted that an outcome of having students working together in schools meant an increase in referrals. Although the process and transportation of getting children to referrals required partnership development, what resulted was a dedicated practitioner for the child and family.

The fourth research report found was a case study of interviews with current and former clinical students and their professional preceptors in a high school where an interprofessional team works with youth with the dual diagnoses of an intellectual disability and a mental health disorder (Salm, 2017). The purpose was to report on how this clinical contributed to interprofessional competency development and understanding of the experience of youth. Salm (2017) reported that healthcare students changed behaviours and perceptions after working with the youth especially in relation to awareness of bias and empathy. Healthcare students recognized that a youth centred approach meant inclusion of family in planning. Salm (2017) mentioned that when families were not included in team planning, they were mentioned as a resource. While not mentioned by Salm but suggestive in her discussion a youth centered plan must ripple to families and the classroom community in the school.

The basis for analysis by Salm (2017) were the six CIHC (2010) competencies which reflected not only the attainment but the value added to the team and therefore the youth. This interprofessional team was interdependent and intentionally used meeting time for role clarification and team development. The team was creative in problem-solving because of their functioning in relation to each other and the use of exemplar communication skills meant easier negotiation of barriers with and for youth with dual diagnoses. What made the Salm (2017) study unique from the others was the integration of healthcare students as part of the team, rather than

working and learning alongside. This meant a reciprocal and cyclical learning from youth which enhanced the team's ability to consider complex interventions for care.

Student learning from patients in schools included awareness of health issues for children and families and how that was influenced by social determinants of health. Clinical in these settings assisted students in applying theoretical frameworks to practice (Ogenchuk et al., 2014). Salm et al. (2010) concurred stating that it was not the experience itself that impacted the work of students with patients but the improvement for students in interprofessional competencies that assisted their teamwork, thereby contributing to quality care. Therefore, two aspects of clinical in schools which must be considered are the team and patient benefits that arise when IPE is intentional and the integration of healthcare students as fully contributing team members rather than add-on clinical groups.

***Rural communities.*** Only two Canadian examples were found of rural clinical placements for students from the past decade. The first was a program running since 2003, the interprofessional rural program of British Columbia (IRPbc), where healthcare students attend clinical of varying lengths of up to three months with an interprofessional overlap of six weeks (Charles, Barring & Lake, 2011). The goal was to develop a community project while learning role clarification and collaboration. Some community and student evaluation of the experience is reported elsewhere (Charles, Bainbridge, Copeman-Stewart, Art, & Kassam, 2006) while the paper by Charles, Barring and lake (2011) reported on the social work student experience. The focus was on the interprofessional learning for all students. Of note, social work students were reported as being leaders in relation to culture. Interprofessional team meetings had revealed differences in values related to Indigenous knowledge and the experiences with the dominant culture. Social work students facilitated discussions, mediated conflict and created learning opportunities by taking group members to visit the First Nations Community. The IRPbc experience assisted students to attain 'bigger picture' thinking while reducing the stereotype of others that social workers were gatekeepers to social supports in the health system. As well, students reported the interprofessional group skills were transferable to any future team. The clinical value for Charles et al. (2011), was the enhancement of learning beyond the traditional uniprofessional approach.

The second study was an interprofessional rural clinical experience for nursing and care assistant students (Pesut et al., 2015). All students attended a workshop on palliative approaches

to care and chronic illness in older adults. The CCA students completed 20 hr of clinical and the nursing students 80 hrs, individually and together, with patients at home in the community. There was significant learning pre to post form the workshop. The qualitative evaluation of this experience was interviews of both students and patients. Both conveyed there was reciprocal learning often by connecting patients with resources but also that sharing health experiences were contributing to student learning. Patients also took on the role of teaching and encouraging students. Students assessed social determinants of health from a different perspective than in previous institutional practica. This reciprocal learning led to relationships that created connections for patients: to the community, to routine and to someone willing to listen to their stories. This experience helped students learn about the complexity of older adult health and their need for advocacy (Pesut et al., 2015). Patient and student experiences are often shaped by acute clinical. An interprofessional experience in a community rural setting challenged students to see their interprofessional role differently.

Many of the studies found on community focused placements were only beginning to articulate the theory and frameworks on interprofessional education, practice, collaboration and patient-centered care because the CIHC (2010) framework and corresponding theories were being developed and written at the same time (Oandason et al., 2004). Authors have commented and acknowledge the limited opportunities to create and evaluate interprofessional clinical placements (Seamless Care, 2008) and may be why reports of community-based clinical are few. As Richardson et al. (2010) stated, agency based clinical is worth developing because of the service at a population level, but difficult to sustain because no interprofessional structure or team existed as compared to traditional placements. However, what community-based placements added to IPE was enhanced education and preparation of future providers, enhanced citizenship behaviors and a social justice approach leading to holistic care where students were able to anticipate patient needs and referrals. With the development of interprofessional theory and frameworks, operationalizing an authentic community-based clinical is possible including the criteria to evaluate its impact and effectiveness for patients.

**IPE in Educational Settings**

IPE in educational settings was unique because of the criteria of patient inclusion. Even when integrating IPE, the result was often patient-as-an-example and a tokenistic mention. However, for these seven studies, patient participation meant recognition of some impact on or

by patients in relationships with students. The majority of experiences were with patients living with chronic illnesses (Lauckner Doucet & Wells, 2012; Ruitenberg & Towle, 2015; Towle & Godolphin, 2013; Towle et al., 2014). Lauckner et al. (2012) stated that 'patient' was no longer the appropriate term as it implied subservience to health care professionals and a vulnerable situation, whereas, patient-educator or health mentor acknowledged multiple roles within the health care system. Patient-educators in these experiences worked with small interprofessional student teams to share teaching and learning with students on the experience of living with their condition and navigating healthcare.

Learning often took place in community centers, determined by the patient educator in coordination with the team and after didactic presentations and introductions, students contributed to case discussions and reflections. One exemplar was the creation of three courses for credit; an online preparatory course, a second with interprofessional groupwork, and the third an interprofessional workshop (Vanier et al., 2013). The researchers noted that a competency-based approach to designing IPE encouraged reflection on teaching strategies that moved students from knowledge acquisition to clinical application. This negotiating of learning IPC competencies resulted in confidence to interact in interprofessional environments, make referrals (Vanier et al., 2013) and critically reflect on the use of language in professional contexts (Ruitenberg & Towle, 2015).

A concern existed however, for the dual role of patient-educator. Vanier et al. (2013) noted that the patient as a health care team member who was partnering in educating students should receive training. This more inclusive approach for patient-educators extols the values of participation. However, researchers acknowledged uncertainty across the literature, questioning the need to prepare for the role as educators versus allowing patient-educators to remain true to their own ways of teaching and learning and not "turning them into academics like us" (Towle & Godolphin, 2013, p. 224). These concerns sometimes negatively impacted patient perception of the experience. Negative impact is not noted in other Canadian pre-qualifying IPE literature which suggests either impact studies do not exist or that vulnerability is unique for patients in this role.

Patient-educators often felt anxiety over the value of what they choose to share (Towle et al., 2014) or felt vulnerable because they were grieving or breaching a confidence (Lauckner et al., 2012). Yet their perceived relationship with students also incited concern. In a discourse

analysis, patient-educators conveyed their dislike of the term ‘coping’ as it suggested inadequacy (Ruitenberg & Towle, 2015). As well, sharing was risky and could accentuate student responses (Lauckner et al., 2012). Sharing was personal and could be difficult if students were perceived to be unappreciative or disinterested, conveying disrespect by being distracted during workshops or making the patient-educator feel as if they were a burden since these experiences were add-ons to regular academic schedules (Lauckner et al., 2012).

In general, researchers reported that patient-educators were positively impacted by IPE experiences. Patient-educators did feel cathartic at sharing their journey as they often wished they could tell their story from the beginning to their own health care providers (Lauckner et al., 2012; Towle, et al., 2014). Sharing meant patient-educators were contributing and this would positively influence the delivery of healthcare (Lauckner et al., 2012; Towle & Godolphin, 2013). Patient-educators also actively reframed their illness from something negative to the valuable contribution it was, as one patient learned from students to become discerning in the health care providers he worked with and more assertive in his choices (Lauckner et al., 2012). This exhibition of empowerment was revealed in how patient-educators taught and the expectations they had of students. Students learned how to start an interaction (Solomon, 2011), that patients have unique perspectives for each health care provider encountered (Towle et al., 2014) and to empathize and understand the patient experience (Towle et al., 2014). Students respected their relationship with patient-educators because they perceived learning to be greater in person than by traditional modes (Basran et al., 2012). They changed their discourse to an individual holistic approach, calling mentors by name (an identity), rather than ‘patient’ (a role) (Ruitenberg & Towle, 2015). This patient-focused perspective, rather than professional dominance, constructively, rather than competitively, united students in their interprofessional teams (Towle & Godolphin, 2013).

**Summary**

The aim of this section of interprofessional education literature was to present the exemplar student experience in relation to other offerings, in different contexts, of IPE with patients. Interprofessional education tended to be an authentic learning experience when students were fully integrated on the health care team and could collaborate in care with the patient actively engaged in team decision-making. The exemplar authentic experience as developed in the Nordic countries was described with subsequent description of the Canadian experience of

interprofessional training units. The remainder of the literature was narrowed to the Canadian context to show the scope of opportunities designed for students, but the limits of those experiences considering the large numbers of health care students nationwide. Studies were excluded if they did not report both student and patient impact on learning or health. However, a few studies were included to show the gap in reporting patient experiences for unique settings, because the patient experience is a measure of interprofessional patient-centered care and patient partnership.

## The Liminal Experience of Health Profession Education

Turner described liminality as the transition between two culturally defined states (Turner, 1969). Liminality is best defined by what it is not. Significant to that understanding is the process of a 'rite of passage' and communitas. The transition between two states, or a rite of passage, moves from separation, through the margin (or over the threshold), ending in reaggregation. The separation stage detaches the individual or group from a social or cultural state to the liminal state. In the liminal phase, the individual or group is ambiguous, no longer possessing the characteristics of the past structure nor the attributes of the future structure. In liminality, values and norms are questioned, clothing lacks status, behavior is humble in the face of community members of the future. Liminal people are 'betwixt and between' their previous station and future status. Examples of rites of passage include life crisis moments (e.g., marriage or death), status elevation or reversal (e.g., becoming a professional symbolized in wearing a white lab coat or being pinned) or calendrical rites (e.g., going to war). Once the ritual is complete, once the individual or group has passed the threshold, reaggregation occurs and a new cultural standard, with subsequent norms and values is expected.

Communitas is one expression of liminality (Turner, 1969). If society is defined as a structure differentiating people by multiple hierarchies, governed by values and laws, and rooted in language and norms, then communitas is the unstructured spaces in society; spontaneous, relational and full of potential. Structure is classifiable and a way of thinking about ordering life and culture. Communitas is best understood in relation to structure. The liminal person moves into communitas, surrounded by like-minded people, away from structure, is revitalized and returned to structure. As a result of the rite of passage, the individual or group has gained knowledge and status, transforming into a new identity (Meyer & Land, 2003).

Davies (2006) stated that "the act of learning is the act of identity formation" (p. 71). Without this transformation, the individual or group, does not gain entrance to the community as it is necessary to learn to see and understand the world in a particular way. This understanding is the tacit knowledge or ideology of the group which cannot be challenged and shapes the way the community relates to each other in practice. The transformation into community member is the liminal experience (Meyer & Land, 2003).

However, Turner (1969) does differentiate between a ritual rite of passage and liminal experiences. Ritual rites have guides or experts to support the liminal person, such as a nursing educator for a student. As no threshold concept has been described for interprofessional education, the assumption is being made that students are traversing the liminal space on their own (Thomasson, 2015). For healthcare students, they un-differentiate in the first stage in multiple ways; from being a student to becoming a healthcare student, from siloed professional practice to team practice, from a disease orientation to patient centered. After transition, they are reaggregated not only as a member of their professional group, but as a member having changed, which adds creativity to the societal mix (Thomasson, 2015).

Only five research articles were found in Scopus, not limited to date, regarding the student liminal experience in undergraduate health education that specifically noted three transition stages and highlighted the liminal stage. No articles were found on student interprofessional experiences and only one of the five articles specifically wrote about student experiences in relation to patients. All authors noted the student experience of reconciling the processes and learning in an educational institution versus practice areas. Four articles focused on the liminal experience as delivered *by* the educational institution. The student experiences were characterized by issues with instructors (Barlow et al. 2006), with educational policies delivered by instructors (Hurlock et al., 2008), with the impact of politics on delivery of the program thereby impacting student education (Holland, 1999), and the impact on personal lives and experiences on learning (Fuzzard, 2017).

Two articles by a multidisciplinary research team revealed case studies of two social work students, Virginia and Tina. Liminality for Virginia was characterized by power (Barlow et al., 2006). Virginia felt oppressed in her placement and struggled to work with the male authority figures that directed her learning. In education, students must work within the structure of higher education to achieve their goal. Virginia became sick in the final days of her placement and

because of the challenging interpersonal conflicts she was passed through rather than being required to meet the outcomes. Virginia experienced a lack of clarity about where she belonged in the program and profession and therefore the three times, she told her story were all different. In the end, Virginia still appeared in limbo to the researchers. The researchers wondered about the obligation of the educational institution; students challenge theory and thinking but it tends to be in reflection or with peers which marginalizes innovation. Can and should students be left in limbo? Where do students turn when the principles of the profession do not match the program delivery? The construction of professional identity is often with assistance of educators who assist students with growth through learning and relearning.

Tina's experience reflected the complexity of health profession education but appeared to show Tina moving through liminality (Hurlock et al., 2008). Tina's conflict arose when the administration approved, then refused, her final clinical placement. The research team considered the shadows in the liminal experience. Tina felt she had no control over her placement, felt silenced, and became disillusioned with the profession of social work because the values that she had been taught did not match her experience with administration. Tina felt she was being punished for the program's mistake and seemed to come to a crux point where she either quit social work or pushed forward. Tina began advocating for herself and moved beyond the school as the "embodiment of the social work profession" (Hurlock et al., 2008, p. 299). Tina learned to reflect, become more self-aware and acquired empathy for administration. The research team concluded that how students negotiate liminal spaces in their education impacts student sense of meaning in their profession.

Holland's (1999) approach to explaining the liminal experience for nursing students was how types of skills and caring fit into the three stages of becoming a student nurse, to being a student, to becoming a qualified nurse. She found that a hierarchy of care existed that is more technical or 'actual occupational role skills,' whereas nursing as a whole was about participation and the relationship with patients and families. Holland (1999) noted that eventually students did not describe caring as progressed in program and she wondered if it became internalized or a cultural norm. However, Holland (1999) was also concerned with students who were working as nursing assistants while taking the program, stating that while working no one is socializing them to become nurses. Holland's (1999) tactic was to question the delivery of nursing education in the UK.

Finally, a qualitative study (Fuzzard, 2017) collected data from students, teachers and agency managers about the student experience of liminality in a community service-learning placement. Students were asked for their motives in entering this field of work and the impact the program had on values and beliefs. Fuzzard (2017) had witnessed students in the program oscillating in their values which she related to an ontological shift. Interviews revealed that students joined the program because of personal experiences and ultimately gained awareness of self and patient concerns, understood the value of using evidence to support feelings and learned how to approach people valuing human rights and worth. However, despite approving the write ups of the interviews, some students did not feel that they had changed, that their thinking and learning was no different even with assimilating new information. Two students were aware of moving through a liminal state possibly because of their past experience of working in the community, or their maturity. Teachers felt that students were doing what was expected and potentially mimicking rather than applying theory. For the teachers and the agency managers, they saw changes in students when personal issues stopped being the focus of discussion and the patients' needs became the priority. Fuzzard (2017) determined that the majority of students were still in a liminal state.

While the researchers in these four articles were attempting to explore the student experience, the interpretation always returned to how researchers as educators viewed the learning they thought or expected had occurred. However, key methodological questions arise from reviewing these studies. There is obviously a way to determine whether students passed the liminal state or remain within it as Tina's experience clearly defined the far boundary of when she moved on (Hurlock et al., 2008). The other three studies had unanswered questions about where the students belonged; was Virginia a social worker? Were nursing students assistants or care-givers? What makes community service workers move from personal issues to patient-focused care? As well, there is a shadow side to liminality that also defined boundaries. These studies included positive and negative student experiences.

Alternatively, one article that included students' experiences of working with diverse patients focused on the experience as learning *from* the educational institution as *compared* to the clinical agency (Parker, Ashencaen Crabtree, bin Baba, Carlo, & Azman, 2012). The inclusion of patients as integral grounded the student experience in program competency mastery. Students nearing the end of their programs are expected to challenge theory and practice and this article

about an international placement highlighted the students' experiences of challenging hegemony, individual values and beliefs. Parker et al. (2012) interviewed SW students in their final practicum who spent 20-30 practice days of that practicum in Malaysia. The authors' positionality of this experience was the awareness of a history of internationalization in higher education based in marketing of the school or attracting international student money. Therefore, their purpose in the placement was the transformative experience of respecting diversity and reciprocity for the community.

Student data while in Malaysia was a daily log and analysis of one critical incident (Parker et al., 2012). Students' descriptions became the bounded experience of liminality about culture and competence. For many students, the experience began in Western values being tested and they responded to barriers to social work practice with paternalism, colonialism and Imperialism, such as the right to wear revealing Western clothing to a conference as compared to a hijab. As students progressed through the liminal experience they grappled with culture and approached community practice in a variety of ways to respect beliefs of the Malaysian people. Students experienced two cultures, two statuses (majority member in UK, 'other' in Malaysia) and two SW practices.

Difficulty existed in conceptualizing liminality for healthcare students as a paucity of work was available in the literature. However, it appeared that liminality was characterized by challenging of assumptions and perceptions, mostly of Western values, but also of reconciling the ideals of what is taught in higher education versus what is experienced in practice, most often in the final practicums before transitioning to licensure. All literature found described the experiences of students in final practicums suggesting a strong sense of professional identity would exist. Liminal experiences were more than a student completing the requirements to become a professional, but experiences that brought new perspectives arising out of conflict, contested values and displacement from the norm. Research suggested that students in reaggregation represented their profession with more determination (Hurlock et al., 2008), had more respect for diverse views (Parker et al., 2012) and were prepared for ambiguity (Fuzzard, 2017). The liminal experience exponentially pushed professional knowledge boundaries by changing the individual and the exhibition of professional values.

## Threshold Concepts in Healthcare Education

As stated previously, threshold concepts are a newer research area making the literature search difficult. The most fruitful search was achieved by shortlisting every topic related to healthcare in *The Threshold Concept* website (Flanagan, 2019) where an up-to-date list of all scholarship and research is compiled. From this list, nine dissertations, research articles and program evaluations were selected for inclusion. Three studies were perceptions of students only (Fortune, Ennals & Kennedy-Jones, 2014; Martindale, 2015; Stacey, Oxley & Aubeeluck, 2015), the argument being that if faculty have crossed the threshold, they may be unable to appreciate concepts that are troublesome (Hill, 2012) and the remaining six studies included student, clinician and faculty perspectives (Hill, 2012; Kolar, 2017; Leidl, 2016; Neve, Lloyd & Collett, 2017; Nicola-Richmond, Pepin & Larkin, 2016; Springfield, Rodger & Gustafsson, 2017). No studies were found on threshold concepts in interprofessional contexts and only one study discussed the implications to threshold attainment by having a patient co-facilitate the learning (Stacey et al., 2015). The general approach to research was to identify or find the application of threshold concepts in professional practice areas. Researchers offered that there were two levels of threshold concepts, academic and professional (Martindale, 2015). However, it seemed difficult to dichotomize two types of threshold concepts when professional programs value conceptual and practical learning equally. There were a few studies that found threshold concepts which were quite generic (e.g., critical reasoning, evidence-based practice or praxis) and critiqued whether it was the profession-specific application that made them threshold concepts (Nicola-Richmond, et al., 2016). As well, other researchers have surmised that thinking or practicing like a professional or developing a professional identity were threshold concepts for healthcare students as they are transformative and difficult (Martindale, 2015). Both arguments were declarative of the paucity of research in this area. This section of the literature review will show that becoming a professional is part of the overall liminal experience for healthcare students rather than a piece of knowledge as evidenced by delimiting the criteria that characterize threshold concepts.

To find the threshold concepts, researchers, in general, began by exploring what was troublesome knowledge or difficult learning for participants which ultimately revealed the emotional results of that difficulty. All research highlighted the negotiation and decision-making required of students to overcome barriers to learning and what supports were required to cross

the threshold. Further exploration led to the transformative potential of knowledge for becoming a professional which was often defined by an attitudinal shift and an action approach. Transformation led to an ontological shift where the students' individual perspectives turned toward patient centered care (Kolar, 2017; Nicola Richmond et al., 2016) and a burgeoning emotional intelligence (Neve et al., 2017). The ontological shift highlighted the ways of thinking like a professional (Hill, 2012), while the ways of practicing like a professional were signs that students had crossed over (Hill, 2012; Neve et al., 2017; Springfield et al, 2017).

All studies approached threshold concepts through their troublesome nature with varying viewpoints. The study by Leidl (2016) on troublesome knowledge in mental health nursing specifically delineated concepts that faculty and students perceived as troublesome and then mapped those concepts to the five types of knowledge: inert, ritual, conceptually difficult, foreign and tacit (Perkins, 1999). Leidl (2016) found that foreign knowledge was most troublesome, but faculty surmised that was because of its tacit nature and he presumed that tacit knowledge was especially troublesome when students attempted to apply it in clinical. Hill (2012) sought difficult concepts for prosthetics students and by applying the five criteria of threshold concepts was able to differentiate between those concepts troublesome for students but not threshold concepts and those that were thresholds. For prosthetics students, and easily applicable to other healthcare professions, difficulty arose in performing math required for measuring alignment and in anatomy to visualize what is underneath as a way to support decision making in planning care. Hill (2012) determined that both of these concepts were reversible and potentially lost knowledge if the student did not use it frequently in practice. Alternatively, understanding how people walk and types of gait was a threshold for prosthetic students.

Stacey et al. (2015) utilized their research to determine if modifying the teaching strategy would help student integrate the already known threshold concept of recovery. The teaching session was co-facilitated by a patient sharing trigger moments of her experience to assist students in challenging preconceptions about mental health. By gaining new understandings directly from a patient, students may transform their approach to practice. Nicola-Richmond et al. (2016) also found the practice setting more troublesome from a student perspective as compared to academics. Their research revealed that students, clinicians and academics had different perspectives on what was troublesome. Threshold concept research is difficult if

perspectives are different from novice to expert or before or after a threshold is crossed. Fortune et al. (2014) approached troublesome knowledge by determining what the barriers were to student learning which included theory as a barrier to practice. However, they also felt that faculty do not have to remove barriers or troublesome knowledge as one of the thresholds students must cross is realizing that practice is also a bridge to conceptual understanding.

Two studies reported on the discomfort and uncertainty caused by troublesome thresholds. Springfield et al. (2017) stated that students realized 'pulling it all together' was a way of being challenged to overcome a troublesome threshold concept by integrating knowledge from other courses. However, no student opted out of the difficult recursive process. Neve et al.'s (2017) study with medical students reported that working with uncertainty was the most frequently cited issue as students became part of the professional culture. There was weight in carrying responsibility for patient-doctor relationships and often conflicting and complex approaches to care.

Researchers often described an emotional response, almost the signs, that students were encountering difficulty. Medical students struggled to empathize as they learned to manage emotions and be non-judgmental as they gained emotional intelligence (Neve et al., 2017). Students in OT felt frustrated and as if they were being held back when asked to apply theory in practice (Fortune et al., 2014). The threshold guardians holding students back were the academics, but the heroes were the practical instructors opening the door to a-ha moments. Alternatively, researchers used the affective responses as revealing of movement toward the threshold. Student fear of math led to their mimicking the skill as an attempt to look like a professional (Hill, 2012), an approach Meyer and Land (2003) have noted before in students testing their threshold concept knowledge. Whereas Martindale (2015) noted that in the first interview with nursing students, there was anxiety before starting a class on research and evidence-based practice, but confidence in the second interview after the class concluded because the concept had been attained. Researchers have noted that there is both cognitive and affective elements to threshold concepts (Kolar, 2017), and suggested that some emotional response may be required for transformation to occur as apparent in the students who witnessed the co-facilitated event by a patient (Stacey et al., 2015). Leidl (2016) concurred having created a definition of mental health nursing troublesome knowledge which is "knowledge that appears counterintuitive, contradictory to existing emotional states, and causes distress during application

in clinical settings" (p. 125). His findings revealed that students and faculty felt practical placements reduced the emotional response to becoming a professional probably because of the opportunity to integrate conceptual and practical learning.

A significant part of the literature findings were the actions required of students before transforming which were exhibited as negotiations. Multiple researchers (Fortune et al., 2014; Leidl, 2016) noted dissonance in students moving from university, conceptual, settings to practical areas showing they were required to negotiate understanding and bridge the theory-practice gap. Leidl (2016) stated,

> As tacit nursing knowledge is gained through lived experiences, it cannot be taught directly to students in program settings. Rather, students can be instructed in the clinical setting on how tacit knowledge can be gained through application, reflexive practices, lifelong learning, and participating in ongoing processional development activities. (p. 22)

Hill (2012) agreed stating that 'learning to talk' as a professional highlighted the student's lack of understanding of tacit knowledge. She stated that students know there are questions to ask when assessing clients with amputations, but they often do not because they cannot link theory and practice, preferring instead to teach about advantages and disadvantages of devices rather than learn the patient's preferences.

However, context and professionals also created barriers and support for negotiating learning. Nursing students learning about evidence-based practice often received mixed messages between the university and practice settings (Martindale, 2015). Some nurses preferred to 'do things as they've always done' whereas others encouraged students to research best practice. Students found that areas where few nurses were on staff, like long-term care, there were lower expectations for providing evidenced based care. These barriers impacted student's perceptions of how they were going to negotiate meeting the professional standard of incorporating evidence when they became a professional. Other professional students noted what supports existed to help them 'move from stuck places' such as peer collaboration, reflection and discussion (Neve et al., 2017; Springfield et al., 2017).

One study highlighted the student experience of oscillating back and forth, negotiating learning (Meyer & Land, 2003). Stacey et al. (2015) noted that students were required to be open to their own vulnerability when witnessing patients talk about their triggers in a mental health

experience. The authors conveyed that a common response to mental health problems in the professional setting was to employ a protective distance strategy which does serve the purpose of protecting the professional from their own vulnerabilities, but also preserves the stigma of mental health and the power of healthcare providers in the patient-provider relationship. The students in their study had a range of responses from accepting the emotive experience of the patient to distancing. This enquiry-based teaching strategy of co-facilitation built upon students' previous conceptual knowledge and background experiences and the authors seemed to suggest that professionals who still employed distancing strategy had not yet negotiated the threshold.

The Stacey et al. (2015) patient experience of mental distress highlighted the student experience of becoming a professional and transforming thinking. Students were encouraged to have an attitudinal shift in their approach to mental health care and recovery. The co-facilitator challenged the students' views of people with mental illness because he was intelligent, articulate and resilient. This capacity and capability relate to personal and professional values and attitudes and impacts how relationships are created with patients. Nursing students had a similar troubling experience in understanding the spectrum of mental illness (Leidl, 2016). Students were confused by the theoretical knowledge when attempting to decipher patient behaviors. Most researchers noted that becoming a professional entailed progressing from application of knowledge to focusing on the social construction of practice (Neve et al., 2017) – developing a style of communicating (Leidl, 2016), becoming aware of how the profession operates (Neve et al., 2017), oscillating toward a professional approach rather than a student approach and gaining confidence (Fortune et al., 2014). Martindale's (2015) nursing students learning about evidence-based practice juxtaposed this progress. Students had nursing discourse because they had been slowly building the language and could use it everywhere, however although they were aware of research concepts, using that terminology showed a burgeoning application. Nursing students were conflicted and challenged in clinical placements as evidence-based practice is part of the nursing identity, but where evidence is expected in practice, students perceived that nurses do not have to perform research daily at the bedside.

From transforming into a professional, researchers noted threshold concepts that exhibited an apparent ontological shift which was described as a way of thinking (Hill, 2012) and often reflected a patient centered care approach (Kolar, 2017; Nicola-Richmond et al., 2016) or emotional intelligence (Neve et al., 2017). The ontological shift is where threshold concepts

gained a disciplinary focus. Leidl's (2016) nursing students and faculty discussed the mental health approach to nursing as stabilizing and mobilizing supports rather than curing which was reflected in the threshold concept of 'therapeutic nurse-patient relationship and boundaries.' Students apparently struggled with creating more than a superficial relationship that did not violate professional boundaries and this related back to the conceptual approach to care. Without appropriate boundaries nurses risk becoming too involved whereas nurses with a medical-surgical approach may be under-involved and therefore risk providing ineffective care. The threshold concept of 'how we walk' was pivotal for prosthetic students (Hill, 2012). The process of dynamic alignment based in Newtonian biomechanics gives the disciplinarian a view of gait as how forces act on the body, thereby providing knowledge for designing prosthetics which may eliminate gait variations. This way of thinking grows from experiential memories. Pharmacy students and faculty revealed the threshold concept of the 'medication experience' where the patient's beliefs and understandings were a major part of care (Kolar, 2017). For medical students one significant threshold concept was 'consider the bigger picture' (Neve et al., 2017). This way of thinking about the medical profession was about infrastructure, resources, population needs and health inequalities and how a physician could be an integral part from a profession perspective rather than an individual one.

When students revealed the ontological shift and ways of thinking like a professional, they often also revealed the ways of practicing like a professional (Hill, 2012). The most frequent example was terminology or discourse. For example, prosthetic students who exhibited the threshold concept of 'learning to talk' untangled when to use professional language and when to use lay language. A disciplinary word carries tacit meaning, and holds images used for shortening the problem-solving process. Using professional language is important for communicating with the care team, but potentially confusing for patients. Hill (2012) in particular, used the threshold concept criteria model as well as the concept model of thinking and practicing to determine what was a threshold concept. This particular example showed how a threshold concept can meet the criteria of troublesomeness, irreversibility, integration, boundedness and transformation as well as the concepts of ways of thinking and practicing.

The purpose of this study is to explore healthcare student threshold learning experiences in interprofessional contexts. This literature review provided the scope of interprofessional education experiences for pre-qualifying students working with patients in Canada, the

experience of liminality in healthcare education programs and the delineation of profession-specific threshold concepts. There was no study found that attempted to find the threshold concept of interprofessionality in pre-qualifying healthcare students.

## Chapter 3: Research Methods

This dissertation is a phenomenographic study employing social constructionist epistemology with the purpose of exploring healthcare student threshold learning experiences in interprofessional contexts. This chapter reviews the epistemological underpinnings to the development of this dissertation, the phenomenographic research design and issues of rigour. The cyclical process of phenomenographic analysis is described in depth.

### Epistemology

This dissertation was a phenomenographic study following social constructionist epistemology. The constructionist view is that "individuals have particular perspectives upon the world that make sense of their experiences very much as 'their experiences'" (Lock & Strong, 2010, p. 35). That statement acknowledged that each human being has a unique perspective of the same experience. The resultant meaning making was dependent upon "human practices, being constructed in and out of interaction between human beings and their world and developed and transmitted within an essentially social context" (Crotty, 1998, p. 42). Therefore, a social constructionist epistemology was concerned with analysis of the processes of reality construction (Berger & Luckman, 1966).

Reality is a label for phenomena which are independent and cannot be 'wished away' (Berger & Luckman, 1966). Those phenomena can be viewed through multiple perspectives. As well, in sharing those perspectives, the reality of the phenomena becomes clearer. This shared perspective grounds social constructionism in the common sense, taken-for-granted, everyday life, rather than ideas and theories; this information represents the relative and relevant knowledge which is shared with others. Berger and Luckman (1966) described a societal dialectic between objective and subjective realities. Knowledge about society is apprehending the give and take between internalizing and externalizing the experiencing of subjective meaning and objects. People produce society and are products of society. That social knowledge is pragmatic and encapsulates the individual's situation, the limits, location in society, and how to deal with people in that society. They continue, stating the structure of knowledge includes what is relevant to the individual but knowing what is relevant to others. This knowledge is taken for granted until a problem arises which cannot be solved — highlighting a gap in the everyday experience.

Learning from others is best achieved through face-to-face interactions because of immediate continuous reciprocity in expressions (Berger & Luckman, 1966). Face-to-face interactions are flexible, because of their immediacy, allowing for changes in perceptions if stereotypes existed previously. The feedback and/or attitude provided by the other provides opportunity for reflection, a way for the individual to know him/herself better. As well, face-to-face provides the opportunity to use humanity's greatest tool, language, to crystallize objective and subjective meanings.

People are socialized to their natural, cultural and social order by the significant others who surround them (Berger & Luckman, 1966). According to Berger and Luckman (1966), people are born to be social but must be inducted into society which entails harmonizing the individual with society. Harmonizing does not mean combining the two but developing an identity following a dialectic with the self and others. By understanding society and others' roles in it, the individual can further define the self. Berger and Luckman (1966) described that identity is formed by social processes (e.g., being disciplined by Mom) and determined by social structures (e.g., being the first born). By internalizing the role society has defined, the world becomes subjectively real. However, socialization is never finished; people cannot know everything. As we place ourselves in new roles, we acquire new skills and use the appropriate language for that context. Therefore, the social constructionist dialectic, as described by Berger and Luckman (1966) is one where social processes such as identity and roles are determined by society, just as everyday life in society is developed by how we maintain those social processes.

Lock and Strong (2010) provided five tenets in their overview of social constructionism for healthcare providers; first, humans strive to make meaning and gain understanding of their experiences and second, this meaning making depends on social interactions. The interaction between humans is not so much the exchange of language, but how attuned and responsive we are to each other. Language, however, is the tool which gives us the ability to conceptualize phenomenon, share meaning and construct memories and reflections. The third tenet is that meaning making is context dependent. The factors that contribute to meaning making are more important than the specific object of meaning (Crotty, 1998). Interprofessionality may be a perfect example as team members, the culture of healthcare, the institution where care takes place, or the educational background of providers and students all have an impact on what interprofessionality means for an individual. This variety of perspectives relates to the fourth

tenet that despite social construction of their shared experiences, people are self-defining (Lock & Strong, 2010).

The final tenet is that a social constructionist stance has a critical perspective, not just directed at revealing political power and prompting social justice, but understanding human nature (Lock & Strong, 2010). This final tenet is the difference between social construc*tivism* and social construc*tionism*. Rob and Rob (2018) described constructivism as meaning constructed from the knowledge generated out of experiences; often an individual cognitive process. In contrast, they describe constructionism as meaning developed from contextual knowledge through a collaborative process of sharing and creation. The socially constructed knowledge often uses tools or media in the creation and results in a public product which has become more meaningful because of the consideration and critique. Some examples were shared by students who were interviewed and these stood out in their construction of interprofessionality, such as, the stethoscope that made the nursing student use her knowledge differently than the continuing care aide, the medical student who used a glove for a baby to suckle teaching the nursing student how to calm a child, the student identification badge that was used as access to interprofessional learning when a uniform was a barrier, or the patient charts that now had invisible ley lines connecting care plans across professions. Students had not been using these tools for these purposes until having them co-constructed by others in the social network.

The fit of social constructionism to phenomenography is in the freedom to focus on how relationships lead to knowledge and action (Gergen & Gergen, 2008). Three relationships are brought to focus in social constructionism. With the subjects of research, the voice is changed from the researcher determining conclusions to the participants. The audience for the results of research tended to be communities of practice in academia but now are collaborations with society. That relationship is no longer a distant connection because socially constructed research seeks change. Phenomenography was a process to record the realities of students who had experienced a threshold moment and socially construct, between the researcher and students, a collective set of categories of learning for the goal of enhancing interprofessional education.

## Research Design

This section begins with a discussion of phenomenographic methodology including the main assumptions of second order perspective and awareness. The selection of participants is

described followed by data collection options. The nine steps of data analysis including an overview of phenomenographic parts in relation to the whole data is provided. Finally, rigor is discussed according to the main criteria of trustworthiness and authenticity.

**Methodology**

In this section I elaborate on the use of phenomenography and the way it is used throughout the study. First, I describe what phenomenography is as research, followed by the major assumptions when performing phenomenography: how learning relates to structured categories of descriptions of learning, the second order perspective, and the scope of awareness of the students being interviewed.

Phenomenography is research into the way humans experience phenomena (Marton & Booth, 1997). Marton and Booth (1997) provide a 'thought experiment' as an example. If there are two students who are asked to solve a problem, in the same context, with the same understanding and motivation, it becomes difficult to imagine that all things being equal, one student will succeed and another fail. Knowing that students who deal with problems differently, must have experienced them differently leads to the assumption that "a capability for *acting* in a certain way reflects a capability [for] *experiencing* something in a certain way" (Marton & Booth, 1997, p. 111). In other words, to understand how students handle problems, we must first understand how they experience problems.

In phenomenography, the point is not to understand the essence of the concept they are learning — this is not phenomenology — we are not trying to understand the phenomenon, but how the phenomenon is understood (Marton, 1981). We want to understand what students think about the concept and how they learn and therefore we are studying their conceptions. Therefore, two students have different outcomes because their past experiences and constructions of knowledge are unique. However, there are limited ways of conceptualizing phenomenon and thus there is a homogeneity, to a point, in the structure of how people learn. This study sought to understand the experience of 13 students in learning interprofessionality. While phenomenography seeks the variety in learning experiences, over time and with multiple research projects, Marton (1981) suggests that there are ultimately limited ways of understanding learning. In this way, repeated phenomenographic studies continually narrow the learning steps until the essence of the phenomenon is revealed.

The way students learn become the categories of description and each category is an aggregate of experiences. So, for those students who have that same structure of learning, they should handle learning outcomes in similar ways. As educators we may feel that a student who performed well in one learning experience should transfer that learning and perform the same in a similar experience but new context. While the structured learning categories are stable, individuals can move from one category to another. Reconsidering the thought experiment, students may have different outcomes because they are at different places in the structured categories.

The intriguing perspective of a phenomenographic approach is that, as educators, we may judge the students for not performing the way we would classify them, but maybe we as educators and researchers did not reliably capture the students' conceptions (Marton, 1981). In this dissertation, one of the ten students interviewed did not appear to have an interprofessional threshold moment. However, when asked specifically in her follow up interview, she agreed with her four categories, but reordered them according to her own perception of how she learned, and she also named her interprofessional threshold moment. Her experience was one of myriads that could exist despite how I may compare that to the other participants or my perception of interprofessional education. The categorized descriptions are a thematized aggregate of student experiences — none correct or incorrect — but complimentary and contradictory.

Phenomenography is not a dualistic approach of studying the object or the experience of the object (Marton, 2000). Subjective and objective are part of a whole understanding which is a relationship between the students and, in this case, their learnings about interprofessional education. However, the student experiences are not in the first-order which is the direct description of experiencing phenomena, like in phenomenology. The experiences are in what Marton and Booth (1997) termed the second-order which is the perspectives arising from how people make meanings or how they make sense of the world. Questions asked are, "How did you think about the problem? What does the problem mean for you?" (Marton & Booth, 1997, p. 118). The answer to a second-order question is a statement about the learner's perception of reality, a reflected-on experience (Ashworth & Lucas, 2000). Phenomenography then is a snapshot of the current collection of learning experiences that are reflections of the past, not ideals for the future. Marton (1981) described the categories of description as a "frozen form of

thought" (p. 196). These results of phenomenography are the categories of description in the outcome space.

Categories are hierarchical and increasing in complexity. "Differences between them are educationally critical differences, and changes between them we consider to be the most important kind of learning" (Marton & Booth, 1997, p. 111). Categories should stand out as related to the phenomena, and they should relate to each other. However, the categories should logically also be parsimonious; the fewest categories possible to collect and represent the variations. The categories of description are about differences of a collective voice, not of individuals. A phenomenon is experienced uniquely by each individual. The combination of individual experiences should start to narrow to a critical set of categories for learning. Marton and Booth (1997) stated that the categories are "the structure and essential meaning of the differing ways of experiencing the phenomenon [that] are retained, while the specific flavors, the scents and the colors of the worlds of the individuals have been abandoned" (p. 114). The researcher is then living vicariously through individual participants to be able to describe the ways a collective group of learners understands a problem.

Awareness of the student on the experience being investigated is a fundamental concern in designing phenomenographic research (Marton, 1981). Phenomenography collects the description of what is in awareness and how the student makes sense of all that information within that entire field of experience. Phenomenography is collecting description of students' "learning in the sense of becoming capable of understanding something in a certain way [which] means changing one's way of being aware of that object" (Marton, 2000, p. 115). This meta-awareness of learning is facilitated in a conversational semi-structured, yet therapeutic, interview (Marton, 1981). The students interviewed were asked to describe the context of their learning including the people involved and the environment, yet they also offered the meaning they had placed on that context such as how the experience related to program progress.

**Methodological Procedures**. Because phenomenographic research is associated with phenomenological philosophy, it employs reduction as an expected part of the research. Reduction, or bracketing is here described from a personal perspective and then tied to researcher positionality.

***Bracketing.*** In my previous (phenomenological) research I bracketed my experience of being an oncology nurse when interviewing patients living with cancer (Hubbard Murdoch,

2008). I described that first-order experience as placing all my experience with cancer and nursing in a clear glass jar at the edge of my desk. I was aware of all my experiences, they were still a part of me, but they were put at arms-length and reduced from influencing my retelling of participant stories. During my master's, I bracketed out my experience to get to the essence of what it was like to be a patient dying of cancer.

Phenomenography utilizes the same process of phenomenological reduction. Marton and Booth (1997) attributed judgment to second-order experiences. For example, when listening to a student talk about acquiring a skill, the researcher might be assessing level of mastery. However, Marton and Booth (1997) stated,

> at every stage of the phenomenographic project the researcher has to step back consciously from her own experience of the phenomenon and use it only to illuminate the ways in which others are talking of it, handling it, experiencing it, and understanding it. (Marton & Booth, 1997, p. 121)

Therefore, I used a similar process to bracket my experiences as educator, nurse, and IPE coordinator.

Two concerns of the researcher were to bracket presuppositions and ensure the student experience was the focus which can be attained by employing empathy (Ashworth & Lucas, 2000). The purpose of bracketing was not to focus on how the student experience was similar to that of the researcher, but on how the student experiences were similar to or different from each other. The researcher must therefore go beyond presuppositions about 'what' is being studied and hear the meaning of what students are experiencing which results in more of a 'how' approach to understanding the student experience.

A personal experience will help to explain the notion of bracketing. I had an experience where I admitted my Mom to an acute care institution. Because of my healthcare background, my initial reaction to entering the emergency room was calm and positive, despite my anxiety about processing a diagnosis. My experience quickly deteriorated. The student that I had taught failed to acknowledge who I was, the former colleague could not keep up with the orders, and the interprofessional team that is so espoused in emergency, turned out to be a multidisciplinary experience. After two days struggling to breathe in emergency, my Mom was transferred to an observation ward where, because of nursing care, her condition worsened. After some intense treatments and a throng of physicians and medical students, my Mom stabilized. What I

witnessed was a patient not ill enough for the attentiveness of the entire team until her illness made her a focal point for responsiveness and as she improved out of that crux of care, the cognizance of her place in this acute institution diminished until she was discharged out of frustration. My Mom went home with no diagnosis; just treatment of symptoms. Although I want to say my Mom had a voice, even our family was not appeased, especially with the variety of communication styles exhibited by various professionals and their apparent lack of ability (or unwillingness?) to share information that would help Mom make decisions about her health.

Did it really happen that way? I revisited the experience with my Mom, a long while after the fact, and she had completely forgotten the experience. I wonder what makes us remember the experiences the way we do when I know that novice nurses struggle with intuition about deteriorating patients, when there is the exemplar nurse present who helps the patient stabilize and that teams do have to communicate for a patient to progress to wellness.

Reflecting on this experience highlights what I needed to bracket as a researcher; presuppositions, the lack of empathy toward healthcare providers, and indifference. My experiences working as a professional educator while trying to bracket my experiences as a family member serve as an interesting case in point. From my nursing background, my presuppositions evolve from my experiences working on effective interprofessional practice teams and how that has translated to my work with interprofessional development teams in education. While I desire to empathize with healthcare team members who are novice or expert and struggle with an overwhelming array of acute patients, I am as frustrated as any other family member. Despite my knowledge of professional healthcare education, I am indifferent to my colleagues and judge the standard of care when faced with a personal experience.

***Positionality.*** Positionality is a term that suggests labels attributed to identity or roles are not the essentialness of the person, but the relational position that person holds in a context (Alcoff, 1988). From a researcher perspective, positionality is delineated by individual theoretical perspectives, how the participants see the researcher in relation to their own world and the experience of performing research in unusual spaces, especially if one is not a researcher by 'trade' (Day, 2012). Therefore, positionality is co-constructed by our own identity, social roles and institutional context. For the reader, knowing where the researcher is coming from increases accessibility and understanding of the results because the researcher is no longer in a distanced authority position (Day, 2012). A dilemma exists, however, in performing the research

itself. The researcher experiences emic and etic stances. With the emic stance, I need to get close to the object of study to subjectively understand, but procedures (i.e., bracketing) require an arm's length analysis to improve objectivity and therefore employ an etic stance. Because of the socially constructed nature of this research and the inclusion of participants in engaging in creating and confirming the categories of description in the findings, a binary positioning of emic versus etic is not feasible. I employ a dynamic positioning that will be negotiated with myself and the participants throughout the process.

In his description of how he encourages his students to acknowledge their positionality within discussions of epistemology, Takacs (2003) modelled a reflexive practitioner. He stated that "'bias' is seen as a resource that can help us each understand our positions in society, can help us gain some perspective on the assumptions we may blindly hold about each other" (Takacs, 2003, p. 33). My positionality in this research is delineated by social constructionism and nursing, being a researcher, a student, a teacher and a daughter, and being a practitioner in and out of education and health contexts.

**Selection of Participants**

In a phenomenographic study an important criterion is the variety of perspective. Therefore, in this study the objective was to interview eight to ten students individually. The participant population included all students currently enrolled in healthcare programs at one of three main educational institutions in Saskatchewan where the education culminates in certificates through diplomas to degrees in unregulated to regulated professionals. There are over 30 healthcare programs between these three institutions, most with strong clinical components giving students access to patient experiences. However, students attend clinical at different stages in their programs. Following the definition of IPE (CAIPE, 2017), students were asked to be pre-qualifying, and were expected to have worked with at least one other student and a patient in the same experience. The initial student contact was expected to be submission of a reflective writing of a transformative experience in clinical and then the study participants delimited to students who appeared to write about a threshold moment. The goal of identifying participants was to uncover a variety of experiences relative to the learnings surrounding interprofessionality as a threshold concept. Modifications to the limits of the inclusion criteria are described in the participants section.

Potential students were contacted electronically. Permission was attained to post bulletins on campus-wide learning platforms with a call to participate in this dissertation research. Emails were sent from respective healthcare program deans' and coordinators' offices with information regarding participating in the study. Posters with the link to study information were posted at educational institutions and the student run clinics, SEARCH and SWITCH. A social media video was also created and posted on Twitter, Facebook and YouTube describing study information to recruit students. For ease of access, a link was provided to a Surveymonkey website, in all these recruitment strategies, where the student could read the consent form, then proceed to either submitting a written reflection of their experience or request an interview.

Recruitment was slow despite multiple avenues. Students who had submitted a reflection had consented on the Surveymonkey website. Only one of the five students who submitted a reflection wrote an adequate description of the threshold moment. One, a pre-law student, was excluded for submitting a reflection that depicted no teamwork. All three other students who submitted paragraph long reflections refused interviews.

**Participants.** Thirteen students participated in this study. Students attended the three main educational institutions in Saskatchewan and had attended classes or completed clinical experiences in Buffalo Narrows, Lloydminster, North Battleford, Prince Albert, Regina, and Saskatoon. Four of the students interviewed were from home countries of the Ukraine, Cameroon, Vietnam and the Philippines. Six of the students interviewed had previous education or practice as continuing care assistants, paramedics, kinesiology, community development and public health. Ten students had a long primary interview covering the perspectives of nursing, addictions counseling, psychiatric nursing, dental hygiene and public health. These 10 students gave perspectives of working and learning with 15 other professional groups. All students were attending undergraduate programs at the time of their primary interview except for one PhD student whose interview was retained because he requested an interview, was from a unique health program, and was the only male. Gender imbalance is not uncommon in health education research, as the healthcare students interviewed were from female-dominated programs. Three students submitted a reflective writing but refused an interview. Their data were kept adding scope to context or to account for professional programs involved in IPE. Table 3.1 shows the students by pseudonym, program and data collection contribution.

Table 3.1

*Students involved in interprofessional education*

| **Pseudonym** | **Profession** | **Reflection** | **Primary interview** | **Follow up interview** |
|---|---|---|---|---|
| Sylvia | Nursing | Y | Y | Y |
| Helen | Psychiatric nursing | N | Y | Y |
| Samantha | Dental hygiene | N | Y | Y |
| Rose | Nursing | N | Y | Y |
| Jennifer | Dental hygiene | N | Y | N |
| Kathryn | Nursing | N | Y | Y |
| Wil | Public health | N | Y | Y |
| Maureen | Nursing | N | Y | Y |
| Elana | Addictions counselling | N | Y | Y |
| Elizabeth | Nursing | N | Y | N |
| unnamed | Nursing | Y | N | N |
| unnamed | Kinesiology | Y | N | N |
| unnamed | Psychiatric nursing | Y | N | N |

Two students from pre-law had requested interviews but had no interprofessional experience to share and were excluded. One student was interviewed one month before her graduation and then was not available for a follow up interview as she left no forwarding contact information for after her graduation. One student's follow up interview took place after she had graduated. Elanna, the addictions counselor, was interviewed both times after graduation. Her primary interview was focused on an interprofessional experience she had as a student with comparisons to current practice experiences.

**Data Collection**

The goal of this dissertation was to interview students who had experienced an interprofessional threshold moment. Data collection methods included reflective writing and interviews.

**Reflective writings.** To ensure student understanding of the transformative experience of crossing the threshold, potential participants were asked to complete a reflective writing exercise.

Students were provided with a series of reflective questions to guide their writing of a transformational experience. (Appendix C).

Qualitative data are delivered to the researcher as reflections of past experiences. The inner dialogue of each student following the experience is a method of constructing understanding. Students were provided with three opportunities (one written reflection and two interviews) to share the construction of their understanding of liminality.

**Interviews.** Students were asked to participate in conversational semi-structured interviews. The primary interview ranged from 45 minutes to 85 minutes in length. Phenomenographic questions were designed to reveal various ways participants understood the experience of interprofessionality. Following Marton and Booth's (1997) suggestion, the interview included situated questions (Appendix D) regarding what was learned and what the nature of the learning context was, followed by probing questions to encourage reflection and draw out variation including changes in the individual and perceived change in others. Often the experience under investigation was not specifically discussed or focused on as a way to ferret out the reflections around the experience. Marton (1981) described this second round of questions as freeing the student of reflections and therefore they could be therapeutic in nature. Questions were often challenging the student about the interprofessional experience or questions arose out of the shared experience between participants and researcher related to healthcare education which made for a potentially more collaborative description of interprofessionality. The questions, especially in the first round, were open-ended so that participants could lead the discussion to what was relevant.

Once analysis of the primary interview was complete, students were invited to a second interview to confirm the transcripts, the description of the outcome space, and provide their interpretation of the findings. These interviews were 30-60 minutes long and were designed to 'construct toward discovery' (Walsh, 2000) which is described later in the analysis section.

**Data Analysis**

Bowden (2000) commented that phenomenographers approach method in different ways. In general, transcripts are read as wholes and in parts. The purpose of analysis was to find variation between experiences. But it can be difficult to keep all data sources in the researcher's mind. Instead of placing entire transcripts in category piles, the following process was followed for this study.

The transcript data were both individual and collective experiences. In general, analysis began with one conceptual aspect and then a comparison to the next diverse way a student handled the experience. As the analysis proceeded, the concept (i.e., what the student was describing of her/his learning) was vague until all perspectives were gained, or clarity was achieved and placed into categories of description. The concern with phenomenography was that the researcher categorizes conceptions, and this may deny individual participant voices. This concern was addressed by the stepwise approach to interviews, ensuring each student voice was represented in the next set of categories and confirmed with a follow up interview.

I developed a sequence of steps for constant analysis intertwined with follow up interviews for a consistent pattern of aggregation. While the nine steps below appear linear, they were often cyclical and repetitive.

**Step 1. Intentional focus on the phenomenon in awareness – interprofessionality**

A large part of the interviews was describing the student program, context for learning and the before, during and after of the significant learning moment. This information helped to differentiate programs, perspectives and interprofessional contexts. While student descriptions of their particular professional perspective were interesting and helpful to understanding team concerns, an intentional focus was required in social interactions.

**Step 2. Considering the parts in context of the whole**

Considering parts and whole was a consistently difficult step and often required reflective writing on my part in relation to bracketing or second-order positionality to maintain focus. Students often talked about individual learnings or learning in a uniprofessional context rather than the social construction required. Segments of the interview were assessed for interprofessional or socially constructed learning to be included in individual and interprofessional categories of description. Combining individual and interprofessional descriptions ensured that across categories, from individual to aggregate, the focus was learning in a team context. As well, this helped create the logical hierarchy of superficial to deep learning; the four categories of learning that ultimately develop into an interprofessional threshold moment.

**Step 3. Coding of individual interviews with a preliminary focus on the threshold moment.**

This step required viewing the transcript as a whole for the initial analysis. The threshold moment was often the first story, but was coded for the five threshold concept criteria. Students followed this with a description of the concerns leading up to the experience and therefore liminality was described thoroughly before moving onto more in-depth probing questions. The threshold moment was required as the significant learning to be able to discern from sequential steps of learning. NVivo was used as an organizing tool, specifically to collect the most significant learning moment, the five criteria of a threshold concept and the experience of liminality. The remainder of nodes created were to collect similarities in experiences between individuals.

**Step 4. Coding of individual interviews looking for steps of learning that created capacity to have a threshold moment.**

Because the interviews were conversational and the student led the discussion where s/he wanted, the learning steps were often not in sequence. I was required to consider the parts of the interview in relation to the threshold moment. Students often described steps to learning as smaller encounters with others, content, or decisions that had helped the student build the knowledge required for an interprofessional experience. Specific quotations were collected for each step to help identify the category for the student and differentiate the category from those of other students. Categories were named from a phrase in the student quotes.

**Step 5. Defining the individual categories of description**

The student quotations were used to create a definition of the categories of description. The purpose of this step was to both ensure students agreed with the phrase used in the category and to keep myself in tune to the student voice that built the hierarchy of categories. At this point, NVivo was used to organize nodes that had significant portions of the interview coded. These were printed and placed in four piles. Each pile was assessed individually to be a category of description, but in relation to each other pile to determine a hierarchy and delineate the position in the outcome space.

**Step 6. Combining the individual categories of the new interview with the previous compilation to make an interprofessional category of descriptions.**

The first student interview and categories were used as the base categories for interprofessionality. For every subsequent interview, the individual categories of description were combined with the aggregate interprofessional categories. Words and phrases were not deleted in the interprofessional categories only incrementally added to. Definitions and categories from the individual conceptions were critiqued for uniqueness, differences, or variation. The new or additional conception was added in words or phrasing to ensure the aggregate category reflected that uniqueness. The definition of the interprofessionality categories were then updated.

**Step 7. The individual student was re-interviewed having been provided with the transcript, their individual categories of description and the interprofessionality categories.**

Students were specifically asked in the second interview to confirm the individual categories of description that led to the threshold moment, confirm or name her/his threshold moment, and decide whether the interprofessionality categories were reflective of her/his own experience.

**Step 8. Confirmation and modification.**

The follow-up interviews were transcribed and coded to existing nodes. Field notes were written on how the student had deepened her/his reflection or how the experience since the threshold moment had changed or solidified. Notes were also written on how the student confirmed or modified the individual categories of description. Of note is the methodological categories of description required in phenomenography became the conceptualized learning steps for students leading to the threshold moment of interprofessionality.

**Step 9. Revisiting the parts in context of the whole**

Only steps four and five in this analysis have an individual focus. The other steps are focused on individual parts in contrast to the aggregate interprofessional categories being developed. This final step was considering the final aggregate categories of description for interprofessionality — the whole and the collective — and considering the extent to which they reflected each individual experience as described by the

students. Revisiting the parts and the whole is a significant step for phenomenography as the outcome space should be presented as an aggregate experience.

Throughout analysis, I began visually depicting the categories of descriptions shared by students. Figure 3.2 depicts the result of these eight steps of analysis moving from phenomenographic categories of description to coordinate with the learning of threshold concepts.

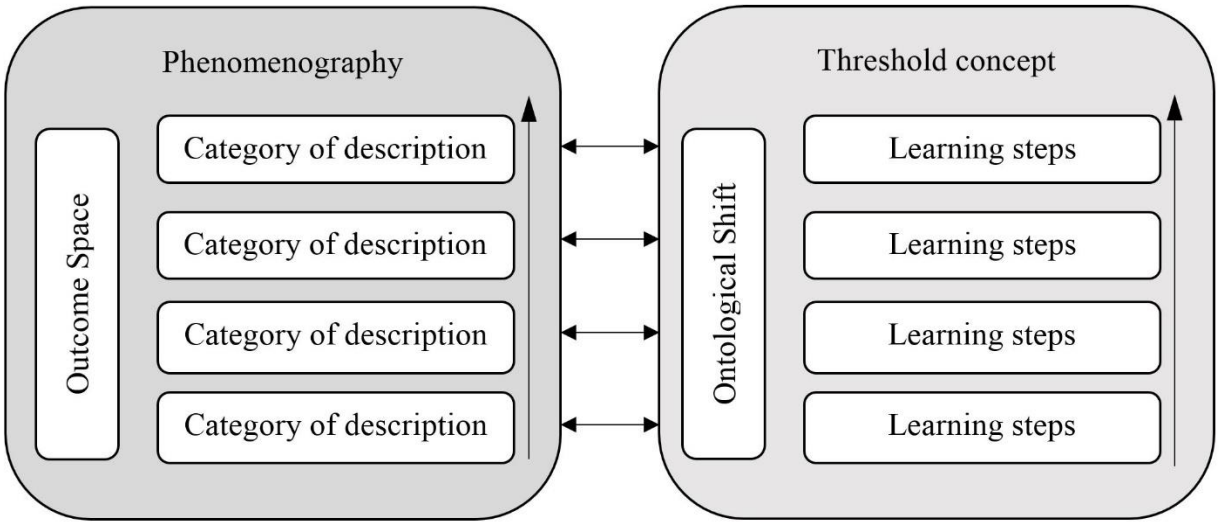


Figure 3.2 *Simplified combination of the comparison and contrast of phenomenograpy to a threshold concept.*

This visual of individual categories to the threshold moment was shared with students as a tool during the second interview. The combination of each individual student categories with all prior aggregate student experiences became the learning steps of interprofessionality. See appendix E, where figure E.4 depicts a comparison of two participants, their individual learning steps and the resultant combination into the learning steps of interprofessionality. Both learning method and framework have similar explication of transformation in the phenomenographic outcome space and liminal ontological shift.

Walsh (2000) differentiated between the researcher constructing or discovering categories of description, the argument being that the researcher has power and a better idea of conception under study. The alternative argument was discovering the data and being true to student voices. The reliability of discovery comes from having a second researcher independently arrive at similar categories. An idea that Walsh (2000) did not fully explain, but which was designed in this study was ‘construction toward discovery.’ Interviewing students twice meant they could

discover the categories by confirmation or modification. As well, bracketing and positionality were employed as described previously to lessen the impact of researcher construction.

**Establishing Rigor: Trustworthiness and Authenticity**

There are two parts to judging the quality of qualitative research; the researcher's trustworthiness in describing, interpreting and reporting the research and its outcomes and the authenticity of how the reader socially constructs understanding of those results and utilizes them in personal or professional contexts (Schwandt, Lincoln, & Guba, 2007). The purpose of research is to "make conceptual generalisations from the local context of a qualitative study to other settings" (Kitto, Chesters & Grbich, 2008, p. 243). Therefore, criteria for rigor which evaluates the research and its ultimate dissemination is complementary (Schwandt et al., 2007).

**Trustworthiness.** Trustworthiness contains the four criteria for credibility, transferability, dependability, and confirmability. Each are described below in relation to actions employed over the course of this research.

*Credibility* signals explicit disclosure of the data and results from researcher engagement with participants (Kitto, Chesters, & Grbich, 2008; Schwandt et al., 2007). For this dissertation, the researcher interviewed participants, interpreted the data, and then re-engaged with each participant to confirm the interpretation. These steps of phenomenography are part of member checking. Triangulation was achieved through the use of reflective writing, the transcript of the participant experience and the individual and collective categories of description used as tools for discussion in the follow up interviews. Peer debriefing with my supervisor confirmed my interpretation.

*Transferability* ensures that thick descriptive data has been collected for the reader to have enough information to judge the application of findings in other contexts (Schwandt et al., 2007). This dissertation collected rich data starting with the experience of the threshold in the reflective writing, followed by interviews to expand on that experience. Ensuring the participants have worked in interprofessional teams that include a patient is a measure of representative sampling.

*Dependability* refers to the process of research, both examining the procedures in the event that the research could be replicated (Schwandt et al., 2007) and expecting transparency of the researcher in conducting the research (Kitto et al., 2008). The procedures for graduate

students performing research with human participants was outlined by the institution including continuous supervisory review and committee examination of the research proposal.

*Confirmability* refers to the meaning-making of participant data including whether the researcher has reconstructed the interpretation to convey the participant meaning appropriately (Schwandt et al., 2007). The researcher had a sense of objectivity or neutrality which for this dissertation was achieved through bracketing and confirming categories with students.

**Authenticity.** This rigor criteria considers fairness, ontological authenticity, and educative, catalytic, and tactical authenticity. These are hereby described as utilized in my study.

*Fairness* is the act of ensuring a balanced representation of the participant's values (Schwandt et al., 2007). Schwandt, et al. (2007) suggested that conflict will be generated during the research process because inquiry is based in values and each participant will have different belief systems. The researcher may ensure fair representation by negotiating the exploration of values and how to address any unresolved concerns (Onwuegbuzie, Leech, & Collins, 2008). In this dissertation conflicting representations are expected because of the variety of health programs that exist in the province, each which socializes to that particular professional culture, but also socializes to the Saskatchewan health care system.

I was aware of the perception of power my position as researcher, nurse and educator held to those I interviewed. Sharing power by sharing the learning in this experience was a way to negotiate fair representation of each participant's chosen health profession. I also negotiated power and fairness through informed consent and member checking.

Ontological authentication was the expectation that the participants and researcher are aware of achieving a higher consciousness; a reconstruction of reality (Schwandt et al., 2007). This criterion "refers to the extent to which the constructions of the research participants have evolved in a meaningful way as a result of participation in the study" (Onwuegbuzie et al., 2008, p. 8). This authentic way of being in the research is evidenced through an audit trail, of participant experience, field notes and debriefing with my supervisor. Of note for these students was the finding section on ontological shift.

*Educative authenticity* moved beyond individual ontologic experiences to understanding the roots of the experiences for others (Schwandt et al., 2007). Participants revealed through their reflective writing and interviews how they are becoming "educated about others of different opinions, judgments, and actions" (Schwandt et al., 2007, p. 23). Each participant's personal

experience of working with a patient blended with their professional experience of working on a health care team to create a complex construction.

*Catalytic authenticity* is facilitating the thoughts and actions of the participants into their context and the application of new understandings (Schwandt et al., 2007). Onwuegbuzie et al. (2008) suggested researchers should ask whether the participants' experience in the study leads to new appreciations and interest in acting on that new knowledge and the resolve to reduce conflict in value systems. The authors developed a set of reflexive questions for researchers to assess the catalytic authenticity of the research. One question is "what follow up strategies do you intend to use to assess the extent to which the participant's actions stem from the increased understandings that emerged during the course of the study?" (Onwuegbuzie et al., 2008, p. 10). This question may have to be addressed in future research. The goal of IPE is that through interprofessional learning, healthcare students improve interprofessional working and thereby impact patient care. However, with a focus on the student learning experience rather than the patient, some of these reflexive questions were addressed in the follow up interview where participants contributed to and critiqued my initial phenomenographic categories. As the researcher, I did ask what changes students perceived since the first interview which often led to a discussion of what they will take with them when transitioning to practice as a result of our discussions about interprofessionality as a threshold concept.

*Tactical authenticity* requires empowering stakeholders to collaboratively negotiate an effective outcome (Schwandt et al., 2007). Onwuegbuzie et al. (2008) suggested this ensures participation in the research by the students and that "this transforms the participants to being not only co-constructors of knowledge but also change agents" (p. 9). An effective method to collect this measure of agency would be to conduct debriefing interviews as part of the audit trail which for this dissertation was achieved in the follow up interview.

Both Onwuegbuzie et al. (2008) and Schwandt et al. (2007) stated that methods to address authenticity have not been fully explored. However, authenticity measures add an element of reflexivity and meaning making to the research process as a complement to the positivistic approach of trustworthiness.

**Ethical Considerations**

Ethical approval was attained from Saskatchewan Polytechnic, the University of Regina (UofR) and the University of Saskatchewan (UofS) which ensured inclusion of healthcare

students along a wide career track of approximately 30 programs. Students signed consent at the first interview. Students consented to transcript release prior to the second interview and verbal consent to record the second interview was attained each time. Transcripts were not provided back to students for the second interview.

## Summary

Chapter 3 provided a thorough description of the epistemological underpinnings and phenomenographic research design. This phenomenography employed reflective writing and in-depth interviews in a sequential nature to combine the categories of description into a four-step hierarchical learning process leading to the threshold moment of interprofessionality. The selection of participants and variety of recruitment measures were addressed as well as the conversational nature of the interviews leading through a nine-step cyclical analytic process. Finally, rigor and ethical considerations were outlined specific to employing this study. Chapter 4 provides the findings and begins combining the phenomenological learning method with the threshold concept framework. This process begins with the individual student stories followed by their experience of liminal chaos.

## Chapter 4: Voices of Learning through the Chaos

The purpose of this study was to explore healthcare student threshold learning experiences within the context of interprofessional education. This chapter presents the findings with delineation of individual experiences, parts, often in comparison to the collective experiences that make up the whole. I encourage readers to consider the research questions not as linear or concrete constructs, but pieces of information that weave throughout to describe the threshold concept of interprofessionality. The research questions are additionally summarized in Chapter 5.

This chapter delivers the healthcare student stories of interprofessional learning. In the first section, a short excerpt is provided for each student interviewed, describing the context for learning, and the threshold moment. The student perceptions of change are delineated by the five threshold concept criteria of being bounded, troublesome, integrative, irreversible and transformative. These individual perceptions were aggregated into the experience of interprofessionality. After a description of learning contexts that played a part in the threshold moments, the next section provides the first example of the collective foray into the liminality in healthcare education, described in a short story format. Then, to set the stage, student descriptions of working in different interprofessional contexts within Saskatchewan are shared, specifically the perceptions of change in the context from before and after the threshold moment. Next, the threshold concept of interprofessionality is outlined by describing the four categories of description, or learning steps, which are the result of aggregated categories of learning from all the healthcare student contributions. Finally, the student reflections on changes to their interprofessional learning and working are presented from the aggregated follow-up interviews. The structure of this chapter follows the students on a journey through individual professional experiences in diverse learning contexts, through the liminal chaos of being a student, over the threshold of working with patients and others and into aggregation as an interprofessional healthcare team member.

Participants were 13 students from three different educational institutions enrolled in healthcare programs. Nine students had been in undergraduate programs and shared stories of threshold moments. One student was a graduate student with a public health background. He was interviewed on his request because he had recently had a threshold moment and was the only male participant. Students were from a variety of communities across the province of Saskatchewan and came from addictions counselling, dental hygiene, nursing, psychiatric

nursing and public health programs. They shared about experiences in student-run clinics, acute care clinical placements, community agencies and structured educational experiences with patient-actors. One student had already graduated but requested an interview to discussion her IPE experience from during her program which she was currently comparing to her practice settings. An additional three students provided reflective writings online but refused interviews.

## Healthcare Student Threshold Moments

The following accounts are an overview of interprofessional experiences across the province from each individual interviewee. This section addressed the research questions, what were the experiences of students, in specific situations, in which there has been a threshold moment? and, what were the individual experiences of change associated with the threshold moment? Each student was given a pseudonym and each account of the individual threshold moment was titled based on the student appreciation of the transformative moment. Each story describes the learning context including the patient and healthcare team member contributing to the experience, the threshold moment, and each of the five threshold criteria of boundedness, troublesomeness, integration, irreversibility and transformation.

### Sylvia: Shift

Sylvia was a third-year nursing student at the University of Saskatchewan in Saskatoon. Sylvia seemed very excited to talk about her goals for learning in nursing and her reflections on interprofessional experiences. The impetus behind her foray into an interprofessional environment was her insight that she needed to learn to communicate with clientele with different backgrounds and life experiences than her own. Sylvia also felt that she had too few volunteer hours and while she was a full-time student doing a few hours of work on the side, volunteering at SWITCH, the student run clinic, would provide opportunities to help grow her communication skills. In particular, Sylvia seemed to focus on gaining experience with children. She talked warmly about her relationship with her nephew, but then when discussing young children and babies, described her learning challenges with words like, “not my forte,” “the kids had all the power,” or “negotiating” versus “engaging” with children. Despite communicating with others and children, “not coming naturally” to her, Sylvia was very observant and thoroughly described the learning context that led to her threshold.

Sylvia described SWITCH as student-focused, which to her meant accessible; orientation was structured, times were flexible and working with peers meant a chance to compare

experiences at school. Sylvia described the waiting room which was the entry to all services and programming, the clinic rooms and the childcare room. She relayed multiple stories comparing her learnings, but she specifically focused on the instance where her interprofessional learning began. Sylvia and a medical student were assigned to food services to prepare and deliver snacks to SWITCH clientele. Both were on their first shift and neither had worked together before or since. Besides the confusion of figuring out duties and responsibilities for the first time, was the added anxiety of how to communicate with the clientele. What are the rules around providing food especially to clients who are intensely affected by the social determinants of health? Sylvia described how confident the medical student seemed and surmised it must be from her previous degree and therefore extra life experience. They talked to each other quite a bit about their programs before heading to the waiting room with the cart. Sylvia described herself as nerve-wracked prior to entering the room because she was unsure what to do or say. However, on entering the room, Sylvia experienced what she described as a shift. Greeting the clientele and answering any questions became her responsibility despite her own perceived lack of confidence or skills. The other student did not talk as much as when they were preparing food.

This moment was troublesome because talking to diverse clientele in this setting was foreign to Sylvia. The concept of communication was clearly bounded in this moment. Both students had learning and experience communicating and understanding a therapeutic approach and rapport. This moment was transformative in a few ways. Sylvia was required to change her behaviour and communicate. Her description gives the sense that she was forced to answer because the other was not. Yet in describing the other student's shift in behaviours, Sylvia took on the experience, changing her language from describing what she saw the other student doing to owning her own shift in learning communication skills. The remainder of her interview included multiple stories where Sylvia learned from other students about different aspects of communicating interprofessionally suggesting that her threshold had been an irreversible experience and one she integrated into future learning.

**Helen: Bigger Brain**

Helen was a second-year psychiatric nursing student at Saskatchewan Polytechnic originally from the Ukraine. Her previous education was in finance. In high school she never imagined working closely with people but with time and experience, she chose a helping profession because of her passion for mental health. Her first interview was at the beginning of

her last year and the follow up interview in her final practicum before graduation. She had a variety of mental health clinical experiences across the province. She spoke about her long-term care experience followed by mobile crisis.

The learning context for Helen was at Saskatchewan Hospital in North Battleford, which she described as a long-term care facility for patient with special needs. Most patients had their own rooms, and most were employed externally or in therapy during the day. Report was delivered between teams at shift change and this team included a nurse and care aides. While Helen was on this clinical rotation with her faculty member there were two nursing degree students and their faculty.

Helen described the situation as starting with a feeling of polite disrespect. A couple of degree nursing students chose not to introduce themselves, nor utilize Helen as a resource despite her having more time on the ward. Helen got the sense that the other students knew everything. She was surprised that the professional tension discussed in class was actually real. Helen's focus became about not conveying the same tense attitude but using communication techniques to show trust.

Helen entitled her threshold a 'bigger brain.' While she did not want to force learning, sharing or teamwork on anyone, she also did not want to sit around and wait for things to happen. She sought out challenging experiences even though she was scared, as a way to increase her knowledge and experience and decrease her fear for the next time. Her experiences with the nursing students as compared to social workers closer to practice taught her what had been missing in her education (i.e., the initiative to learn together).

Helen's transformative experience was realizing education is not better or worse because it is longer or shorter, just focused on different things. The best of decisions with patients come from learning from different perspectives. The troublesome aspect of Helen's threshold was expressed as fear. Her descriptions of fear centered on taking initiative asking for advice, sharing perspectives and not being perfect or making any mistakes. In working through the fear, Helen realized because patients are unique, and professionals have unique perspectives there is no one way to approach a problem and one person cannot know everything.

Helen solidified her threshold by repetitive behaviour. She was wary of forgetting things and "freezing" in clinical, so she sought multiple experiences to reduce the chance of an unusual situation. In this way, fear became a part of her, integrated into her learning process to use for

adrenaline to take on new learning responsibilities. Interestingly, Helen's interprofessionality, the 'bigger brain', was not bounded by mental health content, but was literally about finding the specifically trained person for the problem. While she was distressed that the nursing students would not use her expertise as a psychiatric nursing student, she pondered what expertise she could use of the nursing profession. She also admitted to seeking out an expert more familiar with medications. While no patient was specifically addressed in her narrative, Helene mentioned that it was the patient, the one person working with all three students, who brought up the differences in interactions.

**Elanna: Awareness of Bias**

Elanna had been in Canada for 10 years and was a Filipino addictions counselor. She requested an interview after participating in an interprofessional problem-based learning experience as part of her program a few months before she graduated. Elanna described addictions counseling as a profession focused on harm reduction. She often stated people are not their addiction and relayed stories of frustration when working with others who made judgements, or created labels and stereotypes, rather than the unconditional positive regard she expected from not only addictions counselors but all healthcare professionals. She shared that her role was to help others understand how trauma affects life and help create safety for patients living with addiction if the behaviours cannot be changed immediately. I asked Elanna about healthcare professionals giving patients a clean slate. She disagreed. A clean slate suggested forgetting the experiences of the past, whereas unconditional positive regard acknowledged the past but created safe space for focusing on the present.

After her last clinical up north in Buffalo Narrows, to her first job at the treatment centre in Prince Albert, Elanna joined me to talk in Saskatoon where she was working as a personal support worker at a halfway house because the job market for addictions counselors was very competitive. Elanna stated the iPBL, despite being paper based, was significant learning for her which she compared to personal and professional experiences of working in interprofessional environments since graduating. Elanna reflected on the iPBL saying that it really worked to bring different professionals together and that more experiences, especially in relation to empathy and counseling would assist students in providing holistic team-based care.

The threshold moment for Elanna was titled, 'awareness of bias.' When discussing the paper case, the nursing students focused on the biomedical aspects, especially vital signs and

tasks related to medical diagnoses or interventions. In comparison, Elanna was impressed by the psychiatric nursing student who offered screening tools and started a discussion on how to approach and interact with the patient. Elanna felt that the psychiatric nursing students were well equipped to provide balanced care that acknowledged mental health and conveyed empathy. The experience and reflecting on the experience in the interview almost a year after it happened, made Elanna share her bird's-eye view of learning about her bias toward other professionals and how that subsequently played out in different clinical and work experiences since that day. At one point in the interview she reacted to her own statements when she realized her bias was coming out again after relating a story of being in emergency with nurses who acted like robots. When re-interviewed about her categories of learning, Elanna reiterated the value of interprofessional education during her program and said, "I just really care, I think. I really do want change." While continually frustrated with the sense of numbness she witnessed from other professionals, Elanna's now omnipresent awareness of bias made her acknowledge where being humane did exist. She shared changing thoughts and behaviours to assist herself and other professionals to understand how bias affects a sense of belonging for patients and interprofessional teams.

The troublesome knowledge for Elanna was focused on emotional safety. Because Elanna was working intersectorally in custody environments, she questioned whether the setting or type of practitioner affected empathy as compared to traditional healthcare environments. While she acknowledged a bias toward nurses, she could also share where she trusted nursing skills but trusted their judgment more when nurses also provided for emotional safety. Acknowledging where her bias did not fit meant her learning was irreversible. She integrated her appreciation for the skills of others by conveying respect for professionals despite the level of education. She advocated for daycare workers in one setting because of the assessment and planning skills they shared with the interprofessional team. The ability to see similarities and differences in professions occurred for Elanna at this iPBL; she had been bound by the mental health concepts in her own profession and now testing bias has expanded her patient care to an interprofessional scope. The resultant transformation was accepting that other professionals will challenge her bias.

**Samantha: Not Left Out to Dry**

Samantha was 25 years old and graduated as a dental hygienist from Saskatchewan Polytechnic one week from the primary interview. She had a previous degree in kinesiology though her first choice was dentistry. She made the tough choice to enter this program instead of nursing because of her health at the time. She attributed some of her success to her age, her previous university experience, having learned how to manage her time and not being homesick as she moved to attend this program. She felt the program and her cohort challenged her to be outgoing, respect their diverse experiences and become both the class clown and the leader.

The dental hygiene program was more than cleaning teeth. There was so much coordinating of the patient's care plan, where Samantha was exposed to the lab and bloodwork, pharmacy and medications, dentistry, medicine, and nursing. The program was based on points for each patient in a clinic chair and so many were required to graduate. Samantha described a major difference between the school clinic and private practice being time. Patients to the school paid a flat fee of $50 but appointments were two hours long and many patients required more than two appointments for a full assessment. Where patients at the school clinic were often the elderly or immigrants, patients in private practice often had insurance and required shorter appointments because they had education on, and access to, oral care.

Samantha was a perfect example of requiring more than one experience to solidify her interprofessional threshold crossing. She did not even remember her first until the very end of the interview and because of probing questions. All five criteria for her threshold therefore spanned the two moments in time; the first early in her first year and the second in her second year. Both experiences were structured IPE developed with patient actors and were with combinations of nursing and paramedic students. Her first experience she called an 'a-ha!' her second she called 'the clicker.' The threshold moment for Samantha was entitled 'patient care is better when you're not left out to dry.' Samantha was considered a leader by her peers and was often pushed into being the representative for the class or going first in educational experiences. Because she was first, she was required to figure out how to negotiate new learning contexts and working with a patient actor with limited support, until the team stepped up to help. Samantha's learning was surrounded with frustration and anxiety until the team came together for the patient actors.

To elaborate further, in the first experience, her team was required to transfer a patient actor with dementia from a car, using a walker and wheelchair to the dental clinic chair. In the

course of the experience, the team banged the head of the patient on the car door, lied to the patient about where her deceased husband was and failed to offer hand hygiene. The troublesome part of this experience was communication with the patient and team, especially figuring out the knowledge and skills of others. The integration in this experience was the frustration of learning. To overcome not knowing and not being prepared, Samantha learned to seek resources from others and ask questions.

Her second experience was a simulation where she had to call the paramedic students after assessing her patient for chest pain. Yet, the actor forgot to show abnormal symptoms and her teammates did not help. These experiences were bounded in the dental chair. Samantha stated that she could now handle this if it happened in her chair in practice. The threshold at this point was irreversible because Samantha had learned from being unprepared in the first experience and spent the night before the second researching her emergency content and emailing the school clinic dentist clarifying questions about content. The transformation for Samantha was expressed as leadership. She became the outspoken student who always asked questions, first exhibited in the simulation when she asked the paramedic students about assessing patients and the process for calling 911 in a healthcare setting. This moment is where Samantha learned what can be described as 'the paramedic no.' For every response of 'I don't know' a bystander makes, the paramedics will presume 'no' until they have gathered more information. Samantha planned to provide as much information as she could.

**Rose: Foster Understanding and Find a Mutual Goal**

Rose was accepted to university at 17 years of age. Previous health experience was limited to being a patient in emergency or the operating room and the experiences of her mother who was a speech language pathologist and had her own stories of navigating access to interprofessional care. She relayed that her Mom had always engaged as a team member, especially with students. She credited her Mom with guiding her to build relationships and thereby build trust. Part of Rose's philosophy was to also build relationships on honest communication and shared contribution. She told of a high school instructor who made a tapestry with a grade four classroom about reconciliation which was hung at First Nations University. She taught Rose that part of reconciliation is working together. Everyone is a tapestry; individually we are pretty, together we are beautiful. Rose was taking this guidance forward to create something amazing. Rose engaged in her education by joining the local and national

nursing student associations. She stated she was interested in a nursing career at the extremes of life — pediatrics or working with the elderly.

Rose requested an interview because of her participation in SPICE, the Saskatchewan Polytechnic Interprofessional Challenge Event. Rose titled her threshold moment 'developing interprofessional relationships to foster understanding and find a mutual goal.' She declared SPICE was her threshold moment and in particular she chose a moment in the back of an ambulance. SPICE is similar to an *Amazing Race* with a series of stations for interprofessional student teams to complete. Success, and the winning team, is measured by a point system on teamwork in task completion.

This threshold moment was bounded, literally, in vehicles, with both a live patient actor in a minivan on the loading dock and the mannequin in the back of an ambulance. The troublesome nature of this experience was determining an interprofessional and patient-centred goal. Rose oscillated between performing nursing skills and meeting the team intent. Especially in the case of the patient actor, wrenches were thrown into team plans when the patient added elements of her story. The experience was transformative because Rose began viewing team before task. For the team transferring the patient actor to the wheelchair, they were specific in acknowledging their profession and what skills they could contribute. However, attempting to move the patient actor proved difficult because of her dementia and level of understanding. When she did finally transfer, the wheelchair broke and they had to figure out how to do it all again and move her to another one. In the ambulance, students were required to rotate between doing cardiopulmonary resuscitation (CPR), at an appropriate depth, and driving the ambulance around an obstacle course. Some students could not sustain CPR for long and others had smaller body types which affected their CPR technique. Rose stated there were moments in both stations where they had to stop and re-envision their teamwork to be more effective for the patient. The reflection on SPICE highlighted that Rose placed importance on a value that each individual professional held in contributing to patient care.

For Rose this was integrative because it affected her performance in future simulation labs. Her moment was irreversible because she promoted SPICE to all healthcare students as a way to increase their interprofessional opportunities and increase their confidence in skills.

**Jennifer: Why Haven't We Figured This Out Yet?**

Jennifer's threshold moment was somewhat fragmented in the telling but that may have been from her staunchness to the idea. Jennifer told about an IPE event for early first year where interprofessional student teams worked with newcomers to Canada taking English classes. Her group consisted of student from Bangladesh and China and paramedic students. Along with learning about health access and health priorities in other countries, Jennifer learned the similarities in assessment and medications for dental hygienists and paramedics. Awareness of similarities became the beginning step over the threshold when the other students were surprised at the connection between mouth and teeth and systemic disease. Jennifer's threshold moment was termed 'why haven't we figured this out yet?'

It was frustrating to her that patients and practitioners of any profession were unaware of or disregarded how the mouth shows signs of disease. Jennifer's threshold moment was bounded in mouth care. Her entire interview related to engaging patients and other health care students and providers on making mouth care a priority and easier. She had integrated this experience so much, she frequently advocated for fixing the disconnect between mouth and health. Her experience was irreversible as she talked about solidifying her knowledge after anatomy class and how she was going to take it into practice. The troublesome knowledge was how to educate others and make them feel as committed as she to the benefits of mouth care. Her transformation was exhibited as confidence in referring patients to physicians, not even dentists, to prevent eventual interaction with nurses suggesting more serious intervention.

Jennifer felt her confidence came from her parents. She heard that she was personable, so she took her confidence with her and gave her best. Even if she was nervous, she hid it with confidence. Jennifer completed a year of university in Saskatoon and found it very different from the dental hygiene program at Saskatchewan Polytechnic in Regina. While she complained about the intensity of the program, she shared an underlying sense of pride because the rumor was that dentists from outside the province would hire Saskatchewan grads first because of the program and practical experiences. Jennifer, as a new graduate, had been involved in long-term care assessment of the elderly, performing sealants in schools, community oral health programming with Regina Open Door Society, and the Food Bank, and a dental hygiene day for people most affected by social determinants of health.

Jennifer loved to learn and educate. Her frustration came through a few times in the interview as she said, "no one realizes how bad it can get, but how easily it can be fixed." She described herself as always looking for the next step but being a perfectionist. She felt that she and everyone in the class had anxiety from being hard on themselves and worrying about what may go wrong. Jennifer had an intriguing way of describing her professional role which seemed as though it were blurring the line to her individual identity. She said, "a dental hygienist's job is to get these little granules of things off teeth that cannot even be seen. They are below the gums and we just feel it. It's what you need, to be that perfectionist."

**Kathryn: Teamwork Made Me Walk into that Room**

Kathryn's first degree was in community development followed by three years of work with a WHO program in Uganda. Because of the epidemic of HIV/AIDS the program was built to support people and organize the communities. Kathryn stated that much of her work was in communities where fully 70% were diagnosed and devastated. She described her job as giving them hope while she worked hand in hand with nurses, the scope of their role was limited to delivering medications and education on compliance.

From there, Kathryn received a scholarship to do her master's in international economics in the United States. She met her husband then and they had four children. She planned to work until the children grew up and wanted a job that got her closer to working with people. At the time of her first interview, Kathryn was a third-year student and spoke often of applying past learning to present situations. She related her family health course to her work in Ugandan communities — guiding patients to be strong for their families. The reason she requested an interview was her desire to apply the knowledge she had learned from her threshold moment to her current clinical.

Kathryn's threshold moment was entitled 'teamwork made me walk in that room.' One clinical morning, Kathryn had completed her preliminary assessment and work with her patient to ensure his safety. As she walked by another room, a CCA asked for her assistance. Kathryn related her concerns on both sides of that decision. Her primary responsibility was bounded to caring for her patient. As a student, and knowing her instructor was evaluating, Kathryn could refuse and focus on her own work. She decided assisting would not "stop her caring for her patient." The CCA's patient had a developmental challenge that made him unable to communicate. He was grunting in discomfort and having difficulty breathing. Because the CCA

had been asking questions of Kathryn about her progress in the program, when Kathryn expressed concern for the patient, the CCA said, "You're a nursing student, check!" The transformative moment was Kathryn pulling out her stethoscope to auscultate and report her findings to the nurse. Within an hour the patient had been transferred to the observation unit and septicemia protocol started.

Kathryn shared many layers of troublesome knowledge around teamwork. She admitted to struggling with her clinical instructor; the relationship was tense, and she was stressed. She said she was ready to do anything for that instructor as she was doing well in this clinical. Kathryn said, "I went to the floor to collaborate, to produce, to stand out, do the best." Yet multiple times in the interview she described herself as an introvert. This lack of surety conveys some of the liminal chaos Kathryn was working in surrounding this experience. Another layer of troublesomeness was that during her threshold experience, her instructor kept pulling in team members and sharing information and opportunities for skills with Kathryn to keep her involved and updated on the patient's situation. Kathryn seemed torn between caring for her patient she was assigned to and staying involved with the patient she had assisted.

The integrative part of this experience was having another professional be an explicit partner. Kathryn stated this ward made students aware and did not just assume that students did all the work with their patients. The staff expected teamwork. The idea of team has since become irreversible for Kathryn and she stated once you have the team, they will always help you through. Her teammates connect with her in the halls even now that she has moved on to other rotations and they seek opportunities for her to observe healthcare procedures or they offer feedback. The CCA provided feedback to Kathryn's instructor, saying she knew what she was doing:

> *The CCA was like this man could have died in my hands. Imagine that can kill a patient and we had transferred that person into observation in like an hour. He could have passed out, something really bad could have happened to him.*

Kathryn stated that team members are always asking each other questions, that no one is an expert, everyone is always learning. With this approach and from that experience, Kathryn felt her nursing teamwork would become effective and efficient.

**Wil: Just Doing What We Believe In**

Wil's professional story began with a public health degree in Vietnam. His program was focused on epidemiology with a major in food safety. He received several credits toward practical teamwork experiences, not necessarily interprofessional experiences. His bachelor's degree led to a job as an official researcher in a national institute where he experienced working with the Food and Agriculture Organization of the United Nations and the WHO. These experiences prepared Wil for a global perspective and understanding how international organizations assist Vietnam, but also to see what was happening globally for other nations. Wil stated that the health system in Vietnam does not pay too much attention to public health but focuses on hospitals and doctors. Therefore, public health workers spent their time working with non-governmental organizations supported mainly by US dollars. From this experience, Wil travelled abroad completing his masters in Canada followed by his current work in a health sciences doctoral program. Wil's research was an epidemiological look at atopy and asthma in children. This one health theory approach to environmental exposure demonstrated the connection between animal, human and environment. He suggested his program was not about real research but developing experience. He worked with numerous diverse groups on research projects. He described his role as the connecting statistician between professional perspectives and he shared numerous experiences where he helped shaped the research message from stats to something useable by the public and clinicians.

The context for Wil's threshold moment was the One Health Leadership conference put on in late summer at the university. Students from numerous professions hear from world-renowned experts in science and health and also have opportunity to work in student teams. Wil met a woman working at the WHO and was inspired in how she delivered her message about public health and the one health perspective. Wil kept repeating that the way she delivered her message to him was intriguing — he felt both convinced and trusted by her. Wil followed all the suggestions made including taking an online course about one health on Coursera that led to a travel grant to the Geneva Health Forum where he built a network of international collaborators. Wil's learning from this experience was to just keep doing what he believes in because the message from his work counts.

The troublesome knowledge for Wil was the silos. Wil talked about breaking down silos, working with collaborators at the Global Health Forum to problem solve interprofessional

solutions to world issues and how difficult it was sometimes to have more than a uniprofessional conversation at the university. His threshold experience was bounded in the interprofessional model of one health which shaped his research, the conferences he attended, the online learning and the reason for requesting an interview. Wil was transformed by speaking to the woman from WHO where he integrated the message of how to put interprofessional working into real life and how an interprofessional approach is "for the better." The experience was irreversible for Wil because he has continued to reflect on how it applies to his research and continues to seek out interprofessional experiences or conferences.

**Maureen: Now I See the Role My Profession Plays**

Maureen was a primary care paramedic in her third year of nursing at the time of her first interview. She described both fully integrating and differentiating between her paramedic and nursing knowledge. As a paramedic she described only having about 30 minutes with a patient, for mostly physical illnesses. Her priority would be getting answers to a series of questions so she could implement a quick plan for transfer to hospital. She stated her nursing care was different than the care she provided as a paramedic, with different agendas and different goals. She chose to go into nursing because she felt she was always picking up patients, doing their thing, dropping them off, leaving the assessment sheet and going onto the next patient. What she desired was a chance to collaborate, follow patients and be more involved in their care, even though she said there were times when she missed the action. Maureen relayed that her paramedic knowledge outweighed her nursing knowledge for the first two years of the program; she felt limited to a smaller scope of practice. But in third year she began to see the rationale for nursing and the impact on the patient into the future. At this point in her program she felt she was beginning to tie things together and see the whole picture.

One of Maureen's most significant learnings was comparing the change in herself from her first practice as a healthcare provider through her current experiences in clinical and considering where she would work in the future. Because of the nursing approach to social determinants of health, Maureen gained new perspective of the impact multiple factors have on patient's choices, access, and actions for care. Where she had originally found working in northern communities difficult and found herself quick to judge because of her own lack of education, she now felt she could relate to patients more and would have more to offer. She felt passionate about her experiences in the community, whether as a paramedic or a nursing student,

and attributed that to having different placements in areas like reading programs in elementary school or pediatrics. But she commented that determinants of health played a role in each placement, just in different forms.

The context for Maureen's threshold moment was the Dubé Centre for her third-year mental health clinical rotation. Maureen described her transformation as a shift from second year, where many interprofessional experiences were observed, to third year where she felt pushed to be involved and felt things start to click. Prior to third year, Maureen did not feel included, but now felt trusted. Her transformation was seeing the role that nurses play and understanding the rationale for their interventions with the patient. Prior to that, the troublesome aspect was never being asked to share an opinion or be listened to or be included in planning despite being part of patient care teams. For Maureen, this experience was bounded in advocacy. She described being pulled aside by medical students to share her nursing opinion of the plan of care. For her patient, Maureen felt there would be benefit working toward the goal of receiving a pass to leave the ward for recreational therapy. Maureen said the relationship with her patient changed and she was trusted more as a nursing student because Maureen was taking the patient seriously, listening to her, and finding a way to address her needs. Maureen integrated a patient-centred approach stating that advocating for patients should be about "what they want as well, not just what we think is best for them." A patient-centred approach became an irreversible change in behaviour because Maureen talked about advocating more and working with teammates to make it happen. Maureen saw the value realized for the patient from this moment.

**Elizabeth: You Used My Info to Form Your Plans and That Was Cool**

Elizabeth was a CCA in her third year of the nursing program at Saskatchewan Polytechnic/University of Regina at the time of her interview. She has had the desire to be a nurse since she was 10 years old. She was grandfathered in as a CCA but did go back and complete her course eventually. Elizabeth described that her co-workers mostly have been "grandfathered in," a term used to describe those who are not required to attain more education to meet current educational standards (often suggesting a recognition of experience in place of learning). Elizabeth found it interesting entering the nursing program and seeing how different professions are taught to do the same skills. She seemed to feel that nursing had more rationale for actions, whereas CCAs approached patient care with more pragmatism. This realization continued to transfer to her relationships as she progressed through her program. When she

worked as a CCA, she would read patient charts to understand their medical diagnoses and the implications for her care; connecting more dots. This knowledge and the skills she had attained meant she was asked to do more by her co-workers, often more that was out of scope of a CCA, which was both a complement and a disadvantage. Yet her relationships with CCA co-workers and patients also helped her realize the strengths of nursing; the continuous problem-solving, always finding ways to do things differently with patients, and reflecting on nursing care. Since entering the nursing program, Elizabeth also has engaged as a leader. She was, at the time, a representative on the local nursing student society and was elected to the Canadian Nursing Student Association. Her work on those organizations had been to advocate for stronger representation of practical nursing students and Indigenous nursing students to increase the voice of nursing nationally.

Elizabeth's threshold moment was bounded in interprofessional rounds. She was given the opportunity to witness rounds at Dubé, but because she had spent a month with her patient, and the nurse she was working with was casual, Elizabeth was able to answer questions for the team. The psychologist, then, changed the team dynamic to the students running rounds with guidance from the professional preceptors. Elizabeth remembered noting the questions asked and the difference in student responses compared to the prioritizing skill of the professionals. The troublesome aspect for Elizabeth was the memory of all other interactions but this one; nursing students contributing information, but then being dismissed to hear what the nurse had to say. This experience in rounds made Elizabeth aware that students could contribute something of value when listened to and given the opportunity to lead. She also noted a clear divide between her contributions and other students which stemmed from a different relationship that nurses seem to have with their students, as they are more often asked to follow and observe.

Integrative for Elizabeth was the awareness that team discussions happen and connect all the lose threads in the progress notes in the chart. The notes do not represent a team plan, but separate disciplines. Elizabeth called it "together but separately towards the goal." The value of witnessing a team discussion was to see the problem-solving, see how different professionals approach situations, how the team comes to conclusions and how to prioritize actions. This value became irreversible for Elizabeth because now she could connect the lines in any chart, and picture the team having discussions even if she had not been part of them. Her transformation

was picturing the team goals and being able to aim her own nursing goals in the same direction with greater priority than she felt she contributed previously.

## Synthesis: Learning Contexts

This section is in response to the research question of what the context was before and after the threshold moment. Student experiences are presented as aggregate change in perceptions of context, before and after threshold moments. For most students, acute clinical settings increased accessibility of team members and therefore they perceived interprofessionalism increased. However, that remained fully dependent on professional agents. Teamwork was based in relationships and students noted when agents stood out as conduits to a team approach. The success or availability of interprofessional learning was also dependent on agents in educational and community settings.

For the most part, students shared about serendipitous learning in experiential settings. Two students did experience learning in the student run clinic, SWITCH. Clinical interprofessional experiences were reported in the Saskatchewan Polytechnic dental clinic, in the long-term mental health setting of Saskatchewan Hospital in North Battleford, in the medical wards at Regina General Hospital, Saskatoon City Hospital and Royal University Hospital. Students fleetingly commented on community agency placements or volunteer opportunities, such as a private physiotherapy practice or community clinical placement, but there were no students reporting on experiences in schools or rural settings. In educational settings, there were no students who had worked with patient educators, but students did report on working with patient actors in simulation or case-based experiences such as interprofessional problem-based learning or the one health leadership conference.

### IPE in Experiential Settings

In general, the perception of IPL in clinical contexts began with the frustrations of being a student. Early experiences of being in clinical were about being exempt from participating as team members. Students seemed to start clinical after the ward staff had completed report and were asked to be off the ward when interprofessional team members had access to the chart; when the ward was busiest and there was more opportunity to witness teamwork. Following threshold moments, students talked about feeling more comfortable being tested when on the floor working with their patients than in educational settings in hypothetical simulations. Students advocated for interprofessional rounds to be scheduled for all students, to increase

preparedness for expectations of graduates, but also to witness and grow appreciation for the value of other professionals. Students also found value in observational experiences that were outside the norm of generalized learning or practice, such as the dental student who observed the interprofessional surgical team removing all the teeth of a three-year-old, as a new graduate working with her dentist employer in private practice.

Students presented their changing perceptions of before and after in clinical settings in unique ways. In the dental clinic, the before was a lengthy description of the information required from the patient to proceed with care. Dental hygiene students described the full history which could take two 2-hour appointments to complete before care began. The history included information on medications and allergies to prevent emergencies, medical background, extraoral cancer screening, intraoral tissue screening, functional status of bite and charting fillings and a periodontal assessment of sensitivity and risk for cavities, followed by a lifestyle risk assessment. Samantha related the steps that led to a plan of care including copies of past bloodwork requested from the lab, phoning the pharmacy regarding medications and finally collaboration with the dentist:

> *And then we make a diagnosis, we present a care plan for you, saying that this is what we found, this is what we are going to do about it, this is how we are going to help you help yourself. That is when we actually start cleaning.*

Samantha relayed that she had one patient come back three times in the year just for her and she was feeling encouraged because by the end she could complete both the history and cleaning in one appointment:

> *I thought going into this schooling and profession that it was going to be like sit people down and clean their teeth, but there is so much more coordinating and I have learned a lot. I kind of feel like I've had a taste of pharmacy and like a little taste of dentistry and a little taste of med and a little, you know, nursing even I guess with the knowing what to do if someone starts having a seizure in my chair. We do get a lot of exposure to things that can happen I guess.*

The change in perception after the threshold moment drew insights about other professionals required for patient care but differentiating that from the growth in knowledge about the chosen profession. There was also a change in the way patients were perceived in this space. Students were required to find patients, including family members to assist with learning by reducing the required hours of practice to complete clinical. After the threshold moment, students spoke

graciously of patients who returned multiple times and followed through with all suggested interventions.

The before and after for mental health was more apparent in differentiating between long-term care and acute care. Saskatchewan Hospital did provide an opportunity for psychiatric nursing and nursing students to teach each other about medications specific to their professions, with a focus on safe administration. Saskatchewan Hospital was described as more of a long-term facility providing safety and routine for patients as most would be gone during the day to work or therapies. Students in clinical here did not seem to notice an array of professionals, but the students placed in Dubé, acute mental health in Saskatoon, did notice access to more professions. Students felt more freedom to focus on therapeutic communication skills without an instructor hovering and felt a more holistic approach to care than acute medical wards. However, Maureen, despite appreciating the mental health aspects of her previous paramedic career, did not enjoy her rotation, as stated here:

> *I think that Dubé, though they are really good at communication and stuff, there was a lot of things that were just holding patients back or stuff like that. And that was hard, I felt, I didn't feel like it was easy to make an impact at times.*

Nursing students had shared the sense of autonomy to work to a fuller scope in acute mental health and were pleased to work with a variety of psychiatry and medical students more closely than they had access to previously. They felt respected and as if working as students, they were part of an "alliance." It is, therefore, interesting for students to point out an interprofessional freedom to provide care, but less ability to impact care.

The perception of acute medical wards also changed before and after the threshold moment with varying impact on care. Students prior to the threshold moment were often tied to instructor-driven limits. Students were asked to report to instructors and staff frequently, whether they received feedback or response in kind. There was much time spent waiting for instructors to finish with other students before assessments could begin about the next planned patient intervention with one student reporting waiting almost an hour for her instructor. Students were required to take responsibility for their assigned patient and disregard assistance from ward staff, if it were offered. Students perceived spending much time researching their patients as depicted in charts and care plans. Yet, after threshold moments, when increased patient acuity called for efficient teamwork or student skill attainment meant an increase in patient load, students talked about sharing tasks with

interprofessional team members and appropriately delegating. Students also appeared to notice the flurry of interprofessional work or lack of interprofessional work post-threshold moment. Wards that were designed with team-based care and access to interprofessional team practice and reporting structures that were dysfunctional were frustrating. However, the ability to immediately perceive interprofessional teamwork and support when patients required it stood out. Students perceived interprofessional spaces. Where before the threshold, they were concentrated on the room in which they had their pre or post conferences, after the threshold they noted nursing stations as hubs for report and camaraderie or the doorway to observation units and therapy departments as portals to immense knowledge.

The students who worked at the SRC, SWITCH, described the setting, community and clientele. Because educational programming for children and adults was mandatory with use of services, students noted that creating a rapport with patients was a priority. One student conveyed her repeated attempts to gain rapport with children, whereas the medical student she volunteered with frequently seemed to interact so well.

What Maureen noticed most after her threshold moment in acute mental health, and now that she was placed in community clinical, was that SWITCH provided her with more opportunity to notice the differences in interprofessional collaboration in clinical sites. Because of her threshold experience however, Maureen noted how multidisciplinary SWITCH seemed with patients interacting with healthcare providers separately over the course of their visit. The interprofessional moments were at the end of the day when the healthcare team shared their assessments and approaches to the common goal for the patient. Maureen stated there was missed opportunity for interprofessional care.

This experience was mirrored in community placements. Students noted the amount of programming available. After the threshold moment, students commented on the accessibility of interprofessional team members to be supports in patient decision-making, and the amount of coordination required to care for patients in community settings, such as

> *Different people come every day or phone every day and no situation is exactly the same as the previous one. We have a, like the protocol of what to do for most of the things, but there is always an exception, cause no one's life is the same as another's. So, you cannot be ready for everything and know everything. There's always you know, creativity I guess you have, to include in the process.*

Students approached interprofessional clinical in SRCs and community settings with a more open mind to diversity and innovative approaches in responding to patients.

**IPE in Educational Settings**

As stated, students reported on threshold moments in simulation, and the case-based learning at one health conferences. Of note for this section, compared to experiential settings, students seemed to report changes in perceptions about the learning process in these contexts, rather than the relational learning in clinical settings.

Students in simulations within educational settings seemed to have structured outcomes. When sharing about interprofessional simulation, students were very descriptive of the rationale and the outcomes of the experiences. Nursing students worked with a pediatric mannequin receiving 'live' orders from their medical student team members. Dental hygiene students worked with paramedics and a patient actor with chest pain. Interprofessional teams of students simulated patient transfers in SPICE and coordinated expected care. While the understanding of context before the threshold moment was receiving feedback or teaching each other skills, another in-the-moment experience was the realization that the next step was working with actual patients, as in the following quote,

> *At that moment it was just like, gosh am I going to be able to deal with patients? That was kind of an eye-opening kind of day for me 'cause I need to do better than that. I forgot the hand sanitizer and I lied to her which isn't good. Well we got some learning to do here.*

This realization changed the nature of how patients were viewed in clinical; neither as mannequins, nor actors. Alternatively, Wil's experiences in public health about community development moving to global team development were sparked after attending the one health conference.

From that first discussion with a public health professional from WHO, Wil started a process of global learning; participating in an online open course and being awarded a sponsorship to an interprofessional conference. Wil noted after his threshold moment that his experiences provided him with transferable skills in problem solving and working with diverse teams. However, he conveyed that he had not had the same opportunity in Canada as he did in Europe. The interprofessional work he did with other graduate students at this conference and the teams which developed were potentially useful for future collaborative research. In maintaining those connections with graduate students across the globe, Wil's one health context became both virtual and global, requiring a different process for learning and different ways of relating to team

members and health problems. Wil seemed to transfer those expectations of teamwork to his research teams at the university.

**Collective Voices of Student Chaos – a Phenomenographic Vignette**

Each individual student shared reflections of their threshold moment which represented differences and similarities of interprofessional learning and working. These descriptions of being a student, especially the troublesome knowledge, are part of the chaos surrounding the eventual moment of clarity that arose in the threshold moment. A story can represent both the individual and collective student experience and is congruent with a phenomenographic method of presenting a collective voice. The following story was the aggregate student experience, before, during and after, for the ten interviewed participants, presented in three parts: separation, the liminal margin, and aggregation (Turner, 1969). What follows is derived from a reordering of actual phrases from all ten participants, structured into a narrative coming from one perspective. The first part denotes the separation phase where students begin to identify as a team member rather than a student. This separation is experienced as a sense of ambiguity and changing values which came with fear and nervousness. The second part is the detachment from structured learning and preconceived notions of professional culture. This liminal moment of chaos is marked by stress, questions, and restructuring past learning into new meaning. The final part is less chaotic with more clarity about where the student fits as a professional on a patient team. Frustrations were about how the lack of a team mentality affected the culture of working and learning. However, aspirations were for teamwork beyond individual patient care.

***Me, Student***
**Name, Designation**

*How will I learn to work as a team if I sit and wait for something to happen? It's always scary. So the more experience we have, the more comfortable we get in this clinical. So I will challenge myself. It is part of being a perfectionist or type A. I think every person in my class has anxiety because we are so hard on ourselves. We just worry about everything going wrong, even though it's not going to. Or maybe it's being competitive? I don't want to let myself down and say that I didn't even try. I remember almost throwing up brushing my teeth before a big basketball playoff game, but I'm not going to phone in sick on the hardest most intense game of the year, you know? So I'm not going to call in sick for clinical. Instead, let's get her done and focus. So I do a lot of preparing if I know I'm nervous about something. The night before the sim lab, I went through a textbook, through my slides, and emailed the faculty to clarify a question. Even with exams, I was very stressed and on the verge of breakdowns.*

*It's like working on the street 'cause sometimes you only have like 30 minutes with a patient. All I'm worried about is like, I want to know this question, this question, this question*

*and like do you have allergies 'cause I'm going to do this and this and this. Whereas in the hospital I feel like I have more time and when patients start to improve, we say we are going to change this and we are going to push you to do this. The care is just different. I find I am connecting more dots now and it is easier to see the why behind things. But when I go back and work in my previous job, my co-workers ask me to go tell the nurse or the nurse asks me to do all the vital signs. Sure, I have time to walk all the way down to the nurse's desk and tell them that and I would* love *to do all 35 sets of vital signs 'cause I have time to do that and not my own work. There's a difference when one group says "WOW, you know stuff, look at you go" and the other group says, "oh good, you KNOW." My new role is such a big responsibility*

**Betwixt and between – Survival mode**

*…school, student association involvement, experiences in clinical…like a snowball rolling down the hill with arms sticking out like sticks…the more I collect the more I bring forward. It just keeps getting bigger…*

*I remember one of my first clinicals and watching another student from another program running around and thinking, she's awfully busy. And then she was in my patient's room and I never did ask: What did you go in there for? What do you need? Can I help? The nurse and my instructor never connected that student and myself. The patient never even said anything! Goodness how disconnected we were. I'm just shaking my head.*

*At the beginning of my next clinical I was so stressed out. I had this tense relationship with my instructor, and I wanted the best out of that clinical. That is the truth about it. My instructor said, you need to work hard. I used to chart during my break and I would always run out of time. I would struggle to help my patient, bring breakfast, assist to eat, no you cannot do that alone. I started asking the staff, can you help me please while I do this if you have time. For some reason my instructor said, you can do this, just do it. The first rotation is short, like 6 weeks. But in the middle of the rotation I was left independent. I tell other students, as bad as it is, don't take it, just do your best. Don't think, oh, I'm failing this course because I'm having a tough time with this instructor. Think, no, things can turn out.*

*So, am I confident that I can do it? Yeah. But I may probably be in tears and be panicking and trying to figure out what's what and who's who. I do technically know what to do. I listened to the other healthcare students ask questions of the patient and it was like, I know that, I know that too. I don't know it as detailed as they do.*

*And then there's the ethical things. Our program head tells us to do what our employer wants, but our ethics teacher says not to because it's unethical. The instructors who are not teaching the ethics class don't have to be the ethics person and say we'll probably have to do it. I'm not doing that, it's not right! Or am I? Do I want that great mat leave job with full time hours?*

**With the patient and for (or in spite of) the team**

*I had my own patient, but the staff said, Oh, can you help me? I almost said, nope, I'm going to follow my own patient. And then I said, OK. I just pulled my stethoscope out of my pocket and started listening to the posterior chest. I've never heard wheezes, or crackles that loud. They were that loud, very loud. At times as a student it's really hard to hear normal sounds. We are excited to hear crackles. But that means most people are acutely sick. I asked the*

*patient, are you OK? He could not really tell me. All he was doing was groaning and grunting. Eventually we did an in and out and drained almost a liter and a half. At the end, the last part was thick as syrup. This patient was going septic. He was transferred to the observation unit. He could have died in my hands. When I went back the next week, the patient was no longer on the unit. Maybe his condition…*

*…How would they show unconditional positive regard and actually show it? How are they going to do that in spite of all the crisis?...*

*There is a bridge at City Hospital and the talk is about getting people to cross the bridge. Nurses do not go see what the therapies are doing, and the therapies do not come and do exercises with the patients on the floor. The manager was trying really hard to get them to see what each other was doing, to see how they could help instead of each doing their own thing. They always talked about it like, "them, over there." It was such a clear divide. They even had a porter to take people back and forth, so the nurses and the therapies did not have to cross. There is so much opportunity and it was terrible. So, it was nice to see a team meeting in a different clinical where everyone was looking at each other in the eyes and talking to each other.*

*It was the community health nurse and the healthcare students talking about teaching. She was like, OK, I've done this before and it didn't really work, so then I did this. She had these kidney balls and threw them around and the kids would put them where they thought the kidneys were. The students were enthralled; it was just a complete 180 to all the skepticism. She was teaching about kidneys, but more about how she was adjusting for her clients.*

*It was like the expert from the World Health Organization who was so inspirational. She was so convincing about how to be pragmatic and how to work for the prize, better health for all. That's how we came up with our team name. We call ourselves the IV Leaguers because we all work with IVs. Our t-shirt has a team name but also has our discipline on the shoulder, in the smallest part. It is not the first thing you see when looking at the front or the back. We are part of the team. We work to win the prize.*

The stages of liminality are separation, margin (where the threshold moment occurs), and aggregation (Turner, 1969). In separation, the healthcare students were stripped of who they were. That meant students had to reconcile their past professions or their learnings about their uniprofessional autonomy to be ready to test a team approach. To get to the threshold of interprofessionality, students experienced the chaos at the margins of healthcare education. Students spoke of different clinical spaces that shook the structures of their learning, for example acute care versus community, or professionals who expected a certain approach making the students frustrated with communication and negotiations in how to care.

Students were required to question and test the ethics of what was taught in school versus what was witnessed in practice. Ultimately, the variety of spaces and diversity of people encountered revealed the unstructured student experience often defined by the limitations of time. Any routines or communication styles of previous learnings were traded for something

new, not creating uncertainty, just ambiguity, experienced as short-term and short-lived specialty focused clinical opportunities. Once the students realized the threshold moment, described in the individual stories in the previous section, the language changed to show the discourse of being on a team. This team became the new structure for learning and working. Students spoke 'they' and 'we' while describing sometimes annoying, but often enlightening and inspirational, highs of working on a team with a patient. Students did not lose their professional designation. However, they did identify their work less in relation to school or one professional stance and more in relation to the patients, team members and ideals for health.

**Analysis: The Threshold Concept of Interprofessionality**

The threshold moment occurs in the middle stage of liminality, in the chaos and if the student is successful before s/he emerges into the aggregation stage. For the students interviewed, the threshold moment was clear, like the eye of the storm. This section describes the phenomenographically derived threshold concept of interprofessionality. First, the four aggregated categories of description are depicted that led to the threshold concept. The next section describes the phenomenographic outcome space or the ontological shift that occurred from the transformational learning of moving through liminal space.

**Interprofessional Learning Steps**

The hierarchy of four categories of description for interprofessionality from superficial to deep learning, bottom to top, represents a combination of all individual student perceptions as described in the analysis section of Chapter 3. Each category of description, presented in Figure 4.3 as four separate learning steps, has been given a short name used as heading to guide explication. Each learning step is described, under its heading, beginning with the statement that is a combination of all student perceptions. Every student confirmed the four statements, as they were depicted, when her/his learning steps were built and aggregated into the category of description for interprofessionality. The final statement for each step was, therefore, the culmination of perceptions of learning by all students. This hierarchy of phenomenographic categories, or liminal learning steps, is a response to the research question, what are student perceptions of the significance of the learning experience (knowledge, skills, and appreciations)?

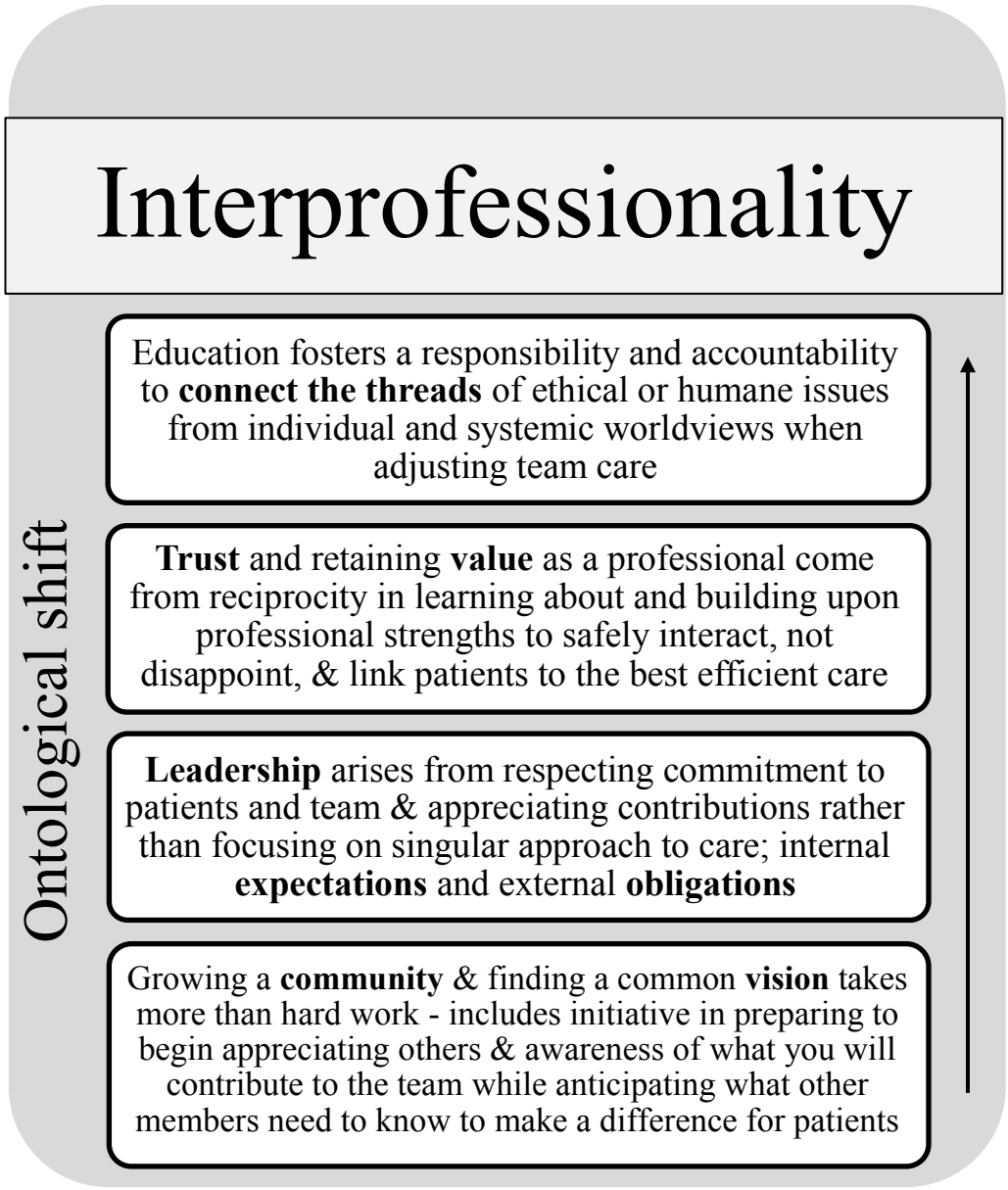


Figure 4.3. *The threshold concept of interprofessionality, phenomenographically derived.*

Each of the four categories of description are hereby described, incorporating aggregate student perceptions, beginning with the initial learning step. As much as possible, the learning steps and quotes from student interviews are presented without identifying a singular profession. The collective experience of interprofessionality is presented from a team member perspective. The healthcare reader should feel their profession is represented in the quotation. Students or professions have been identified where stories were personal or context was significant. But in

general, quotations are not attributed to participants as they can be identified in the individual experiences of crossing thresholds described at the beginning of this chapter.

**Community vision.** The main outcomes students acknowledged in their first learning step was building a team and working toward common goals or approaches to patient care. Appreciations required to meet those outcomes included awareness of their own skills and awareness of the needs of others. The following statement emerged as the first, superficial, learning step toward interprofessionality:

> ***Growing a community & finding a common vision takes more than hard work— it includes initiative in preparing to be ready to begin appreciating others & awareness of what you will contribute to the team while in the same sense anticipating what other members need to know to make a difference for patients.***

Students were focused on moving toward building a team with common goals, but they approached this outcome in different ways because of their unique learning needs or the context which determined their learning partners.

All students talked about the hard work of being challenged or seeking challenging opportunities and the concomitant discomfort. The lack of cooperation or initiative to learn with and from other students was described. Students felt others were on the ward to complete their clinical and go home rather than seeking opportunities to learn. Some had been taught that a devaluing occurs between students from one specialty area to another and because of that expectation felt, not personally slighted or disrespected, but that the other students were conveying a lack of respect for the concepts that defined their profession, for example, mental health for psychiatric nurses. Yet one student was also quick to point out that the lack of initiative to learn about others was mutual, and therefore suggested taking those opportunities to reflect on teamwork. While this student was placed in, or received, discomfort in a situation, other students discussed *seeking* discomfort or being required to be uncomfortable.

For a couple of nursing students, working through discomfort was required for learning therapeutic communication skills and learning to build rapport. After sharing examples of communicating with other healthcare students and patients, nursing students realized that their comfort was increasing though it certainly remained fluid depending on the situation. Learning to use interpersonal skills seemed to be equally frustrating whether with other healthcare students or patients. The nursing students described themselves as being robots or never having the experience, prior to postsecondary, of speaking with diverse others and therefore being scared of

what to expect. However, the resultant predicted and exponential benefit to uncomfortable learning was the trusting relationship experienced and validated by patients. One nursing student was paired with a particular patient by her faculty with the purpose of placing her in an uncomfortable situation to test communication skills. She shared,

> *The patient trusted me. They told me about their life experience and what they felt the afterlife would be and why they had chosen palliative care. It just took off from there and we had this really good therapeutic relationship for the rest of that shift. And at the end of the shift I went back and I said goodbye. And they said, 'thank you very much, you've been a really good student nurse.' That night, I said to myself, OK, it was not comfortable, it was outside of my comfort zone. I had to use therapeutic use of touch and I don't like to be touched very much. I had to put my hand on the patient when the patient was crying.*

Another nursing student shared how communicating with interprofessional healthcare students was difficult when the other was displaying power, but that successful interactions impacted patient care as she noted in this quote,

> *I think it makes you try to advocate more. When you see those things happen, like that girl was really saying I want to go do art therapy or I want to leave the ward. OK, well let's work toward that goal of getting you a pass. When it happens, it's like their trust in you is increased and they feel, and I think she felt that, OK, I'm being heard and I'm being taken seriously as a patient. So that improved my relationship with her and her relationship with other staff as well.*

This student used her threshold moment to turn the experience around. While in this instance she became a stronger patient advocate after successful interprofessional communication, she spoke about listening well to her patients in future experiences and *then* working with teammates to make it happen.

In taking the initiative to prepare for the challenges of teamwork and communication, students shared how they learned about needs of healthcare providers and patients as ways of building community:

> *Education is kind of hard to fit into private practice, because basically if you're doing it, you have a tool in their mouth. Where at school we do full education sessions that are mandatory. It needs to come into the dental office a little more, but of course it doesn't make them any money right? We're not here just to clean teeth, we want to prevent disease. I think it's harder to make a change in private practice. But it's rewarding having them notice that difference and want to bring their kids. I think when they feel the same importance I feel about it, then I feel like I did my job.*

Students had clinical or past experiences where they learned they were caring for more than one patient. As in the experience above, where the student was educating a parent for further teaching with the family, Kathryn had past experience designing programming for a community; skills that she was planning on building into her nursing practice in Canada. She stated,

> *How do you make people who don't really want to participate in a program, participate? You don't work alone. You need the leaders of the community. When you say something, they stand up and they support you and they say, if you do it like this our community will grow. The people will listen to what the leader said. If you think you have all this knowledge and you are just going to tell them, you will fail.*

Family and community knowledge, or gaining its access, took effort. Patients sometimes did not act on the education they received. Students were becoming aware that their designation or professional dress was not a pass; their teaching was not turned into health behaviour change and they did not have more access to learning opportunities as in this experience:

> *It was an Echo and when I got there, I was standing and the CCA said, no you have to go down, you are a student, you have to go say you want to look. For us, they won't even let us come in. In my head I was just thinking if they see me in my uniform and everything they will invite me to come in, but no.*

Growing a community and building relationships took hard work which was dependent on developing communication skills.

Being able to articulate rationale for professional skills or deliver streamlined communication in relation to their own profession, meant students had gained a level of independence and the autonomy to represent their profession and contribute to the team. Many students talked about the increased responsibility that came with knowledge and skills as in these two instances described here,

> *You have to build that trust before they can allow you to go give medication on your own, for you to go do those skills on your own. You have to prove yourself in the early years. Later you just have more responsibility, but they also make sure you know your stuff and drill you hard on it.*

> *In the beginning, they are like don't walk two steps from me without telling me where you ae going and what you are doing. Then, they're like…yeah, go ahead… and I'm like, what? Like are you sure? You don't want to come see? My faculty was like no, you'll be fine. Oh independence is an expectation. You have a broader knowledge and you see the rounder picture, not just the limited little. You need to know more, you do know more, you have a better understanding so, yeah, you have to connect more dots in your practice because your scope is expanding.*

The result of gaining independence after proving they could meet the challenge was being part of the practice community. Being drilled on their knowledge and application was part of meeting the community standard. Yet the developing interprofessional communication skill was not just having profession-specific knowledge for patient care, but how profession-specific knowledge impacted the care others were providing as revealed here:

> *In the early years, I have this information and it's all the same, it's all ranked on the same level. But now it's easier to pinpoint which information is helpful. Now because I was part of the rounds, if a pharmacist ever approached me or PT, I know what they need to know. I'm not going to tell them the whole thing cause they are only looking for that 10% that they need. So, then that could help me streamline my communication differently.*

That ability to provide profession-specific knowledge meant the ability to communicate to a common vision. The graduate student in public health, Wil, conveyed a confidence in his interactions on teams:

> *Well in a team, we expect that we are on the same page. So, everyone should understand how you can contribute to the group, but sometimes it's not easy to deal with some members, because everyone has different skills in leadership or management. I expect that they have the same vision as the group. I don't expect that they understand my field. And they should not expect me to understand their expertise. But somehow, we have a common understanding to get the work done, answer the questions and solve problems.*

Wil had grown to understand and apply his professional knowledge to an extent that, despite being a student, he had expertise that other researchers did not and therefore he was comfortable in what he could contribute. He was contributing both in content and team functioning toward a common vision.

The student experiences of this category of description or learning step, ***community vision***, conveyed the initiative required to gain appreciation and grow awareness of others. Students were challenged to articulate their professional role as a movement toward making the individual versus professional boundary more transparent; it was not about 'me' or 'them' but 'we.' However, teamwork was not just about sharing knowledge, but finding common values. Students then took responsibility to seek knowledge from others, advocate for patients and work with team members to enact the vision of providing good care.

**Leadership from expectations and obligations.** This learning step was marked by many emotions in response to relationships and developing skills. The underlying assumption made by all students was that they were aware of an interprofessional standard of care, but they all

conveyed a sense of striving for more. Hence, the potential conflict in differentiating between internal expectations and external obligations. The statement derived from students for this second learning step was,

> ***Leadership arises from respecting commitment to patients and team & appreciating contributions rather than focusing on singular approach to care; internal expectations and external obligations.***

Students began their path to interprofessional leadership by talking about unfulfilled opportunities of learning and working with others. This path was often expressed as a desire to learn and therefore a let-down when it did not occur, as in the following quote:

> *Encourage us to go and ask questions from the other students. Because we're all are busy, we have lots of assignments to do. We are still learning and growing and informing our views on nursing and health care. It is important for us to actually cooperate and talk to each other, while we are still forming our opinions about who we are and who we are going to be.*

One student did state that faculty could facilitate the relationships or opportunities, but there was also a lament that students felt no capacity or awareness to be interprofessional until after the experience had passed. This student commented,

> *I was excited to like see and I went with my patient to the therapies so I could see what each one did and that gave me a really good picture going forward, cause I saw what they did with the patient, so that was helpful. But they, like we didn't, I know they had team conferences, but they had them with the patient and the families, but we never went in those. I don't know why.*

Students were obviously excited to learn from each other, especially with the expressed goal of being a resource for patients. However, there was also frustration when the learning was not shared. As with the quotations provided above, this next one, in particular, appears to be an example of a student hitting the silo walls of another professional group. This participant revealed she was working in her old profession while she was furthering her education in a new profession:

> *If you approach a patient and it doesn't go well, you usually try a different approach, but everybody I work with at my old job will go back an hour later and use the same approach and never see that maybe they could change something about it. Whereas, we problem solve all the time. That's a big thing through all of our courses and like how can you do it differently? If you see that went badly, what was it about that? And you do that self-reflection. Whereas at my old job, they've been doing it the same way for 35 years, and they will never change it, because oh it's her it's never 'me' that's the problem. Then it was like, because I tried a different approach and it worked, <u>one time</u>, cause I was*

> *there one time, the response was no she doesn't ever, because for us she hasn't. So, it was different. Like I could see the problem.*

While there may be emotion around the patient experience, and this story is not presented here to malign, the noteworthy frustration was with interprofessional colleagues who maintained professional interventions rather than contributing to problem-solving for a better patient experience. Part of her frustration may have been her own change in awareness of her role and the confusion of working one way and thinking another. However, that awareness also signified a difference between professional approaches. The frustration then was the awareness that this problematic approach to patient care was unnecessary.

The conflict students felt was about having pride in their own profession and advocating for what they could offer and acknowledging the apprehension that others can care for patients as well. This conflict was a beginning step to a changing perspective from being in a silo to be a bridge. This next quote showed the focus was shifting from professional work to patient needs:

> *Sometimes people who are in one field think they are such great expert and know everything and this is something that has to be discouraged. Because we will never be able to know everything. I think I've decided to look to others and learn from others as well. Because choosing the right thing in one sense may not be what's right for others.*

> *I feel like we often identity as our profession. I am. When I was a child people would ask me to tell about myself. I am a dancer, I am a singer and I play piano. When I got to high school and decided this wasn't for me anymore. I went through a little bit of a cris du coeur, because I didn't know who I was. I had defined myself. Now I'm not anymore. So, who am I? Where do I fit in here? I feel like you get to your profession and you say, I am. We're fiercely proud of that. And that's incredible. But I think that we need to take a step back from that pride and say, I am also somebody who cares. And to care correctly for our clients, the way it was meant to be, we have to work with other people.*

Students were not questioning their own professional identity, but their identity on a team in relation to other professionals. The tentativeness, noted in language such as 'I think,' was letting down their own silos for a greater good. In the first quote, the student realized the expanse of knowledge from a team provided her with more learning opportunities. In the second quote, the student found a common link to other professionals, not just caring for patients, but doing so safely. While there seemed to be a cost to identifying as a professional on a team, there were benefits for the team and the patient to crossing the barrier, breaking the silo.

Wil described the experience of being a bridge. He did attribute his skill set and knowledge to contribute to team functioning with his profession of public health. He felt that the

broad scope of public health made it easier to facilitate the connection between diverse professionals, as he indicated here,

> *My role is something like that. Because for a statistician they are dealing with numbers and they know how to work with numbers. But they are struggling to interpret the numbers into messages. That's the thing. And some pharmacists they are very good at pharmacy and they are really good at medications, but somehow the numbers don't make sense of they aren't connected into the words or the message. So, I am the one who connects that cause I have the knowledge in nutrition, pharmacy an medicine, but I still have knowledge in biostatistics. I connect the two and make the team run.*

For Wil, the realization of his role on the team happened when he stated, "That's the thing." He was not just a shared hub of knowledge or team facilitator. He could turn the team's work into a message that affected team functioning and was expressed in community outcomes.

Being on the bridge between professions was an eye-opener, both in what other professions offered, but also in the responsibility to now advocate and show similar respect. The appreciation for others came because there was opportunity for learning and gaining confidence. One participant pointed out,

> *I'm like the class rep for our national professional association. Just different things like that where I've kind of taken on a leadership role. I've been able to hide that stressful, overwhelming, don't want to disappoint, want to take care, like I've kind of been able to hide that from people. It was kind of a high-pressure situation and you don't want to look like a fool. We are almost graduating; you want to know what you are doing.*

Students were nervous when thrown into interprofessional experiences, especially when asked to take lead roles, but did acknowledge that leadership positions often arose from fellow students conveying confidence. However, students had to be confident themselves to acknowledge that they were capable. The confidence in themselves transferred to other members of the team, as noted here:

> *I was really surprised because you know, it actually worked better. It is good to have that support. Like a teamwork kind of thing. They can do those stats like vital signs and all that medical care, while we can be the emotional support for the client. I really appreciated learning about the different types of knowledge that they have to offer. And I really appreciate the psychiatric nursing program because of the integrated knowledge of mental health with the medical part.*

Once students had seen effective interprofessional team functioning, they found a place for themselves in providing patient care. Interprofessional experiences also provided a chance to challenge perceptions of professional education as in the previous quote where a student

acknowledged the integration of medical and mental health content. This challenge to perceptions was potentially a rearranging of stereotypical knowledge now replaced with fact based on interacting with other students and has implications for changing perceptions at a professional level instead of one individual interaction at a time.

For those students with previous professional experience, there was acceptance of additional insight into developing a professional respect for others because of that previous experience as compared to students in the same year. One participant opined,

> *I think I just have, even just the respect for what I've seen on the streets versus what a nurse sees and just our roles are different, they are so different and so I think being able to respect the different roles, but also the understanding that everyone has such an important role. I look at CCAs and stuff like that and it's just like they have such a huge role, and so I think it's just being able to respect everyone's practice. I think being a paramedic definitely gave me that respect for everyone.*

This quote highlighted the educational hierarchy that often exists in interprofessional student experiences because of length of program or perceived value of the work. Yet because of her experiences, this student was aware of different roles and how they all added value to patient care.

This mutual respect led to the work of maintaining relationships in the team and becoming a presence. Presence on an interprofessional team was an action or a behaviour that made other team members aware, or that had a direct impact on team functioning or patient care. Often this was described as feedback or efforts to communicate. Kathryn commented that she often sought out other professionals on her team to either assist with the research required on her patient or to thank them for helping her achieve the interventions on her care plan. These actions assisted her to reflect on her practice and care, and she thought that with feedback for her team she would be effective and efficient. Wil concurred, stating "it is a way of teamwork. Learning and sharing something that I know. And I know that my sharing will be appreciated." While students shared their perspectives of their own actions on the team, they also had an outsider view of the work of others. Elanna commented that patients trusted one of the other staff at the halfway house and from there she extrapolated that the team member could develop rapport and provide emotional support. Maureen shared a system issue, impacting patients, which could be solved with a team approach:

> *Maybe just put in extra effort to work together as a team and make it a good group effort, rather than just like, individually. Cause like you'll see that on some wards where PT will*

*like pop in for like 5 minutes and then they'll write what they thought in the book and then it's like up to us to go and read through what they found or want us to do for that patient. And sometimes you are so busy that it doesn't get done. You don't read it until the end of the day and then that day is gone. And then it's like trying to report to the next staff about that and I feel like when they don't actually tell you to your face or you communicate as a group it's so easily forgotten. But when you actually have people come to your face, or when they do those rounds as a group it's like an amazing thing, I'm so pro that. That really is so beneficial for the patient.*

While positive impact to patient care is important, the action of being a presence to the team, rather than a note in the chart, or an action in a care plan, is intention. Sylvia described this best as internal expectations. Despite any external obligations, interprofessional learning and working, for Sylvia, placed the onus on her. Opportunities to learn more, or to impact the patient experience, were dependent on what goals she was setting for herself, what actions she took to make care go well, or whether she sought assistance to make that happen.

The learning in removing silos, or becoming a bridge between professions, which led to mutual respect helped develop leadership skills to meet external obligations. While students were wary of taking on a leadership role, they suggested that this was a professional standard:

*Somebody's got to do things like that. Did I super want to do that and add something more to my plate, like not really, but somebody had to and it's good for me to get some more leadership and be like involved. It looks good on a resume and it's been great. I've learned a lot of good things and met some cool people. Sometimes you just gotta do it for the sake of doing it and hope for the best.*

The wariness of leadership was in the potential for not meeting the expectations of the role, both for the patients impacted and other team members. But Kathryn, despite her worry, shared a few benefits of leadership skills in a team:

*He was so tiny. I was like, oh my God, this baby is so sick. And I said, I cannot really work here. There are very sick babies. And I realize yes, if you have the commitment, the ownership, and work as a team, you can do it. Yeah. Because you have four very sick babies, but you cannot be there all the time. You cannot be the eyes, looking at these four babies all the time. When you are in room B, if you have a very sick baby in room A, tell your coworkers to keep an eye on the babies.*

For students in short specialty clinical rotations, standard of care was required, and the learning must happen quickly. The benefits of an interprofessional team for Kathryn included providing emotional boundaries so she could carry out the work when she was struggling with such ill

children. As well, her team shared observation of the patients while she learned to manage her care. The acuity of the patients on this ward pushed Kathryn to develop delegation skills which come from owning the care she was required to provide.

Students varied in their approach to gaining leadership skills, often dependent on the context and the relationships with team members and patients. High-pressure situations spurred student expression of leadership capabilities which had been growing from experiences working with others. Students questioned and solidified professional and team identify, gained and gave mutual respect, and became aware of acting with an interprofessional presence.

**Trust and Value.** This learning step was significantly characterized by relationship-building. Students were required to utilize communication skills to build trust and convey value they had for others, including the patient and family. The statement pieced together from student learning steps was,

> ***Trust and retaining value as a professional come from reciprocity in learning about and building upon professional strengths to safely interact, not disappoint, & link patients to the best efficient care***

All students were reflective about their role as learners during their threshold experiences and in how they approached interprofessional teamwork. Interprofessionality was described as a process which seemed to be ongoing and was not dependent on team members or context. When asked specifically about being a champion for interprofessional teams, Wil stated,

> *No, I am not a champion, I am in the process of learning and incorporating things that I understood and incorporate into myself and my job first, change myself first, my mind set and my understanding, my thinking, and my thoughts. And then gradually connect people and see what's going on.*

Wil understood his learning about interprofessionality to fit with personal goals before applying his learning to team functioning. When asked if he sought out teams purposely since his threshold moment he answered cautiously,

> *It depends. It depends. If I have to work with some people like this, I have to. So, I have to accept this as a reality. Because in real life, sometimes we cannot choose our own team, so we have to deal with that and know who you are in the group. I don't expect too much from others, but within the scope of the project. And for me, if I have a chance, I can compromise with the team that I have, because of the experience and the tolerance skill I have. Honestly. Yeah. It depends.*

The concern for safe interactions which did not impede team progress appeared to define team function. Wil also suggested that there were skills required of himself, as a team member, to ensure safe team functioning such as the ability to compromise or exhibiting tolerance.

Students did begin to talk at this third step about reflecting on personal bias and taking action to reduce the impact on the work of the team. Students were particularly impacted by the sense of conflict when the perceived ego of others was prioritized over team outcomes, which was experienced as disrespect. Helen, the psychiatric nursing student, shared her experience of working with the same patients with nursing students at Saskatchewan Hospital:

> *It was something that, the first thing was disrespect. I felt like, uh, they didn't have all that many questions because I felt like they already knew everything. I was kind of, come to tell me who you are and let me introduce myself.*

Students provided reflections and experience of dealing with professional conflict in a team environment, such as the experience in this quote:

> *Every team has some kind of conflict, I have to say, and I have had that experience as well. It's not easy. Because everyone has some kind of self-esteem that is a silo and to me the walls are too high, so sometimes they don't put in the teamwork, as a team member. As a team leader we should realize that it's about teamwork. We have a team vision and we have a team mission and we have deadlines and we don't waste time dealing with personal things. Just put the legacy of the work there. Don't put the legacy of yourself. That is why in every team we have some kind of vision or mission, something like that at the beginning. If you have personal issue, talk to that person. So, I learned from that a lot. And yeah. Sometimes is not a good experience, but in the end the experience teaches you something.*

Of significance was that students were not just reactive to disrespect but were reflective of how they could learn from the experience. Working on team relationships meant students valued the expertise of others and were willing to work through conflict and create safety.

Students were aware of the value of learning from the unique knowledge of others but were also cognizant of their behaviours in gaining access to that knowledge. One participant stated,

> *I'm always worried about annoying everybody. Like I didn't want to be that student that seems to know nothing, so has to ask everything. If I can look through the chart and I've looked at the patient, and I've watched the nurses, or observed enough or eavesdropped enough to know, I won't ask. But if I can't absolutely find it anywhere, then I'll ask. I know some people have to ask 30 questions and I never want to be that person because I would hate to be asked 30 questions. I would be like, have you looked at the patient instead of asking me? So, we need be a little more resourceful in finding information.*

Students conveyed value of others by putting in as much effort into seeking information as perceiving the others' expectations for resourcefulness. This effort spent suggested professional time was valuable, but also that students were asking for particular professional expertise in their consultations.

> *I'd ask the care aide if they've helped the patient. I'm not sure that is valued by every person, but I know their assessment is different than others. They may not use the same words we do, or the language we have, but they know. It's like asking a pharmacist what drugs the patients are on. I'm not going to understand half the language that they tell me but it's still valuable information.*

Experiences of sharing unique knowledge assisted students to perceive the value of their own specialty. One student reflected,

> *It gives me a chance to think about we, as psychiatric nurses are not worse than them because we are getting less time in school, we are just focused on different things and knowledgeable in this area. Even though they want to help people, they are not open to extra mental health, or haven't accepted that it is something that also needs to be paid attention to. And that's OK. Maybe they are better in caring for physical health and they know a lot about that. There is always a special trained person for any kind of problem.*

Realizing the value of profession-specific knowledge and the ability to share that unique perspective of patient care led to a sense of belonging.

The following story, while lengthy, exposed both the oscillating experience of a student who had felt both undermined and valued for the knowledge she shared in previous interactions, as compared to her threshold moment, but also the process of how students take this value and turn it into belonging in different professions. This student was excited to relay that,

> *It definitely felt like my moment. I'm like, oh yes, you used my information to form your plans and that was cool. It was one of the best feelings. Cause as a student you are always disregarded or it's like you make an assessment but then the nurse goes right in and does their own, which they have to for their license, then comes back in and maybe says, agree with student assessment. And you are like, oh that was kind of good. But then when the doctor comes up and does rounds, they will never ask the student, "oh you are caring for this patent today, how are they?" The nurse could have gone in and done that 30 second assessment in the morning and they will still ask the nurse everything about the patient. So, your experience and your knowledge isn't valued. We used to care plan too, but they don't understand actually, the hours of work a care plan is or like how much knowledge is in those like 8 pages or whatever, so. It was good to be like wow, somebody wants to hear what me, only a student, has to say and my opinions, cause you can chart all you want, you can tell your nurses, and they are like uh hm, yep, uh hm, yep, k, yup, good, yup. They don't actually care what you are telling them because they have their*

*own patients or they are like, I saw that and it was different, but I'll let you think that. You know? So that was the first place where it was like, wow, somebody wants to listen to my information, my experience, and my knowledge, even if I am only a student.*

*But then it was like a clear divide between my experience as a nursing student and then all the other students getting to speak also. Like, my nurse would never just be like, you go, and you report to the surgeon, like the psychiatry students were doing. It was interesting to see more of that shift, to let the student be the person leading. Nurses don't do that with their students. You know? They are like, yeah, come follow along and watch and learn. No it was interesting to, my value in that room was way different than when I closed the door and walked back out to the floor.*

*And it was one of the first times where I was like, man, my experience and my knowledge was like really valued and being listened to. Because as a student, it's like "you said that but I'm still going to look at your nurse and…" No that was good and the nurse was like, thank you for saying all that I knew nothing about all that.*

For this experience in particular, the student felt a sense of belonging to that interprofessional team and was acknowledged in the room by those in her profession as holding significant patient information. Yet the student noted a difference in autonomy as the other healthcare students presented more information or contributed to the discussion with only prompts from the preceptors in the room which suggested a difference in decision-making ability. This frustration was further confirmed as the student left the room and perceptibly felt her value drop back to being a individual student contributor; she no longer belonged after she left the room.

Students seemed to seek belonging to gain the trust of others which meant they had something to offer toward patient care. One participant reflected on what her education provided,

*It's not so much the education that holds us back its just there is so much lacking. When all you can really do is like, as a skill is give a bed bath, well like, why would a doctor come and ask you about like this and this and your opinion on this because like we just don't know. But in like 3rd and 4th year when we understand why this is happening and what could happen if we don't treat this, I feel like it's easier to kind of like trust us?*

*I think it's important to like respect the education that others have too. I mean it's just unrealistic, you cannot be there all the time. So, you have to respect that person that is there. I think I've had a respect for other professionals, but I think it has grown so much as I get to be included in like more procedures or get to see more behind the scenes as you move through clinical. There are just more opportunities; you get to sit in on surgeries, or just …*

Students reflected on where their trust of others came from as well as how they grew from their learnings to become trustworthy. Significant for this student was that the chance to have interprofessional learning and gain trust or give respect happened later in her education.

For those students with more independent clinical experiences, like dental hygiene, the patient became the conduit for communication with family and staff. Family members were pleased to be phoned and updated on assessments of family living in long-term care. Students sought opportunities to share with CCAs their expertise with mobility aides and assessment techniques:

> *Showing CCAs this is how you brush, this is how you floss, this is what you should be doing, but there are also so many techniques to aide them. Like we have a whole table clinic that we take out sometimes and it's as simple as putting a, wrapping a wash cloth around the toothbrush and putting an elastic around it just to make it a thicker grip for the patient. Or glue a hockey puck on top of the lid of a Listerine bottle so that they could turn the lid. It makes life easier for the CCA and the patient, you know?*

Sharing knowledge highlighted for students a shift in role from stereotypical perceptions of scope of practice to a wider focus on prevention. Sharing knowledge was conducive to relationships that led to advancing patient health goals. Especially for Elanna, the approach to patients set the stage for a therapeutic relationship:

> *I'm pretty sure their life has been shitty, because of the drugs. How can you make somebody feel better even a little bit? And I'm pretty sure they would appreciate that support because most people have probably judged them. That's the harm reduction part of addictions counselling. We understand that addiction is not easy. How can we make this safer? How can I be a support for them without forcing them? Because they probably don't trust anybody from their past experience. How do we show unconditional positive regard?*

Elanna tended to share her experiences in her interview from the perspective of a patient responding to care. While she did not have a particular patient to talk about, and she shared about multiple educational and experiential contexts, she focused much of her conversation on the value and trust a patient may have of the interprofessional team members. The focus for her then was on the sense of belonging for the patient on the team rather than for herself as a member.

Elanna's insight in particular highlighted the various approaches to gaining interprofessional team trust or value. Some students were focused on the educational processes and experiences to show learning, such as care plans, rounds, or reporting to others; the movement from individual to team learning through communication tools. While others focused

on relationships with team members or patients and families, the confidence to develop relationships, despite conflicts and differing values, led to effective patient care.

**Connect the threads.** The deepest learning step had significant stories. Students touched on problem solving and therapeutic communication skills as a means to operationalizing empathic care. Using skills required students to attain an interprofessional or systemic worldview. The statement for this learning step is:

> ***Education fosters a responsibility and accountability to connect the threads of ethical or humane issues from individual and systemic worldviews when adjusting team care.***

The student interviews revealed interprofessional-focused education led to changes in perspective about care that would not have happened in regular programming. Student planning changed for their own uniprofessional care but required students to be ready for an interprofessional perspective, as shared here:

> *After seeing that [interprofessional rounds] now, I know that they do actually talk to each other and do things. It is one thing to go to rounds, each person reads off their update, and then they all make a new plan and then go home. But now that I know that there are discussions happening. I can see where they are going on the progress notes, that they didn't just read the one above them, then make their plan.*

Students discussed the experiential knowledge gained which supported the static processes embedded in their professional programming. Understanding interprofessional team decision making processes which had been difficult to follow on patient charts were now associated with professionals, discussions and context. One participant revealed,

> *The info is there but the teamwork wasn't displayed, like the rounds at the Dubé centre is a little different, like psychiatry is well we want her to get to this goal ad PT is like oh well how bout we say she has to go to two walks per week, like accept the help we're giving. Psychiatry is like, yes good idea, so then they mesh, so they have the same goal. You know so, in the discussion you can see all the threads connecting, but in the chart, it says, we'll trial this, based on my info, not the teams. They don't write notes like the team's plan is this…comprehensive, it's each discipline by themselves – together but separately towards the goal.*

If professionals made patient progress notes based on their assessments and interactions with patients, students now realized they were notes in coordination with care expectations for other team members. However, the question remains whether students with an interprofessional opportunity were ready to receive an understanding of an interprofessional stance. Helen stated,

> *Well if they're going to listen. Cause I don't want to come around and impose my knowledge and my thoughts on someone that does not want to listen. I am not trying to force this information. Information can be observed by a person only when they are receptive.*

For Helen, having other healthcare students in the same space meant an interprofessional learning opportunity lost. She appeared to be ready for interprofessional interactions, although she had commented previously that she, and the faculty, were also required to take initiative.

The importance of learning at this final step reflected a flattening of perceived power in the educational hierarchy. Everyone was learning something from each other, and everyone had different confidence levels or unique skills to offer. The point of this step was that particular realization, because it propelled students to be confident in what they were learning, and made them consider what could be shared with others. One student claimed,

> *Given our specific disciplines, I had assumed that she would have had more confidence and skill in communicating before having worked with this individual. After this experience, whether she had learned from my interactions with the patients or not, it was exciting to realize that I too have something to offer to help these other professions in their practice going forward, just as I can from them.*

The awareness that potentially every other professional had something to teach created a dependence or reliance on the team to learn how to approach issues and gain problem solving skills.

In the following story, the student noted how a cursory glance at the progress notes or recommendations in the chart now held suggestions of a process of problem-solving. Whereas in previous chart research, students would take the information written as the one-dimensional snapshot of the patient in that moment of assessment:

> *I wouldn't say it's different, but the way they were problem-solving was like, I know nothing about their role on the team or like how they come to their conclusion. I read the chart, see the orders and like oh yeah, that seems to fit with the person and move on. It was kind of a different look. Oh, they tried this, and you know you said this, your assessment was this, and I assessed her this week and I didn't even know that you looked at that, because they are not writing down every minute detail. It was kind of interesting to see how the students from pharmacy, PT and psychiatry chimed in with their conclusions.*

Now that the patient as represented in the chart was becoming multi-dimensional, the requirement was to increase the application of that knowledge. What this student began to see

was the relationships on an interprofessional care plan that were derived through conversation yet grounded in patient information.

> *I think they are looking at the little details and looking at everything where their preceptor knows which five details matter. Like, we already covered that, so that doesn't matter, or, remember we looked at that. They know what they are looking for in particular and generally where it goes. Where students don't have a, well with my past experience, what we do is, every experience is new, so you look at every situation differently. I think like it's so individualized in the progress notes, whereas here they are like, oh you guys are doing this, I'll try this, but it's never, ever, you never ever see it related anywhere else unless you are in those rounds.*

Of particular note in this quotation was not just problem-solving as a team, but the ability to prioritize patient concerns in relation to team goals. The significance for students, however, was having the opportunity to critically judge the reporting of their assessments and therefore, their ability to prioritize as compared to their professional counterpart.

The relationship with professionals could continue in direct work with patients, and learning was the key. Students and professionals began reducing silo walls by learning to be aware of what others could offer or what knowledge was required to provide efficient care.

> *The CCA and I always tried to work as a team. She always asked me questions. How long is your program? When do you learn how to do this? I will tell her all the steps of how to learn things on a patient. Like, we are always talking about things. You are there to join with the other professional to help the patient you are helping. And as long as you are learning, she is learning, and the patient is learning. I'm thinking with that approach I can be effective and efficient.*

This continual improvement and development of teamwork that included the patient became about shifting uniprofessional goals for a plotted team approach.

Elizabeth literally drew lines in the air while she talked about her new ability to follow the ley lines of interprofessional team goals for her patients. This ability was a significant shift in the way Elizabeth processed information and developed coordinated plans.

> *[Rounds] changed the way I view the orders, or the progress notes. Because you come back from a weekend and everybody has written notes on what they saw or if the plan was the same. And now it was easier for me to connect the lines. I know they contributed to that discussion, what pieces of each other's information they used in their paragraph of notes, so then it was easier, like when I look in a chart, to draw the lines myself, because they are not in there.*

> *I kind of see everybody sitting around a table having a discussion and I just wasn't in on it. When you look back through the chart cause you look through the whole thing to*

*gather information for your care plans, I can see now after hearing that one discussion about a goal. The goals change, through the clients. I can see the goals plotted along the lines and all those comments kind of around it attached. I imagine what they could all be seeing as the goal. So that is very valuable for understanding the progress notes, cause otherwise it's all these therapies charting the same thing and individually making, cause if they each had different goals that would be an impossible plan of care. But knowing that they all round someplace without me, that they are all working and how I can contribute to that. And cause I have to create diagnoses too, so, if I can help with that goal, even if it's just for two shifts, like aim mine in that direction, then it makes me feel like I'm doing something valuable instead of risk for infection. Picturing their goals makes it easier for me to see which way the professionals are focused. So maybe I wasn't, maybe I was going to go in a different direction, but it kind of helps structure it that way. Now I kind of pretend that I can sit at rounds with my goals.*

For Elizabeth, how her profession fit into an interprofessional worldview now had structure and a process. She was not sure if other students had similar operationalizing of interprofessional goals, but she advocated strongly for all students being able to participate in rounds.

Many students at this point began talking from a team standpoint, rather than an individual professional perspective including the rationale or purpose for doing so. What resulted was the sequence of actions each professional took towards the team goal. For Rose this was underscored throughout her SPICE experience, where she had different reactions to teamwork that included a patient actor or one that included a mannequin:

*The difference was we were learning how to be a team in both; one where we were learning when there was somebody else at stake and the other was a team where it was OK to not, like you don't have to save face in front of somebody else.*

*We just need to get this goal. It doesn't matter who gets there because the point wasn't that I needed to prove myself, the point was, well, what's in the best interest of the patient? There were no points given to each individual. Nobody gave me a pat on the back and said, oh you know so much. We knew how to get this done.*

Rose was very clear in differentiating her team approach to care in this event, as compared to other teams that had chosen multiprofessional or individual approaches. Her suggestion was that using a uniprofessional approach in an interprofessional context created a moral dilemma and resulted in fractured patient care. She shared,

*We knew other teams that didn't work as well together, where they had broken their team up, with the dental hygienist upstairs in the clinic and the paramedic staying back after the transfer. They weren't as successful because they didn't have the rapport. Like the dental hygienist when she got there, there was that change-over of people and so they had to go through all of the introductions again. I presume that they had to talk around*

> *the patient, which I don't think is fair and I don't think is honest. Because you're excluding the patient from the care that they should be provided.*

With this awareness of a team mentality or approach came a role-shift from intervention or reaction to a wider perspective on prevention.

Wil shared that although his background was public health, the one health approach of bringing teams together through seeing the connections between the patient, animals and the environment, helped him consider how to 'break the silos.' He made clear that his learning was both in education and application to practical experiences:

> *It is a continuous thing. It builds up, not just like even in my masters or in my PhD. It's an observation from outside, you know. To see a big picture, not just a silo that I'm working in. My whole personal experience, doesn't deal much with patients, individually, but mostly with communities.*

Wil had a unique perspective because he dealt with what he described as clinical deficits in health on a wider scale than individual patient care. While he was interested in whether the work of his teams did impact patient care, his viewpoint was purposely expanded wider from the inception of team development. However, an interprofessional approach still grew over time.

For others, empathy was required to respect patient and professional behaviours. Empathy was a means to decrease judgment and see beyond the disease. Elanna shared personal, educational, and professional experiences of working with nurses in different contexts. She continued to struggle with her expectation of nurses to be empathic considering her diverse exposure. She suggested that professional perspective played a part:

> *Maybe because I'm an addictions counsellor. I'm the type of person who likes to give more emotional support and empathy, especially when they are in pain, right? But like, with nurses I don't see that often. I think I would trust nurses that they care about the patient's physical or medical part. If the nurse said to me, like hey, you look like you're in pain, I know it's really hard to breathe, I hope you will be fine, I will be here for you. I would be like yeah, I trust you enough I will be fine. Probably believe more that I will be OK, I will be safe. Even if nurses are good at their job, sometimes I feel they are so immune to seeing people in pain, they forget to check, whether the patient is in pain, or whether they can make the patient feel safer. We all need to be more humane. People are not just their addiction. There are underlying issues why they become that kind of person.*

Because of the educational and work settings related to custody care, Elanna was limited to working with mostly nurses. In her interprofessional educational experience she worked with nursing and psychiatric nursing students. Therefore, Elanna's learning and threshold moment

was uniquely reflective on the bias she knew she had and the bias she perceived in others. Her insight into the value of empathy helped her overcome her bias in the interprofessional educational setting. This awareness of empathy as a key skill for interprofessional teams changed how students perceived their future work.

For Maureen, previous work and education provided a uniprofessional view of determinants of health for her a longer story, the narrative provides comparison between context, professional perspectives and the liminal struggle of remembering past thoughts and behaviours. She shared a significant story of reflection for herself:

> *It's so interesting and so frustrating at the same time. The first job I got as a paramedic was up in Big River and Spiritwood cause I couldn't get a job here in Saskatoon. I hated working northern. I was young, I was really young, saw a lot really fast, and I was homesick and I didn't like it. Eventually, I got a job in the city and I liked that. I was never going to go back and work northern.*
>
> *Now, I think I could go back and work in northern communities again. I'm looking at this neglect that is going on with these kids or just the lack of education on how to properly care for a child. I have different knowledge now. I was treating the illness, so it was easy to be like, well why are you doing this to your kid? or why are you giving juice to your kid in a bottle at night time and ruining their teeth? It's easy to scrutinize them and judge them but now when you start to see how, this played a role in this and this played a role in this and OK, so it's not easy. It's easy to judge but it's not all their fault. I want to go back to work with them to change it.*
>
> *The education program provided opportunity to think differently. All those different placements. Working in the reading program with the elementary school and going to peds. It's the same issue, you always see it, just in different forms. Determinants of health have such a big impact on so many things. So, it was the lack of education on my part and now knowing the impact of the determinants of health is huge. It always comes up in every year and every practice. In peds and having babies cry all the time and I think, you start looking at like shaken baby syndrome. It's easy to judge and be, why would you shake your baby? But then you put yourself in that position and it's just easier to relate now. Who knows? Maybe I'll go back up there, like go northern again. I didn't ever think I would go back and now I feel like I have more education so I could offer more.*

Maureen's story was significant for the change in worldview. Her choice to change disciplinary knowledge notwithstanding, Maureen's experience swiveled her viewpoint; she was not reacting to patient situations but considering being a partner. Health and education became joint responsibilities for patients, communities and health professionals.

Students engaged in discussions about the potential for interprofessional impact on an upstream approach to health prevention. Students stated that communities required multiple

professionals like nursing and social work to take responsibility for education, thereby impacting individuals, communities and the health system in general. One student stated,

> *From my point of view, we should be putting so much money into like prevention and education, because like putting the money there, cuts back on the costs later on. I feel like that is where things are lacking the most, is that like community prevention and education. I feel like we have to go back to the basics. Even just talking about brushing your teeth. Learning how to do that, you wouldn't see so many cavities and you wouldn't see kids end up in the emergency room with a heart infection. Not everyone learns those simple skills in life and to me it all goes back to education and preventative measures, but there is just not as much money put into that.*

Interprofessional care seemed to increase the capacity of what one individual could accomplish. Educational plans for patients were priority, but students found capacity to expand their expertise or desire for change to wider practice contexts because of their work with other professionals.

This fourth step was characterized by readiness for change, reflection, and awareness of how roles shift in an interprofessional approach. Patients played a significant part in this step by challenging students to consider how they empathically enacted interprofessional teamwork.

**The Ontological Shift of Interprofessionality**

An ontological shift is the result of significant learning and heralds a transformation that is often exhibited as ways of thinking or practicing like a professional (Land, Meyer & Baillie, 2010). However, the ontological shift is as much about the process as the outcomes because the experience is a way to make meaning of what is happening (Timmermans, 2010). What I heard in the healthcare student stories and read in their transcripts was the experience of a changing subjectivity from student persona to professional persona; a shift that occurred because they were describing being a healthcare student, but becoming, and believing in themselves as a new professional.

Students were re-interviewed to confirm their individual learning steps through their threshold, then asked to confirm that their experience was envisioned in the aggregate interprofessional learning steps. These hierarchical learning steps do lead through the threshold concept of interprofessionality. The phenomenographic outcome space, or the liminal space in which these steps were situated, included the various experiences which encompass interprofessionality. From that outcome space is the picture of transformation for healthcare students, a shift in identity or subjectivity (Land, Meyer & Baillie, 2010). All students who completed a follow up interview were asked if there were any subsequent changes since their

threshold moment that they had not discussed, or they have thought about since. All students, in either their first or follow up interview discussed changes, shifts, or adjustments they made in their thinking, emotions and behaviours, specifically in professional relationships.

Unsurprising was the student stories of change could be split into two perspectives; the patient and the team. For the majority of students interviewed there was a confidence gained when working in a team. The result of that confidence was perceived to be better patient care. Students saw interprofessional teams as a means to opportunity. The interprofessional team that had contributed to the threshold moment created an expectation for future work and students seemed to approach new learning seeking the support of teams. This was evident when teams were absent, and students lamented not having a similar experience as compared to their threshold. One student shared how confidence seemed connected to competence because of shared knowledge:

> *I did the simulation with the code and the other students were like, how are you so confident in doing this? I've done this before, I did this in SPICE. In fact it worked better then because we all figured it out. But I was prepared for this because of SPICE, so I knew how deep to compress on a mannequin, knew how to tilt the head properly because it's not like a human, you have to do it differently. Whereas the other team had a lot of problems even communicating their assessment over the phone.*

Alternatively, another student felt empowered because of the respect and encouragement she received from faculty and interprofessional team members. With empowerment came opportunity to try new skills and own her practice. Empowerment was the key to thinking she could handle new learnings. Seemingly, the student needed to give herself permission to contribute to team care. However, the stories students shared were not just that they thought they could, they found they did and that was the awareness they needed to grow and become confident professionals.

This step to autonomy occurred for a student who reflected on how behavior had changed since the original experiences with teams. A humble approach and accountability for past behaviour marked the change to being engaged and seeking opportunities. A discussion with one student was about how reaching out to other professionals showed resourcefulness. The hard work of learning to be a team member in the threshold moment led to being rewarded with referrals, new learnings and an expanding network of potential partners.

Another student discussed how a team environment supported "different personalities and different professions, but for the benefit of the patient and healthcare all together." For this student, in particular, there was a long discussion about fear in an effort to provide great care and not make mistakes. However, she also spoke of the realization that the team would support her learning and back her decisions in her last clinical placement; a valuable validation as she transitioned into practice.

This support from team members was echoed by a student who did her follow up interview months after she had graduated and joined a team in practice. In the following quote, the student made clear that her learning to respect another professional group began in school, but that practice showed her how much organizing and work they actually do:

> *It was things like the necessities in school, like doing patient notes right away so you don't forget anything and having that really drilled home that your notes have to be so accurate so that everybody can go back and track what you did. I mean, my notes are still accurate, but it was more about jotting things down on my little paper throughout my appointment and then stashing my paper and doing my notes all at one time so that I was able to stay on top of my time. It's important for us to communicate. I've learned they are completely juggling people all the time and trying to prioritize to keep track of things. They push me kind of like to my line basically. I definitely gained a lot more, I don't want to call it respect, because I always had respect, but it's been a real eye opener for what they do.*

However, her most surprising learning was of herself in relation to their approach to her. They tested her and challenged her as a means to build her confidence and build the team. She was never challenged out of her scope, but she was challenged to learn organizational skills to affect her work in relation to others, making her enact and fit into their team approach to care. The following quote describes how she modified her interactions with patients:

> *I think I've learned how important it is to actually figure out and know from the pharmacist or the doctor that they just had surgery, to figure out what is actually going on in terms of health history. Talking to the patients, some are on so many medications. It isn't making a difference in the way I treat you but it's making a difference in your health. So trying to make that connection for the patient themselves through what has happened.*

While a challenge, because patients can choose to receive and act on education in the practice environment, this new graduate continued to promote holistic patient health.

The most significant ontological shift from a team perspective was described as part of interprofessionality learning step four. The student had learned to see threads connecting

information in patient charts to interprofessional round experiences that she had not attended. The modifications to her learning and use of knowledge included how she set care plan goals and prioritized her planning and interventions. Yet her ontological shift as a result of this same threshold moment was becoming the student/professional who could tailor communication for the team. A skill that she carried forward into her next clinical placement.

There were, however, two students whose ontological shifts were from the patient perspective. Neither experience was necessarily positive, but the acquisition of learning was apparent, and the key to noting these shifts was understanding the threshold moment. For example, the addictions counselling student in her follow up interview brought up conversations she had with friends about working over Christmas. When asked how work went, the friend said, 'oh, just a bunch of drunks.' Our conversation continued:

> *ELANNA: Yeah, you know like, the typical drunks or whatever. Really they already have a bias.*
> *ME: And that would totally colour their approach to every patient.*
> *ELANNA: Exactly. If they just label them drunks or alcoholics. Just the usual. Or like St. Paul's Hospital is known for that as well.*
> *ME: I know it is hard cause it's kind of stereotyped that way isn't it?*
> *ELANNA: So, like I'm pretty sure it can affect how they treat people because it's not unconditional positive regard anymore.*

Elanna continued the conversation, postulating that patients may continue their behaviour partly because of how they are treated. Because of being labelled, patients may lack a sense of belonging. This empathy toward her patients was consistent in both her interviews and Elanna often changed the topic to gain perspective. Her threshold moment had been awareness of her bias toward other healthcare professionals. Her new perspective was her attempts at seeing their work environment through different lenses. She often wondered if staff were burnt out or needed self-care and was worried that the lack of empathy toward patients was a result of the staffs' own lack of supports. Elanna was able to share this shifting empathic view in stories about three different work or clinical environments.

The final example of an ontological shift was filled with frustration, underlying anger and confusion that turned into empowerment and possibly pride. Kathryn was working in a short clinical block in postpartum with a patient who did not speak English and had just had her baby the day before. She was due to be discharged but the staff could not complete their discharge teachings because of the language barrier and did not feel the patient was safe to go home with

her new baby. During the birth, the staff had contracted a translator, but did not document who or where to find that person.

> *And the staff said, but she is not safe. I said, yes, she is not safe because we have to pass out this information to her. But there was no way to pass out this information. The hospital translation system couldn't get her language. We were struggling to support this lady. But I said, first there are broken gaps because we are taught during admission, if your patient cannot speak English, you are on a mission of devising means of communication. And now you are caught in this. How will we get the translator back? The staff were all confused and I was wondering, how do we support this lady? Her phone rang as we were standing talking, brrrrr, she was speaking in her language and I asked her if I can talk to this person? I made this sign and she gave me the phone. The person could speak English and I said we were looking for someone to speak English and communicate with the patient. The lady on the phone was like, oh! I will get you connected to Global Gathering Place.*
>
> *Finally, we brought in the translator. The lady was so receptive! The way they teach in her country is little bit different than the way you teach a pure Canadian. I told the truth from growing up in my country. I told the staff, let's approach it from this way.*

This quote reveals a rite of passage to being a nurse and valuable member of a practice team from no longer being a student. Kathryn provided a cultural perspective that others did not have. While she was frustrated with others, she felt like a respected and worthy member of the team after that rotation.

Kathryn experienced advocating for a patient and telling the outcome from the patient perspective. Everything Kathryn had previously talked about in her threshold moment and learning steps was about her experience of being a member of a team. She was not directing the action or the patient care, she was part of it. Her cultural expertise made her, in this instance, take the lead and provide expertise and decisions that others did not have. She provided an example of the power of advocacy when a team member feels they have opportunity for full voice. She conveyed that she contributed equally. Her memory of that clinical experience was positive, and she commented on the good teamwork of herself with staff. She had contributed not only to patient care but provided an opportunity for students and staff on the ward to level-up and engage in cultural learning and problem-solving.

In an interview, Land stated an ontological shift is required in healthcare students and is expected to be more profound than a conceptual shift (Land, Neve, & Martindale, 2018). All students shared their emotions associated with changing perspectives. All students dealt with gaining a measure of confidence and evaluating competence when contributing to the

interprofessional team. However, the most telling signs of shift were the rationale for decisions in providing care or modifying their own learning processes and environment to be empowering for the patient or for the student to be the magnifier for the patient voice.

## Summary of Findings

The purpose of this study was to describe the student experience of having a threshold experience of interprofessional learning or working. The findings revealed the combination of the methodology of phenomenography and the theoretical framework of threshold concepts. Healthcare students shared their individual perceptions of having a threshold moment of working and learning with another healthcare student or provider and a patient. The resultant hierarchical learning steps, from superficial to deep, were combined into four aggregate learning steps leading to the threshold concept of interprofessionality. Students related that they began by developing a community and finding a common vision. The next was exhibiting leadership by realizing internal expectations of themselves to be team members and external obligations to seek opportunities. The third step was realizing they were trusted and valued as team members because of the skills and professional knowledge and the fourth step was the gaining of a wider worldview to ethically impact patient care. The result of moving through these steps and across the threshold constituted an ontological shift. All students expressed a confidence but also an empathic perspective that enabled them to gain understanding of the interprofessional team and how to promote the patient voice.

This study combined phenomenography and its four hierarchical categories of description within an outcome space that accepts variety in approaches to learning, along with the threshold concept framework embedded in the liminal process of transformation that results in a shift in identity or subjectivity. The combination resulted in a picture of the experience of becoming an interprofessional team member while respecting the primary professional education in which each student is engaged.

Chapter 5 will respond to the research questions and provide discussion of the findings in relation to the research literature. This response is followed by implications for research, policy, education and practice.

## Chapter 5: Conclusions, Discussion and the Future

This chapter provides an overview of the study with subsequent interpretations of main conclusions learned from the aggregated student threshold moments of interprofessionality. Following a discussion incorporating the interprofessional education literature are implications for educational practice, policy, theory and research. The chapter closes with my reflections on completing this work and concluding remarks on the study.

### Summary of the Dissertation

Interprofessional education is defined as occurring when "two or more professions learn with, from and about each other to improve collaboration and the quality of care" (CAIPE, 2017). Students in Saskatchewan have a variety of IPE opportunities to engage with in both educational and experiential contexts. The purpose of this study was to explore healthcare student threshold learning experiences within the context of interprofessional education. Interviews and reflective writings were received by 13 participants from three main educational institutions sharing experiences from across the province. The ten students who were interviewed shared their experiences of having a threshold moment when interacting with another healthcare student or professional as well as a patient or patient actor.

Phenomenography was the most appropriate method to determine four categories of description for the threshold concept of interprofessionality. These four categories are hierarchical learning steps leading to the ontological shift created by crossing the threshold. The four categories and the experience of shift encompass the phenomenographic outcome space of interprofessionality. Students contributed to confirming their personal learning steps and finalizing the interprofessional learning steps as they were developed. The short names for the four learning steps are: 1) community vision, 2) leadership expectations and obligations, 3) trust and value, and 4) connect the threads. These four learning steps are ordered from superficial to deep learning. Working through these four steps meant students started a liminal process, a three-phase experience through chaos, starting with separation, working through the chaos of becoming interprofessional, and finally reaggregating as a team member with a new sense of identity. Students described this new subjectivity as having confidence and competence which meant using empathy from multiple perspectives to affect care for the individual and the wider community.

## Response to Research Questions

There were five research questions that guided the research and helped paint the picture of student experiences with crossing a threshold amidst the chaos of education and healthcare contexts. Summaries of the responses to each question are provided in the following sections.

### The Experience of Students having a Threshold Moment

Student individual experiences of threshold moments were described according to five threshold concept criteria. The troublesome nature of the experience was revealed as issues related to gaining skills, sharing profession-specific knowledge or understanding relationships. Often students spoke about learning to communicate with diverse patients and professionals with specific struggles around taking initiative to ask for advice or admitting to not being perfect. Students expressed fear at testing communication skills and were concerned about emotional safety. Students were frustrated when attempting to share their profession-specific knowledge either in educating patients or other students. They were also poignantly aware of working relationships because often, despite engaging in patient care decisions, they were dismissed as students. These experiences were bounded in profession-specific knowledge like mental health or in spaces like the ambulance and the room where interprofessional rounds were held.

Following the threshold moment, students had found ways to turn those troublesome aspects into usable skills. They integrated fear and turned it into adrenaline, they transferred communication skills across contexts, and they made partnerships explicit rather than tentative. Students were transformed to change communication habits, be leaders, accept feedback of others and be confident. These changes in themselves became irreversible as they shared this information with others, such as advocating, promoting education and building teams.

### The Context Before and After the Threshold Moment

Students discussed their perceptions of the learning context before, during and after the IPE experience. For those students in educational settings, there was a focus on the learning process. The structure of IPE supports was apparent with faculty guiding the process or the instructional design of online courses. Students within these contexts were clear about learning outcomes. However, following the experience, there were questions about readiness to work with actual patients and where to find professional supports.

For those students in experiential settings with patients the focus was relational. Students described care planning, assessments, and patient education, often bounded by the patient space

(i.e., the dental chair, the hospital bed). However, following the experience, the students could see partnerships with patients on improving health, nursing stations became hubs of interprofessional connection, and the autonomy granted during the threshold led to alliance with other healthcare students.

**The Individual Experience of Change**

Students used words like ‘shift,’ ‘a-ha!’ and ‘the clicker for me’ to point out the moment when they thought or felt something different in the experience. There was a variety of changes expressed. Some students talked about their own perceived change such as becoming aware of bias towards others or having the capacity to take initiative. Most students shared about the change in positioning of themselves in relationships. They had learned to reciprocate, they accepted leadership roles, they changed their communication styles in the moment with patients or other students, and they made explicit effort to acknowledge team members. Some expressed both affective and cognitive growth exhibited as empathy at a community or systemic level as a way of planning for population health change.

**Significance of the Learning Experience**

The significance of the learning for students became the four learning steps of interprofessionality. Students began with describing the initiative required to learn and grow a team by becoming aware of, and gaining appreciation of, others. This appreciation led to more than teamwork in finding common values. From the team base, students worked to advocate for patients and provide quality care. Students then moved into understanding leadership skills and roles by growing from working with others. There was a sense of internal drive to develop leadership capability. From this confidence in self, arose the ability to find value and gain the trust of the interprofessional team. Students at this third stage utilized tools such as care plans, or report structures, to show learning, or developed relationships with team members and patients. Students were then accepting of a readiness for change, were reflective and aware of shifting roles in interprofessional teamwork. Patients were significant in challenging students in how to enact empathic, quality care.

**Reflection and Change Following Learning**

Subsequent reflections were captured in the follow up interviews with eight of ten students. It was apparent that all these students could ‘see’ interprofessionality now. Possibly because they knew I would ask, or that they had reflected on their learning steps, students

brought up multiple examples that they had witnessed in working in teams since their first interview and the impact on their practice. One student stated, "I actually did learn something in school." Students had shifted their identity from being a student to becoming a practitioner and team member. That confidence was shared through ways of thinking like a practitioner, such as seeing team goals of care when designing and contributing to problem-solving for patient goals. However, students also shifted subjectivity by being able to be empathic to both patients and other healthcare team members. While they were still often frustrated, their expanded worldview decreased their immediate judgments and modified their approach to teamwork to ensure they were being empowering for patients.

## Conclusions

Students have provided a wealth of information describing their liminal experience of chaos that led over a threshold with an outcome of a new identity or new perspective. Interpreting those finds, and the subsequent application to the IPE context in Saskatchewan for mostly pre-qualifying students, provides a snapshot of what currently exists within the bird's-eye view of what could exist. The following three conclusions arose from considering this study from inception through analysis of student experiences, combined with my view as faculty and interprofessional education coordinator.

### Student vs Healthcare Student Liminality

An expected aspect of interviewing students was learning more than responses to the research questions about interprofessionality. Part of understanding student learning in context meant understanding the professional role and the expectations of students within their programs. As stories unfolded about didactic versus clinical experiences, students shared about their value systems related to choosing their program and the past experiences that led them to that decision, and the support systems that helped them through the program. It was difficult to filter out some of that narrative to present a solely interprofessional experience. The social constructionist view does encompass those multiple realities that shape learning, even if they happen in memory while standing at the side of the patient. I am grateful students trusted I would present their stories appropriately. I am left with a liminal question of describing 'student becoming' versus 'healthcare student becoming.' Students often told very personal stories impacting their education progress, then went on to answer the question further in relation to the team or the patient. The chaos of both the educational and health learning environments for students was

more than a question of becoming a professional or becoming interprofessional, as written in the vignette in Chapter 4.

Students did not talk about interprofessionality as differentiating the professional self from an interprofessional self nor did they describe not having a chance to use their professional voice during interprofessional interactions. On the contrary, students shared the frequent invitation to contribute from their professional perspective. All students conveyed an expectation that being interprofessional only enhanced the care they could give or assisted them to contribute appropriately to decision-making.

The argument exists that students earlier in their programs would not have the identity development as a professional to contribute well. Students suggested that interprofessionality could occur earlier in programs if the right opportunities were offered. All students who participated in interviews were in the latter half of their programs. However, when reflecting on their experiences over the course of their programs, most students shared that it was not a lack of knowledge that impacted their contributions in interprofessional team contexts, but the confidence that came with having applied skills in actual patient care. The experience of making critical judgements for an autonomous patient was invaluable to these students who all eventually had a threshold moment. In sharing their experiences, students seemed to suggest that contributing interprofessionally, because it was an expectation, was also a rite of passage; as if they had become professionals because they had finally contributed. Student narratives reflected this ontological shift and the learning steps do incorporate personal and professional values.

**Authenticity – What do You Really Need to Cross the Bridge?**

Students requested interviews because they had an interprofessional experience and threshold moment to share. I still hold the belief that IPE should be with learners at the same level (i.e., pre-qualifying students with pre-qualifying students, not a student and practitioner) because of the power differential and the difficulty of ensuring reciprocity as evidenced by the concepts of with, from and about (Bainbridge, 2008). The six students in educational settings or those that volunteered at SRCs had that experience of learning with, from and about other healthcare students with a patient or patient actor and were able to transfer that learning to experiences with practitioners in their clinical practica or transition to practice. Of the remaining four students, two did have threshold moments in experiential settings with other healthcare students. The final two students, Kathryn and Wil had their experiences with practitioners, but

both of these students were masters-prepared. These four students who had threshold moments in experiential settings all had previous education in healthcare and could provide some significant details on the experience and critique of interprofessional team functioning. There were four students that participated in structured IPE events.

Those four students, even from short reflective statements, could describe learning outcomes related to team approaches to care or clinical judgment such as prioritizing interventions. All ten students, however, had a threshold moment with the majority of experiences happening serendipitously. Therefore, despite the educational silos that exist, students do gain experience and understanding of interprofessional contexts. The culture of healthcare does require a team approach. What students were able to critique was the quality of team. Whether designed for interprofessional care or not, students were often frustrated by the lack of continuity or standard of interprofessionality. Psychiatric teams have long been esteemed for holding interprofessional, patient-centred rounds, and two of the students had threshold moments because of their placement on that ward. However, the interprofessionality was interrupted when one student left the room. When either student left the ward to the next clinical placement, they were back to observational experiences and being dismissed as students. The rehabilitation ward at City Hospital is specifically designed for interprofessional teams, yet an actual physical barrier, the bridge, existed. Despite a student who was willing to cross, the divide remained. Even the design of the SRC, being interprofessional, was described as multiprofessional by the two students who experienced that setting.

Interprofessionality, therefore, requires intention. Competency frameworks often espouse the mastery and define the endpoint, but infrequently describe the process of learning to achieve that endpoint. The purpose of seeking learning steps to a threshold moment is to provide the beginning structure to designing and maintaining that scaffolding of learning. The intention then, must be in designing the infrastructure of IPE within a healthcare context to ensure authenticity. The outcome may be students who achieve a threshold moment sooner, or an increase in the number of students who achieve the threshold moment.

**The Patient Paradox**

Students shared their experiences of working with patients. However, the experience was often not explicit. Even when asked specifically what they remembered about what the patient said or how the reacted, students could not share much. Everything the students did was because

of, and for, the patient. There were subtle moments of observing patients for safety and strong moments of advocacy, including manipulation, to ensure patients and families had what they needed. Students did not separate their being or their learning from patient care.

However, there were moments when the cultures of institutions were apparent. I expected to hear that community agencies and SRCs prioritized the patient. The patient was often bounded by walls like the childcare room, the waiting room, the clinic rooms, or the fenced playground. It appeared that what actions were taken with the patient were determined by the student in that space and any other interactions were different people in different spaces.

As stated in chapter 2, patient-centred care is a culture. Students remember the authenticity associated with patient narratives and react and relate differently when working with, and learning from, patients (Tew et al., 2004). Students did not see levels of involvement or engagement of the patients they encountered. While they did talk about learning, it was not to prioritize gaining a skill it was to be better at providing care. The emotions students expressed were signs of learning (Cousin, 2006). There was fear and frustration, often at not being good enough or not being heard in relation to patient care. Yet, there was accomplishment and pride to help demarcate the successful moments.

The concern for both students and patients is the lack of support for learning. Both are either alone in examining the learning, or they are providing supports for each other. IPE grounded in structure, competencies, and reflective practice ensures students have the resources to learn yet appropriately draw on the patient. Students should be providing more for the patient than the patient gives. One student did find a way to reflect on interprofessionality on her own. Nursing students are required to reflect and evaluate daily in an app, specifically to the competency of collaboration. This student reflected on her teamwork on a daily basis and shared that it made her excited for her professional role.

While the patient-student relationship is valuable, the paradox of serendipitous IPE, especially in experiential settings is the tokenistic involvement of patients. Students and faculty need to be responsible for patient-centred care, not just patient care. Threshold moments for all the students were significant and memorable events. These interviews and transcripts were potentially the reflection and conceptualizing required to make meaning of the event. Students, and patients, require supports closer to the occurrence of the threshold moment.

## Discussion

Considering the conclusions arrived at regarding student identity development in authentic learning contexts and the relationship with patients, the discussion section revisits the applicable literature. Two areas in particular are deliberated: the authenticity of IPE in Saskatchewan and liminal threshold moments.

### Authentic IPE in Saskatchewan

Interprofessionality was defined as "innovative knowledge deployment" (Brooks & Thistlethwaite, 2012, p. 405). Interprofessionality is an interdependence between education & practice with "unique characteristics in terms of values, codes of conduct, and ways of working" (D'Amour & Oandasan, 2005, p. 9). D'Amour and Oandason (2005) noted that interprofessionality prioritizes student learning outcomes as well as patient outcomes. Assessing learning and practice contexts are important for understanding the processes affecting interprofessional learning and interprofessional working. While research with the framework could uncover the influences for education and processes that health may rely on to engage in interprofessional practice, D'Amour and Oandasan (2005) also stated that the "framework opens the door to understanding the linkages between these two worlds and the still relatively unknown process of cross-fertilization at work between them" (p. 10). My research did not look to analyze the framework, yet findings do reflect the student experience of being a learner in the complex and intertwined space. Students literally crossed the divide of health and education systems. They worked and learned in two communities, beholden to both yet evaluated for their performance in one world more than another. The interprofessional learning steps reflect the combined experience between education and health. While the learning steps have often been referred to as 'superficial to deep,' the first, bottom, step of growing a community of interprofessional members and finding common goals is foundational and this infrastructure determines the scope of learning in further steps.

However, the question remains on how educational and health systems support or create barriers to interprofessional learning and this is where authentic learning becomes important. An authentic interprofessional education experience would provide students with a structured IPE that focuses on competencies, engages the patient as partner and encourages teamwork with other healthcare students. The most authentic IPE encountered by students in this study was the SRC, SWITCH, yet it was not the context that provided the most significant interprofessional

learning. The two students who volunteered or had clinical at SWITCH spoke of the design of the space and staffing that supported interprofessional learning with patients. Students did reflect on individual versus interprofessional performance which student run clinics encourage (Hu et al., 2017), however, students also mentioned a reversion to multiprofessional working (Guirguis & Sidhu, 2011; Passmore et al., 2016).

Many students had significant interprofessional learning on acute care placements, but the education was not structured, nor focused on interprofessional working. They talked frequently about gaining advocacy skills and how using their voice to amplify the wishes of the patient increased their confidence to contribute to interprofessional team conferences. This utilization of communication skills was noted in the literature on acute care placements (Meffe et al., 2012), especially that increasing confidence had an impact on trusting team members, which became the third learning step (O'Neill & Wyness, 2005). Students appreciate clinical placements because of the opportunity to directly impact patient care. Research suggested that structured IPE clinical placements are stepping-stones to exemplary teamwork and that learning for students from those experiences meant transfer of those abilities to future teamwork (Meffe et al., 2012). The students who had threshold moments were appreciative of the teamwork that was exhibited, and that contributed to their learning and modeling of patient care. They did note that they attempted to transfer that model of care to other wards or their transition to practice.

The same experience occurred for students learning in community agencies. Structured, authentic IPE did not exist, but students were seeking team opportunities because of their threshold experiences. Researchers have also noted that few evaluations of interprofessional community placements exist or were often not sustained (Richardson et al., 2010). Richardson et al. (2010) found that community placements enhance the holistic or social justice approaches to care, and this was apparent when the psychiatric nursing student and addictions counseling student shared about their worldviews from within those placements as compared to others such as acute or long-term care.

Students in educational settings did share threshold moments. However, this setting, while valuable, lost the patient voice or gave it less of a priority, which decreased authenticity. Patient actors were lied to by students or the patient actors sometimes struggled to incorporate their scripts, which affected learning for the student. This impact on authenticity possibly meant students focused on the tasks in the simulations, not what they may actually do when providing

patient care. What is important to note is that, in comparing the literature, patient mentors in education settings seem to have the affective and cognitive experience that students had during their thresholds (Lauckner et al., 2012; Towle et al., 2014). If students, patients and professionals are the members of an interprofessional team, it follows that all members could have an interprofessional threshold moment.

**Liminal Threshold Moments**

The liminal space for healthcare students is fixed in learning contexts and is grounded in healthcare knowledge, but students are presenting themselves to the unknown (Schwartzman, 2010). The liminal process begins in actual student experience, often noted by troublesome knowledge. Meeting the liminal challenge is characterized by the remaining criteria as consequences: irreversibility, integration, transformation and boundedness (Schwartzman, 2010). The shift in identity is more often externally described by those who see the change in students. (Schwartzman, 2010). This perspective of the liminal experience for students has implications for this study and the literature.

Few studies described the liminal experience of healthcare students and most described the chaos of dealing not with the chaos of becoming a healthcare professional, but of dealing with the education system or personal concerns (Barlow et al., 2006; Fuzzard, 2017; Holland, 1999; Hurlock et al., 2008). As students become professionals, it may become difficult to separate the boundary between the personal and professional self. Many studies described liminality for students as students. This study focused on the liminal experience of students becoming interprofessional team members. I recognize this as a positive bias on my part. There is very little attrition from healthcare programs. When students enter healthcare programs, they are often immediately assigned a designation, invited to ‘pinning’ or ‘whitecoat’ ceremonies that acknowledge their first step into a profession. While they may be students, they are healthcare students and signing their designation on patient charts, and even as students, the title comes with commensurate responsibility. The faculty perspective is to educate students to be practitioners; always striving for the end goal, not just to pass the next class. This perspective and approach to assessing student liminality is more comparable to the study by Parker et al. (2012) where students were found to experience two cultures and status levels. In the case of this study, that meant education to healthcare and student to interprofessional team member.

The threshold concept of interprofessionality is troublesome because of the complexity of its situated liminal space. Variation exists in learning contexts, accessibility of other healthcare students, differing acuity of patients and the commensurate ability or capability of students and teams to handle uncertainty when the patient's health changes. Most healthcare environments in Saskatchewan employ or educate a diverse array of people from students to expert practitioners making the available knowledge variable on any given day, and interprofessional teams have inconsistent memberships.

Threshold concepts require students to "develop mental images" (Hill, 2012, p. 169) like the student who created care plan ley lines for interprofessional team member goals. Hill (2012) argued that students with previous experience may have an easier time conceptualizing the threshold. This maturity is possibly how students with a previous background in healthcare could more thoroughly describe higher learning steps to interprofessionality or apply that conceptualization to different contexts such as different wards, community agencies or rural settings. On the other hand, students who were part of structured educational experiences that involved patient actors were more descriptive of the first two learning steps.

The variety of perspectives from healthcare students speaks to authenticity of the design of interprofessional education events as much as it does to the role of faculty. Significant to all student threshold stories was the backgrounding of faculty. A hidden role for faculty is expected in structured IPE in educational settings because those experiences are often designed to be student-directed with faculty acting as facilitators only if required. Even in simulations, faculty have often spent their time designing the decision-making process of a student moving through a scenario and the scripts for patient actors but are often themselves only available for pre and post briefing. Healthcare threshold concept research also had varying views of faculty.

The threshold concept literature had a divided approach to threshold learning between the academics and practical applications. Faculty were often described as manipulators, modifying teaching strategies to challenge preconceptions of mental health (Stacey et al., 2015), or keeping the theoretical bridge in place, which was troublesome to occupational therapy students, and a necessary scaffold, in comparison to the practical instructors who were available for threshold moments (Fortune et al., 2014). The question is raised then about learning contexts as most students interviewed were from Saskatchewan Polytechnic where faculty are more likely to deliver both theory and practice which can also be a bridge between the education and health

systems for students and faculty. In comparison, the university model often has lecturers teaching theory and clinical associates or preceptors in clinical which creates a requirement of faculty and clinical instructors to understand the system of education or health in which they do not teach. The two students who had clinical at Dubé did share the difference in teaching/preceptoring between their program and other healthcare students. They felt autonomous and much more freedom to work with their patient; however, in interprofessional rounds it was apparent that preceptored students were being assisted through critical thinking and critical judgment processes in the moment. While encouraged by their interprofessional contribution, students also felt a reversal when returning to the wards. If faculty are a bridge to facilitating a threshold moment, then awareness of student emotional responses reveals the impending transformation (Cousin, 2006).

Students described the anxiety associated with troublesome knowledge, but confidence after crossing the threshold. This was similar to the research with nursing student anxiety at taking a research course followed by the confidence to articulate evidence-based practice (Martindale, 2015). Contrary to the literature where students were confused at reconciling theory with patient behaviours (Leidl, 2016), students in this study had more response to relationship development with team members and patients. The complexity of interprofessionality as a threshold concept is apparent in those differences to studies with a focus on theoretical knowledge for a singular profession.

In general, however, students followed the same trajectory crossing the threshold toward an ontological shift. Research showed student awareness of the social construction of team knowledge as noted with medical students (Neve et al., 2017). Students were required to develop their communication skills and consider approaches to conflict resolution similar to students of mental health nursing (Leidl, 2016). The student identity shifted from being a student to becoming a professional, as noted with occupational therapy students (Fortune et al., 2014). However, while the outcome of profession-specific studies was articulation of the tacit knowledge that signals uniqueness (i.e., dynamic alignment in prosthetics), the outcome of interprofessionality was an empathic worldview, with ley lines connecting the threads between professionals for quality patient care.

## Implications

The foregoing presentation of data and subsequent analysis provided a considerable body of information and related issues pertinent to the phenomena of threshold learning and interprofessional education. In the following sections, the implications of this information for educational practice, policy, theory and research are discussed.

### Implications for Educational Practice

Considering the limited literature available reporting on IPE in Saskatchewan, it was not unexpected to find most students who experienced a threshold moment in experiential environments had them serendipitously. However, students did report that faculty made no effort to create interprofessional opportunities for students. Diverse students may have been on the same ward, working with the same patients, and the focus remained uniprofessional. Alternatively, faculty were often not present during the threshold moments and played no part in affecting the outcome, and students often did not report that faculty were used as sounding boards or reflective conduits following the experience.

All healthcare students are required to meet collaborative, communication, or interprofessional competencies for their programs. Inherently, programs and faculty must take initiative in creating those opportunities or designing toolkits for when the chance arrives for students to participate. Future research is required on the perceptions of faculty in relation to IPE initiatives and what supports exist to implement IPE. Processes need to be designed to facilitate the networking of faculty to engage in partnerships with health authorities and patient & family advocates for authentic IPE design and evaluation.

### Implications for Policy

Over the last decade in Saskatchewan, interprofessional educational opportunities have maintained a steady state. Anecdotally, all three institutions within the province have incorporated the CIHC (2010) framework into health professional education content. Saskatchewan Polytechnic has an IPE Curriculum to support accreditation and program development. Two Colleges at the University of Saskatchewan and one Faculty at University of Regina are developing IPE Frameworks, or have written IPE into the strategic plan. Sustainable IPE initiatives are coordinated by student groups (i.e., One Health Leadership Conference) or faculty champions. For the most part, IPE in Saskatchewan invites patients and families to be voices for events, not partners in design and delivery. While valuable to students and faculty who

may be IPE-naïve, engaged patient partners challenge teams to push further, both affectively and cognitively. The findings from this research did reveal differing effects from educational settings to experiential settings and I would argue this is due in part to patient involvement. Educational institutions require a comprehensive and collaborative development plan, reporting structure and accountability framework, both internally and externally, to ensure faculty and students are attaining interprofessionality.

**Implications for Theory**

In evaluating implications of this research for theory, I address two theoretical frameworks which guided the development of this work: The CIHC (2010) *National Interprofessional Competency Framework* and the threshold concept framework (Land et al., 2010). The CIHC (2010) framework is utilized in the majority of healthcare programs in all three educational institutions in Saskatchewan. I found myself bracketing my knowledge of this framework during data collection and analysis. I could not be certain of the level of engagement that students had with that document (i.e., a course reading or evaluation of learning outcomes) and whether they were self-assessing or evaluating the learning contexts according to the national framework. I did not want to steer the conversation to any expectations. The six competencies are: 1) role clarification, 2) patient/client/family/community-centred care, 3) team functioning, 4) interprofessional communication, 5) interprofessional conflict resolution, and 6) collaborative leadership (CIHC, 2010). No student explicitly used any language from the framework document.

Some students did mention having to clarify their role or where they were at in their programs for others when asked, but they made little mention of seeking role clarification themselves. Any further understanding of other professionals was not intentional but occurred as part of the threshold experiences. While a few students prioritized the patient voice when sharing their stories, no students mentioned patient-centred care or the meaning of that term for them. Students did comment on team functioning in terms of efficiency and efficacy in meeting outcomes, but this was often in relation to team problem-solving or completing expectations of clinical evaluations (e.g., care planning and research, time management and organizational skills). While this did directly relate to student ability to complete patient care, an intentional focus on the processes of interacting with interprofessional team members was not apparent. Students, for the most part, also did not differentiate communication or conflict resolution as

uniprofessionally versus interprofessionally derived. Wil, because of his work on teams in public health context, did discuss the impact of conflict resolution from a team context. Wil was also the only student to talk about collaborative leadership as he described in depth his expectations for facilitating team conversations for problem-solving and outcome development, and the role of the team lead in developing a positive, yet challenging environment.

Relying on this framework as criteria or a structure for analysis would have changed the results to researcher/faculty-directed interpretation and expectation rather than the current student-focused presentation. However, students may not have volunteered for this study on having an interprofessional threshold moment had they not had contact with a framework such as the CIHC (2010) framework or the One Health approach as some insight into what interprofessional education is was required. As the quality of IPE research for either students or practitioners is often based on self-report of mastering competencies, this has implications for IPE in the province.

Alternatively, the threshold concept framework (Land et al., 2010) was well suited to guide and develop this research. The threshold concept framework was a non-linear map through the three phases of liminality. Five of the criteria were sought in each individual student's threshold moment with the underlying assumption that troublesomeness was an expected finding to trigger awareness of the moment, and transformation was required to ensure students had crossed the threshold. I found evidence of all five criteria (boundedness, troublesomeness, integration, irreversibility and transformation) for every student threshold moment. However, as with other threshold concept researchers, the criteria remain qualitative and at the interpretation of the researcher. I agree with others that integration and irreversibility are likely to be required criteria for a threshold concept (Hill, 2012). In determining the criteria for the student threshold moments, it was apparent that if a transformation had occurred, students were reflecting on behaviours and thoughts that had changed and been *integrated* into current ways of thinking and practicing like a professional, which meant the experience was also *irreversible*.

Boundedness proved to be a difficult criterion. Meyer and Land (2003) stated that the boundary is often of disciplinary knowledge. In the complexity of the healthcare environment, there are multiple approaches to care that overlap and without knowing all the threshold concepts from other professions it is tedious to consider what binds an interprofessional team. However, an interesting set of narratives began arising from students when describing their threshold

moments. Experiences were often bounded in professional space, but the profession that 'owned' that space was not required to be present. However, there seemed to be an expectation that if that professional was in her/his space, there would be an expectation to step up and take a leadership role. For example, the dental chair during SPICE events, the paramedic stretcher or the ambulance, and the medical diagnostic tables for procedures were all described. There was a perceptive stepping-back by students to allow the professional 'owner' to take the lead. Dentists and dental hygienists had their own chair spaces that dental assistants seemed to walk in and out of or work around. During SPICE the nursing student described handing over to the dental hygienist. The dental hygienist described all the concerns with getting the patient actor into that bounded space, seemingly with no assistance from the other four students there to assist. I attempted to find bounded anecdotes that were not based in concepts such as communication or the clinical context, as these boundaries would not be consistent for interprofessional teams.

The one criterion not addressed in relation to individual student threshold moments was discursiveness. This ability to 'talk like a professional' following the transformation would be difficult to assess as it is a complex construct. Students are learning increasing application of healthcare language in their programs and there is not an interprofessional language per se, although there may be an interprofessional communication approach. Discursiveness was therefore an expected consequence of transformation as students were required to articulate their thoughts to the interprofessional team or reflect on their interprofessional practice. Participants did discuss being aware of the knowledge requirements of others or seeing connections between interprofessional knowledge and as noted, students began to talk, 'we,' and not 'me.'

As this is the first research into interprofessionality as a threshold concept, prioritizing a learning framework over a practice framework was appropriate. Therefore, it was necessary for me, as the researcher, to have a solid understanding of interprofessional competencies (CIHC, 2010) as differentiation was required when analyzing for interprofessional moments versus uniprofessional learning. Replicating this study with practitioners would provide some insight into whether the threshold of interprofessionality is required prior to attaining the competencies as described in the CIHC (2010) framework.

**Implications for Research**

Student experiences of threshold moments provided a snapshot of IPE for healthcare students in Saskatchewan. Threshold concept literature, such as evidence-based practice

(Martindale, 2015) or prosthetics (Hill, 2012) touches on ways of thinking and practicing like a professional which emphasizes the reconstitutive or ontological shift and has implications for healthcare education programming. As educational silos are removed to teach and model teamwork, I believe research must delve into the complexities of interprofessional student teams as they develop both professional and interprofessional worldviews and identities, especially with the patient as partner. Other educational research should include assessing sustainable collaborative initiatives for replicable success and utilizing the threshold concept of interprofessionality to determine the best teaching strategies in which to integrate IPE. Because only a few of the healthcare professions were represented in this study, future research should include the voices of other students and different learning contexts such as rural clinical placements. Relatedly, while a larger sample may have been more productive, as a lone researcher conducting phenomenography, the volume and quality of data was remarkable.

For consideration as well is research into the development of the student's professional and interprofessional identities. This research was grounded in the non-dualistic lens of social constructionism. This epistemology was apt for use with phenomenography as a research method and learning theory as well as the learning framework of threshold concepts. The focus was therefore on the student's experience of learning interprofessionally and of becoming professional and interprofessional. IPE research literature has reportedly focused on adult learning or social psychological theories (Olson & Bialocerkowski, 2014; Reeves et al., 2016) such as social identity theory (Tajfel & Turner, 2004) or intergroup contact theory (Pettigrew, 1998). These theories suggested that professional in-groups have conflict or are barriers to working with out-groups, which is any other professional group (Tajfel & Turner, 2004). Students strive to develop a positive professional social identity, often in comparison with other professional groups, with the intent that learning about the other groups of professionals provides opportunity to reassess the student's own profession (Pettigrew, 1998). The difficulty with these theories is that research with undergraduate healthcare students has found inconclusive or refuting application of theoretical assumptions.

Perry (2006) used social identity theory to create a definition of interprofessional identity and did find that professional and interprofessional identity are socially constructed for undergraduate healthcare students. However, she stated that the assumptions of social identity theory were not met and did not affect identity formation. Khalili (2013) combined social

identity theory and contact theory assessing whether undergraduate students developed both a professional and dual interprofessional identity after an IPE intervention. He could not conclusively state that students grew a dual identity, professional and interprofessional, through IPE experiences, IPE beliefs, nor individual versus collective perspectives. Possibly, students do not develop an interprofessional identity because they have not identified as yet with their professional in-group; that may be an experience for graduate students and practitioners. This positioning of professional identity development is especially possible for students who are unlearning or re-contextualizing their previous professional role, or for those students not far enough along in their programs; both issues which were experienced by participants in my study. I postulate that social identity research is best studied after further exploration of scaffolded IPE. This discussion, however, reiterates the differentiation and strength of pre-qualifying IPE research with well-integrated theoretical underpinnings and study design.

**Limitations**

Recruitment proved very difficult and therefore this was a convenience sample. All 10 participants interviewed described a threshold moment and each moment met the five criteria of the threshold concept framework (Land et al., 2010). Therefore, the limitation of being a convenience sample may be endemic to the recruitment but significant for the method. Recruitment methods were specifically to seek students who could speak about a threshold moment. Considering the large population of healthcare students in the province it would seem impossible that there were not more students who had had the experience. Therefore, students were not excluded per se, however, awareness and ability to reflect on the threshold moment was key for data collection. In relation to method, because variety in experiences was sought, as long as criteria were met, especially transformation and an ontological shift, the narrative presented was not incorrect.

Phenomenography is often used in hard sciences where student conceptions can be incorrect or incomplete and convey various approaches to learning through those troublesome spaces. Interprofessionality presents a complexity of knowledge, behaviours and experiences that can be difficult to compartmentalize. Further research from the patient-perspective may add clarity. Alternatively, interviewing all students who have had an IPE experience and comparing for threshold moments would delineate criteria for assessment of interprofessional thresholds.

## Reflections on Research

A student asked me, 'what was your a-ha!-moment?' Because of the learning context, the lecture theatre, I did not take time to think and blurted out an experience from over a decade ago which I wrote about in my Masters' thesis. A patient had taken complete control of her healthcare team, fully contributing to the plan, and literally defying the odds they had given her for her terminal cancer diagnosis. That is still an experience that defines me. What I have realized in completing this work was that I probably began this journey because I needed to find a way to replicate my learning in that moment so others could be open to that ontological shift. The interprofessional team for that patient had made way for her participation and her voice. My doctoral work has provided that path to a deeper understanding of education, but particularly how to design and deliver education that accepts where learners are, and yet expand their capacity to assist others.

## Concluding Statement

Interprofessionality is about growing a community; knowing what can be offered but appreciating what others can give. Interprofessionality is not about leadership as a singular endeavour but about balancing and reconciling the expectations and obligations that drive a commitment to healthcare. Interprofessionality is reciprocal trust and valuing that comes out of learning with, from and about others. Interprofessionality is connecting the threads through the moments that make us human whether face to face in our care environment or from across the world.

The threshold concept framework provided a useful structure for not only assessing student learning but conceptualizing IPE across learning contexts. In light of the complexity of healthcare programs, learning contexts, and patient levels of involvement, structure is required to analyze the effect and impact of educational concepts for students and faculty.

Similarly, phenomenography, while a rigorous and complex qualitative methodology, did provide a freedom for collecting a multitude of diverse stories that shared a variety of student experiences. This method was not obstructed by three large educational institutions with diverse approaches to student teaching and learning. On the contrary, phenomenography provided an approach to highlighting the student experience crossing education and health.

# Appendix A: Acronyms

Table A.1

*Acronyms*

| | |
|---|---|
| CAIPE | Centre for Advancement of Interprofessional Education |
| CCA | Continuing care assistant |
| CIHC | Canadian Interprofessional Health Collaborative |
| CPR | Cardiopulmonary resuscitation |
| DSW | Disability support worker |
| ER | Emergency room |
| HRQoL | Health related quality of life |
| IECPCP | Interprofessional education for collaborative patient centered practice |
| IMAGINE | Interprofessional Medical & Allied Groups for Improving Neighbourhood Environments |
| IOM | Institute of Medicine |
| iPBL | Interprofessional problem-based learning |
| IPC | Interprofessional collaboration |
| IPE | Interprofessional education |
| IPL | Interprofessional learning |
| IPP | Interprofessional practice |
| ITU | Interprofessional training unit |
| OT | Occupational therapy/therapist |
| PT | Physiotherapy/physiotherapist |
| SEARCH | Student Energy in Action for Regina Community Health clinic |
| SLP | Speech language pathologist |
| SPICE | Saskatchewan Polytechnic Interprofessional Challenge Event |
| SRC | Student run clinic |
| SW | Social worker |
| SWITCH | Student Wellness Initiative Toward Community Health clinic |
| WHO | World Health Organization |
| WISH | Winnipeg Interdisciplinary Student-Run Health clinic |
| YCW | Youth care worker |

Appendix B: Consent form

UNIVERSITY OF SASKATCHEWAN

# *Participant Consent Form*

**Project Title:** *Learning in an interprofessional context: Describing student threshold experiences*

**Researcher(s):** Natasha Hubbard Murdoch, Graduate Student
Department of Educational Administration, College of Education
University of Saskatchewan
(306) 659-4171 nlh128@mail.usask.ca

**Supervisor:** Dr. Pat Renihan
Professor Emeritus
Department of Educational Administration, College of Education
University of Saskatchewan
(306) 966-2509 Pat.renihan@usask.ca

**Purpose and Objective of the Research:** The purpose of this study is to explore healthcare student threshold (a-ha!) learning experiences in interprofessional contexts.

Questions which guide the research include the following:

- What are the experiences of students, in specific situations, in which there has been a threshold moment?
- What is the context before and after the threshold moment?
- What are the individual experiences of change associated with the threshold moment?
- What are student perceptions of the significance of the learning experience (knowledge, skills, and appreciations)?
- What subsequent reflection or change occurred among these students following the experience relating to their learning?

**Procedures:** You are asked to read a few questions to guide your recall of an experience you had with another student and a patient. After considering the questions, write your story in the online space provided. Particularly think about an 'a-ha!' moment when your ideas about patient interprofessional healthcare changed. From your reflective writing, you may be asked for an interview regarding your learning experience. Your interview data will be compiled into categories and incorporated with other participant data. The second interview is to confirm your transcript, give you opportunity to provide any further information, and hear your thoughts on the category development. The reflective writing will take approximately 15 minutes, the first interview approximately 60 minutes and the second interview approximately 30 minutes. Interviews can be done in a setting of your choosing and will be electronically recorded and transcribed.

Please feel free to ask any questions regarding the procedures and goals of the study or your role.

**Potential Risks and Benefits:** There are no known or anticipated risks to you by participating in this research**.** You will not benefit from participating in this research. But your experiences begin to address the connection between the student and patient and how interprofessional education may improve patient and team experiences in healthcare.

**Compensation:** A $30 gift card will be offered for your time for completing the reflective writing and the interviews.

**Confidentiality:** All survey information will be retained and hosted on a third party, SurveyMonkey server and not on a U of S server. Your data will be stored in facilities hosted in Canada. Your information is subject to SurveyMonkey's Privacy Policy. No personal identifying information is collected in this research project. Any direct quotations reported in the findings will be acknowledged with a pseudonym. Your data will be identified through this pseudonym, the health program of study and your year in the program.

When transcribing data, any identifying information of yourself, patients or healthcare institutions will be removed. **Storage of Data:** This data will be kept on password protected computers in the secure Cabinet on PAWS at the University of Saskatchewan and ultimately be housed with the Supervisor, in the Department of Educational Administration for five years following publication of this research, at which time the data will be deleted.

**Right to Withdraw:** Your participation is voluntary and you can answer only those questions that you are comfortable with. You may ask to have the recording device turned off at any time. You may withdraw from the research project for any reason, at any time without explanation or penalty of any sort. Whether you choose to participate or not will have no effect on your relationship with the researcher, your education progress or how you will be treated.

Should you wish to withdraw, any data you have contributed (i.e., the written reflection and the first interview) will be deleted at your request. However, your right to withdraw data from the study will apply until just prior to your second interview at which time the data will have been pooled with previous participant data. After t
his date, it is possible that some form of research dissemination will have already occurred and it may not be possible to withdraw your data.

**Follow up:** The results of this study will be available as an electronic dissertation in the University of Saskatchewan Electronic Theses and Dissertations website at http://ecommons.usask.ca/

**Questions or Concerns:** You may contact the researchers using the information at the top of page 1. This project has been approved on ethical grounds by the following ethics boards. Any questions regarding your rights as a participant may be addressed to the committees of your respective educational institution:

Saskatchewan Polytechnic Research Ethics Board approval date (Dec 15, 2017). Contact (306) 775-7320 or applied.research@saskpolytech.ca

University of Regina Research Ethics Board approval date (Dec 15, 2017). Contact (306) 585-4775 or research.ethics@uregina.ca. Out of town participants may call collect.

University of Saskatchewan Research Ethics Board approval date (Dec 15, 2017). Contact (306) 966-2975 or ethics.office@usask.ca. Out of town participants may call toll free (888) 966-2975.

**Continued or On-going Consent:** There are three opportunities to contribute to the research project. This consent form explaining the project is provided prior to submitting a written reflection. If you are contacted for an interview, the consent form will be reviewed and your signature obtained, confirming your consent to a recorded interview. At the second follow up interview, a transcript release form will confirm your submission of your transcribed interview to the project and this signed consent form will be reviewed.

Your signature below indicates that you have read and understand the description provided.

I have had an opportunity to ask questions and my questions have been answered. I consent to participate in the research project. ***A copy of this consent will be left with you, and a copy will be taken by the researcher.***

| _____ | _____ | _____ |
|---|---|---|
| *Name of Participant* | *Signature* | *Date* |

| _____ _____ | _____ |
|---|---|
| *Researcher's Signature* | *Date* |

## Appendix C: Reflective guiding questions

The purpose of this reflection is to understand your experience of an ‘a-ha’ moment about interprofessional learning. Think about an experience that was possibly challenging or very enlightening where you may have had an epiphany about interprofessional patient care. You may use the following questions as a guide or write your story.

Tell a story about your experience working with a patient and another healthcare student from a different profession.

What makes this story stand out to you, especially considering every other patient or clinical encounter you have had?

If you were the patient in this experience, what would you wish for/want to say to or teach the healthcare students?

Imagine you are sharing this experience with your most trusted peer. What would they think and want to share with you about how you have changed after your experience?

Appendix D: Interview Guide

**Purpose:** to explore healthcare **student threshold learning experiences** in their interprofessional learning

**Background:** Please share about yourself as a healthcare student; your program, your year, what clinical experiences you have had, what other life experiences have you had that you think are relevant.

**Definition:** Thank you for sharing your reflective writing about a powerful learning experience you had that changed you. This is what I would call an epiphany or 'a-ha' moment. Let's explore further your experience of having that epiphany and see how it might compare to other healthcare students.

**Research Question 1 Reiterate the specific situation you wrote about in your reflection in which you have experienced a threshold moment.**

Describe this threshold moment

What was the general task/activity the team was working on?

What was the objective of the task/activity?

What was being done/ who was involved?

How many were involved?

What different professional groups were represented?

What was the role of the patient in this activity?

**Research Question 2 Describe the context before and after the threshold moment**

**Before the threshold moment: Consider:**

Where was the patient? What was he/she doing?

Was there a task to be accomplished?

What do you remember of interpersonal interactions and communications?

How did you feel in this experience? (e.g.,rewards/challenges/discomforts)

Describe the context of the situation. What there a story behind what was happening?

Describe the context of the learning. Was there an expectation of what you were to learn?

**After the threshold moment: Consider:**

Where was the patient? What was he/she doing?

Was there a task to be accomplished?

What do you remember of interpersonal interactions and communications?

How did you feel in this experience? (e.g.,rewards/challenges/discomforts)

Describe the context of the situation. What there a story behind what was happening?

Describe the context of the learning. Was there an expectation of what you were to learn?

What were the outcomes in terms of your learning?

**Research Question 3 What were your experiences of change associated with the threshold moment**

Did you experience any changes in your levels of knowledge about patient care or interprofessional learning?

Do you appreciate patient care or interprofessional learning any differently?

Have your skill levels changed in relation to patient care or interprofessional learning?

**Research Question 4 What are your perceptions of the significance of the learning experience…**

… for your new knowledge?

…for your appreciations?

…for your new skills?

**Research Question 5 Considering that you have been reflecting on a past experience, reposition yourself in the present and talk about how you approach interprofessional learning now.**

When is your next clinical experience? Do you have plans for how you collaborate?

Do you think about peers, colleagues and patients differently?

Do you approach your professional practice differently?

Now that you know what you know, what could have been done to create this satisfaction earlier in your learning?

Appendix E: Aggregate interview sample


Figure E.4. *Comparison of categories for Wil and Maureen.*

References

Alcoff, L. (1988). Cultural feminism versus post-structuralism: The identity crisis in feminist theory. *Signs: Journal of Women in Culture and Society, 13*(3), 405–436. http://dx.doi.org/10.1086/494426

Ambrose, E., Baker, D., Mahal, I., MicFlikier, A., & Holmqvist, M. (2015). Interprofessional experiences at a student-run clinic: Who participates and what do they learn? *Journal of Research in Interprofessional Practice & Education, 5*(2), 1–16. Retrieved from http://www.jripe.org/index.php/journal/article/view/197

Anderson, A., Cant, R., & Hood, K. (2014). Measuring students' perceptions of interprofessional clinical placements: Development of the interprofessional clinical placement learning environment inventory. *Nurse Education in Practice, 14*(5), 518–524. http://dx.doi.org/10.1016/j.nepr.2014.05.009

Ashworth, P., & Lucas, U. (2000). Achieving empathy and engagement: A practical approach to the design, conduct and reporting of phenomenographic research. *Studies in Higher Education, 25*(3), 295–308. http://dx.doi.org/10.1080/713696153

Baek Hansen, T., Jacobsen, F., & Larsen, K. (2009). Cost effective interprofessional training: An evaluation of a training unit in Denmark. *Journal of Interprofessional Care, 23*(3), 234–241. http://dx.doi.org/10.1080/13561820802602420

Bainbridge, L. (2008). *The power of prepositions: Learning with, from and about others in interprofessional health education* (Doctoral dissertation). Available from Proquest Dissertations & Theses.

Bainbridge, L., & Wood, V. I. (2012). The power of prepositions: Learning with, from and about others in the context of interprofessional education. *Journal of Interprofessional Care, 26*(6), 452–458. http://dx.doi.org/10.3109/13561820.2012.715605

Baldwin Jr., D. C. (2007). Some historical notes on interdisciplinary and interprofessional education and practice in health care in the USA. *Journal of Interprofessional Care, 21*(S1), 23–27. http://dx.doi.org/10.1080/13561820701594728 (Reprinted from *Journal of Interprofessional Care*, 1996, 10(2), 173–187).

Barlow, C. A., Phelan, A., Hurlock, D., Sawa, R., Rogers, G., & Myrick, F. (2006). Virginia: A story of conflict in social work field education. *Affilia: Journal of Women & Social Work, 21*(4), 380–390. http://dx.doi.org/10.1177/0886109906292175

Barr, H. (1998). Competent to collaborate: Towards a competency-based model for interprofessional education. *Journal of Interprofessional Care, 12*(2), 181–187. http://dx.doi.org/10.3109/13561829809014104

Basran, J. F. S., Dal Bello-Haas, V., Walker, D., MacLeod, P., Allen, B., D'Eon, M., . . . Trinder, K. (2012). The longitudinal elderly person shadowing program: Outcomes from an interprofessional senior partner mentoring program. *Gerontology and Geriatrics Education, 33*(3), 302–323. http://dx.doi.org/10.1080/02701960.2012.679369

Berger, P. L., & Luckman, T. (1966). *The social construction of reality: A treatise in the sociology of knowledge*. New York, NY: Penguin Books.

Bernstein, B. (1996). *Pedagogy, symbolic control and identity: Theory, research, critique*. Bristol, PA: Taylor & Francis.

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. *Health Affairs, 27*(3), 759–769. http://dx.doi.org/10.1377/hlthaff.27.3.759

Bowden, J. A. (2000). The nature of phenomenographic research. In J. A. Bowden & E. Walsh (Eds.), *Phenomenography* (pp. 1–18). Melbourne, AUS: RMIT University Press.

Brandt, B. F., Lutfiyya, M. N., King, J. A., & Chioreso, C. (2014). A scoping review of interprofessional collaborative practice and education using the lens of the Triple Aim. *Journal of Interprofessional Care, early online*, 1–7. http://dx.doi.org/10.3109/13561820.2014.906391

Brewer, M. L., Gribble, N., Lloyd, A., Robinson, P., & White, S. (2009). Interprofessional Capability Assessment Tool. Retrieved from https://www.yumpu.com/en/document/view/28486504/interprofessional-capability-assessment-tool-health-sciences

Brewer, M. L., & Stewart-Wynne, E. G. (2013). An Australian hospital-based student training ward delivering safe, client-centred care while developing students' interprofessional practice capabilities. *Journal of Interprofessional Care, 27*(6), 482–488. http://dx.doi.org/10.3109/13561820.2013.811639

Brooks, V., & Thistlethwaite, J. (2012). Working and learning across professional boundaries. *British Journal of Educational Studies, 60*(4), 403–420. http://dx.doi.org/10.1080/00071005.2012.729665

Burchmore, H., Irvine, N., & Carmichael, P. (2008). *Threshold concepts: A review of related literature.* Retrieved from https://s3-eu-west-1.amazonaws.com/esrc-files/outputs/_cMr2ftY8kqjQ6-WU4HbRg/OioHNH7hfEyNNa4gapO7ug.pdf

Cahill, J. (1996). Patient participation: A concept analysis. *Journal of Advanced Nursing, 24,* 561–571. http://dx.doi.org/10.1046/j.1365-2648.1996.22517.x

Campbell, D. J., Gibson, K., O'Neill, B. G., & Thurston, W. E. (2013). The role of a student-run clinic in providing primary care for Calgary's homeless populations: A qualitative study. *BMC Health Services Research, 13*(1). http://dx.doi.org/10.1186/1472-6963-13-277

Canadian Federation of Medical Students and Ontario Medical Students' Association (2018). *Developing and sustaining student-led clinics: A toolkit.* Available from: http://www.cfms.org/files/updates/SRC_Toolkit.pdf

Canadian Institute for Health Information (2019). *Your health system: All patients readmitted to hospital.* Available from: http://yourhealthsystem.cihi.ca/hsp/inbrief?lang=en#!/indicators/006/all-patients-readmitted-to-hospital/;mapC1;mapLevel2/

Canadian Interprofessional Health Collaborative. (2010). *A national interprofessional competency framework.* Retrieved from http://www.cihc.ca/files/CIHC_IPCompetencies_Feb1210r.pdf

Centre for Advancement in Interprofessional Education. (2017). *Interprofessional education guidelines*. Retrieved from https://www.caipe.org/resources/publications/caipe-publications/caipe-2017-interprofessional-education-guidelines-barr-h-ford-j-gray-r-helme-m-hutchings-m-low-h-machin-reeves-s

Charles, G., Bainbridge, L., Copeman-Stewart, K., Art, S. T., & Kassam, R. (2006). The Interprofessional Rural Program of British Columbia (IRPbc). *Journal of Interprofessional Care, 20*(1), 40–50. http://dx.doi.org/10.1080/13561820500498154

Charles, G., Barring, V., & Lake, S. (2011). What's in it for us? Making the case for interprofessional field education experiences for social work students. *Journal of Teaching in Social Work, 31,* 579–593. http://dx.doi.org/10.1080/08841233.2011.615265

Cousin, G. (2006). Threshold concepts, troublesome knowledge and emotional capital: An exploration into learning about others. In J. H. F. Meyer & R. Land (Eds.) *Overcoming*

*barriers to student understanding: Threshold concepts and troublesome knowledge* (pp. 134–147). New York, NY: Routledge.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research* Retrieved from Google Books database.

D'Amour, D., & Oandasan, I. (2005). Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept. *Journal of Interprofessional Care, Supp 1*, 8–20. http://dx.doi.org/10.1080/13561820500081604

Dando, N., D'Avray, L., Colman, J., Hoy, A., & Todd, J. (2012). Evaluation of an interprofessional practice placement in a UK in-patient palliative care unit. *Palliative Medicine, 26*(2), 178–184. http://dx.doi.org/10.1177/0269216311400479

Davies, P. (2006). Threshold concepts: How can we recognise them? In J. H. F. Meyer & R. Land (Eds.), *Overcoming barriers to student understanding: Threshold concepts and troublesome knowledge* (pp. 70–84). New York, NY: Routledge.

Day, S. (2012). A reflexive lens: Exploring dilemmas of qualitative methodology through the concept of reflexivity. *Qualitative Sociology Review, 8*(1), 60–85. http://www.qualitativesociologyreview.org/ENG/Volume21/QSR_8_1_Day.pdf

Dubouloz, C. J., Savard, J., Burnett, D., & Guitard, P. (2010). An interprofessional rehabilitation university clinic in primary health care: A collaborative learning model for physical therapist students in a clinical placement. *Journal of Physical Therapy Rehabilitation, 24*, 19–24.

Dugani, S., & Mcguire, R. (2011). Development of IMAGINE: A three-pillar student initiative to promote social accountability and interprofessional education. *Journal of Interprofessional Care, 25*(6), 454–456. http://dx.doi.org/10.3109/13561820.2011.597525

Ericson, A., Löfgren, S., Bolinder, G., Reeves, S., Kitto, S., & Masiello, I. (2017). Interprofessional education in a student-led emergency department: A realist evaluation. *Journal of Interprofessional Care, 31*(2), 199–206. http://dx.doi.org/10.1080/13561820.2016.1250726

Ericson, A., Masiello, I., & Bolinder, G. (2012). Interprofessional clinical training for undergraduate students in an emergency department setting. *Journal of Interprofessional Care, 26*(4), 319–325. http://dx.doi.org/10.3109/13561820.2012.676109

Falck, H. S. (1977). Interdisciplinary education and implications for social work practice. *Journal of Education for Social Work Practice, 13*(2), 30–37. http://dx.doi.org/10.1080/00220612.1977.10671432

Fallsberg, M. B., & Hammar, M. (2000). Strategies and focus at an integrated, interprofessional training ward. *Journal of Interprofessional Care*, *14*(4), 337–350. http://dx.doi.org/10.1080/13561820020003892

Farrell, C., Towle, A., & Godolphin, W. (2006). *Where's the patient's voice in health professional education?* Vancouver, BC: University of British Columbia. Retrieved from http://pcpe.health.ubc.ca/sites/default/files/documents/PtsVoiceReportbook.pdf

Flanagan, M. (2019). Threshold concepts. Available from https://www.ee.ucl.ac.uk/~mflanaga/thresholds.html

Fortugno, M., Chandra, S., Espin, S., & Gucciardi, E. (2013). Fostering successful interprofessional teamwork through an undergraduate student placement in a secondary school. *Journal of Interprofessional Care, 27*(4), 326–332. http://dx.doi.org/10.3109/13561820.2012.759912

Fortune, T., Ennals, P., & Kennedy-Jones, M. (2014). *The hero's journey: Uncovering threshold barriers, dispositions and practices among occupational therapy students*. Paper presented at the Sixth Annual Conference and the Fourth Biennial Threshold Concepts Conference, Dublin, Ireland. https://files.eric.ed.gov/fulltext/ED558533.pdf

Freeth, D., Hammick, M., Koppel, I., Reeves, S., & Barr, H. (2002). A critical review of evaluations of interprofessional education.Retrieved from http://www.hsaparchive.org.uk/rp/publications/occasionalpaper/occp2.pdf/at_download/file.pdf

Frodeman, R. (2010). Introduction. In R. Frodeman (Ed.), *The Oxford handbook of interdisciplinarity* (pp. xxix-xxxix). New York, NY: Oxford University Press.

Frodeman, R. (2013). Philosophy dedisciplined. *Synthese, 190*, 1917–1936. http://dx.doi.org/10.1007/s11229-012-0181-0

Fuzzard, R. (2017). Yes but no but yes - students straddling the change process in community service work. *Practice and Evidence of Scholarship of Teaching and Learning in Higher Education, 12*(2), 116–124. Available from http://community.dur.ac.uk/pestlhe.learning/index.php/pestlhe/article/view/164/198

Gallé, J., & Lingard, L. (2010). A medical student's perspective of participation in an interprofessional education placement: An autoethnography. *Journal of Interprofessional Care, 24*(6), 722–733. http://dx.doi.org/10.3109/13561820903274954

Gergen, K.J. & Gergen, M.M. (2008). Social constructionism. In L. Given (Ed.), *The SAGE Encyclopedia of Qualitative Research Methods* (pp. 816–820). Thousand Oaks, CA: SAGE.

Gilbert, J. (2010). The status of interprofessional education in Canada. *Journal of Allied Health, 39*(3 (pt 2)), 216–223. Available from http://www.asahp.org/journal-of-allied-health/

Goldman, J., Zwarenstein, M., Bhattacharyya, O., & Reeves, S. (2009). Improving the clarity of the interprofessional field: Implications for research and continuing interprofessional education. *Journal of Continuing Education in the Health Professions, 29*(3), 151–156. http://dx.doi.org/10.1002/chp.20028

Guirguis, L., & Sidhu, K. (2011). An exploration of pharmacist preceptors' and pharmacy students' experiences at an interprofessional student-run clinic. *Canadian Pharmacists Journal, 144*(4), 179–185. http://dx.doi.org/10.3821/1913-701x-144.4.179

Haggarty, D., & Dalcin, D. (2014). Student-run clinics in Canada: An innovative method of delivering interprofessional education. *Journal of Interprofessional Care, 28*(6), 570–572. http://dx.doi.org/10.3109/13561820.2014.916658

Hallin, K., & Kiessling, A. (2016). A safe place with space for learning: Experiences from an interprofessional training ward. *Journal of Interprofessional Care, 30*(2), 141–148. http://dx.doi.org/10.3109/13561820.2015.1113164

Hallin, K., Kiessling, A., Waldner, A., & Henriksson, P. (2009). Active interprofessional education in a patient based setting increases perceived collaborative and professional competence. *Medical Teacher, 31*(2), 151–157. http://dx.doi.org/10.1080/01421590802216258

Hammick, M. (1998). Interprofessional education: Concept, theory and application. *Journal of Interprofessional Care, 12*(3), 323–332. http://dx.doi.org/10.3109/13561829809014123

Hammick, M., Freeth, D., Koppel, I., Reeves, S., & Barr, H. (2007). A best evidence systematic review of interprofessional education: BEME Guide no. 9. *Medical Teacher, 29*, 735–751. http://dx.doi.org/10.1080/01421590701682576

Harper, D. (2019). *Online etylology dictionary*. from http://www.etymonline.com/index.php

Hill, S. (2012). *Troublesome or threshold? The experience of difficult concepts in prosthetics* (Doctoral dissertation, Lancaster University). Retrieved from http://eprints.lancs.ac.uk/61627/1/Hill.pdf

Holland, K. (1999). A journey to becoming: The student in transition. *Journal of Advanced Nursing, 29*(1), 229–236. http://dx.doi.org/10.1046/j.1365-2648.1999.00883.x

Holmqvist, M., Courtney, C., Meili, R., & Dick, A. (2012). Student-run clinics: Opportunities for interprofessional education and increasing social accountability. *Journal of Research in Interprofessional Practice & Education, 2*(3), 264–277. Retrieved from http://www.jripe.org/index.php/journal/article/view/80

Hu, T., Cox, K., & Nyhof-Young, J. (2017). IMAGINE-ing interprofessional education: Program evaluation of a novel inner city health educational experience. *Canadian Medical Education Journal, 8*(1), e67–75. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5344070/pdf/cmej-08-67.pdf

Hu, T., Cox, K., & Nyhof-Young, J. (2018). Investigating student perceptions at an interprofessional student-run free clinic serving marginalised populations. *Journal of Interprofessional Care, 32*(1), 75–79. http:/dx.doi.org/10.1080/13561820.2017.1363724

Hu, T., & Leung, F.-H. (2016). An evaluation of wait-times at an interprofessional student-run free clinic. *Journal of Interprofessional Care, 30*(4), 532-535. http://dx.doi.org/10.1080/13561820.2016.1181614

Hubbard Murdoch, N. L. (2008). *Making decisions in advanced cancer: The lived experience of women and their relevant others* (Master's thesis, University of Saskatchewan, Saskatoon, SK). Retrieved from http://hdl.handle.net/10388/etd-12162008-161606

Hunter, J. P., Stinson, J., Campbell, F., Stevens, B., Wagner, S. J., Simmons, B., . . . Van Wyk, M. (2015). A novel pain interprofessional education strategy for trainees: Assessing impact on interprofessional competencies and pediatric pain knowledge. *Pain Research and Management, 20*(1), e12–e20. http://dx.doi.org/10.1155/2015/159580

Hurlock, D., Barlow, C., Phelan, A., Myrick, F., Sawa, R., & Rogers, G. (2008). Falls the shadow and the light: Liminality and natality in social work field education. *Teaching in Higher Education, 13*(3), 291–301. http://dx.doi.org/10.1080/13562510802045311

Hylin, U., Nyholm, H., Mattiasson, A. C., & Ponzer, S. (2007). Interprofessional training in clinical practice on a training ward for healthcare students: A two-year follow-up.

*Journal of Interprofessional Care, 21*(3), 277–288. http://dx.doi.org/10.1080/13561820601095800

Institute of Medicine. (2013). *Establishing transdisciplinary professionalism for improving health outcomes: Workshop summary*. Washington, DC: The National Academies Press. Retrieved from http://www.nap.edu/catalog.php?record_id=18398

Interprofessional Professionalism Collaborative. (2011). Glossary. Retrieved from http://www.interprofessionalprofessionalism.org/uploads/1/8/8/6/1886419/glossary_ipc_terms_08_2011.pdf

Jacobsen, F., Fink, A. M., Marcussen, V., Larsen, K., & Bæk Hansen, T. (2009). Interprofessional undergraduate clinical learning: Results from a three year project in a Danish Interprofessional Training Unit. *Journal of Interprofessional Care, 23*(1), 30–40. http://dx.doi.org/10.1080/13561820802490909

Jacobsen, F., & Lindqvist, S. (2009). A two-week stay in an Interprofessional Training Unit changes students' attitudes to health professionals. *Journal of Interprofessional Care, 23*(3), 242–250. http://dx.doi.org/10.1080/13561820902739858

Jakobsen, F. (2016). An overview of pedagogy and organisation in clinical interprofessional training units in Sweden and Denmark. *Journal of Interprofessional Care, 30*(2), 156–164. http://dx.doi.org/10.3109/13561820.2015.1110690

Jakobsen, F., Baek Hansen, T., & Eika, B. (2011). Knowing more about the other professions clarified my own profession. *Journal of Interprofessional Care, 25*(6), 441–446. http://dx.doi.org/10.3109/13561820.2011.595849

Jakobsen, F., & Hansen, J. (2014). Spreading the concept: An attempt to translate an interprofessional clinical placement across a Danish hospital. *Journal of Interprofessional Care, 28*(5), 407–412. http://dx.doi.org/10.3109/13561820.2014.900479

Kane, R. A. (1975). *Interprofessional teamwork*. Manpower Monograph 8. Syracuse University, School of Social Work, Syracuse, NY.

Khalili, H. (2013). *Interprofessional socialization and dual identity development amongst cross-disciplinary students* (Doctoral dissertation, Western University). Retrieved from https://ir.lib.uwo.ca/etd/1742

Khalili, H., Hall, J., & DeLuca, S. (2014). Historical analysis of professionalism in western societies: Implications for interprofessional education and collaborative practice. *Journal*

*of Interprofessional Care*, *28*(2), 92–97. http://dx.doi.org/10.3109/13561820.2013.869197

Kitto, S., Chesters, J., & Grbich, C. (2008). Quality in qualitative research. *Medical Journal of Australia, 188*(4), 243–246. Retrieved from https://www.mja.com.au/journal/2008/188/4/quality-qualitative-research

Klein, J. T. (1990). *Interdisicplinarity: History, theory, and practice*. Detroit, MI: Wayne State University Press.

Kolar, C. (2017). *Across the patient care practitioner threshold: Identifying threshold concepts and evaluating the teaching of the pharmacists' patient care process* (Doctoral dissertation, University of Minnesota). Retrieved from https://conservancy.umn.edu/handle/11299/188949

Lachmann, H., Ponzer, S., Johansson, U. B., Benson, L., & Karlgren, K. (2013). Capturing students' learning experiences and academic emotions at an interprofessional training ward. *Journal of Interprofessional Care, 27*(2), 137–145. http://dx.doi.org/10.3109/13561820.2012.724124

Land, R., Meyer, J. H. F., & Baillie, C. (2010). Editor's preface: Threshold concepts and transformational learning. In J. H. F. Meyer, R. Land, & C. Baillie (Eds.), *Threshold concepts and transformational learning* (pp. ix–xlii). Boston, MA: Sense Publishers.

Land, R., Neve, H., & Martindale, L. (2018). Threshold concepts, action poetry and the health professions: An interview with Ray Land. *International Journal of Practice-based Learning in Health and Social Care, 6*(1), 45–52. http://dx.doi.org/10.18552/ijpblhc.v6i1.517

Lauckner, H., Doucet, S., & Wells, S. (2012). Patients as educators: The challenges and benefits of sharing experiences with students. *Medical Education, 46*(10), 992–1000. http://dx.doi.org/10.1111/j.1365-2923.2012.04356.x

Lefresne, S., Nielsen, D., & Fairchild, A. (2011). The Cross Cancer Institute multidisciplinary summer studentship in palliative and supportive care in oncology: Teaching students to see through patients' eyes. *Supportive Care in Cancer, 19*(3), 403. http://dx.doi.org/10.1007/s00520-010-0833-x

Leidl, D. M. (2016). *Troublesome mental health knowledge in a western Canadian undergraduate nursing education program: Student and faculty perspectives* (Doctoral

dissertation, University of Liverpool). Retrieved from https://livrepository.liverpool.ac.uk/3000872/1/200874683_April2016.pdf

Lidskog, M., Löfmark, A., & Ahlström, G. (2007). Interprofessional education on a training ward for older people: Students' conceptions of nurses, occupational therapists and social workers. *Journal of Interprofessional Care, 21*(4), 387–399. http://dx.doi.org/10.1080/13561820701349420

Lidskog, M., Löfmark, A., & Ahlstrom, G. (2008). Learning about each other: Students' conceptions before and after interprofessional education on a training ward. *Journal of Interprofessional Care, 22*(5), 521–533. http://dx.doi.org/10.1080/13561820802168471

Lindh Falk, A., Hult, H., Hammar, M., Hopwood, N., & Dahlgren, M. A. (2013). One site fits all? A student ward as a learning practice for interprofessional development. *Journal of Interprofessional Care, 27*(6), 476–481. http://dx.doi.org/10.3109/13561820.2013.807224

Lock, A., & Strong, T. (2010). *Social constructionism: Sources and stirring in theory and practice*. New York, NY: Cambridge University Press.

Mann, K.V., McFetridge-Durdle, J., Martin-Misener, R., Clovis, J., Rowe, R., Beanlands, H., & Sarria, M. (2009). Interprofessional education for students of the health professions: The 'Seamless Care' model. *Journal of Interprofessional Care, 23*(3), 224–233. http://dx.doi.org/10.1080/13561820802697735

Martindale, L. (2015). *Threshold concepts in research and evidence-based practice: Investigating troublesome learning for undergraduate nursing students* (Doctoral dissertation, Durham University). Retrieved from http://etheses.dur.ac.uk/10998/

Marton, F. (1981). Phenomenography - Describing conceptions of the world around us. *Instructional Science, 10*, 177–200. http://dx.doi.org/10.1007/bf00132516

Marton, F. (2000). The structure of awareness. In J. A. Bowden & E. Walsh (Eds.), *Phenomenography* (pp. 102-116). Melbourne, AUS: RMIT University Press.

Marton, F., & Booth, S. (1997). *Learning and awareness*. Mahway, NJ: Lawrence Erlbaum Associates.

McCallin, A. (2001). Interdisciplinary practice - a matter of teamwork: An integrated literature review. *Journal of Clinical Nursing, 10*, 419–428. http://dx.doi.org/10.1046/j.1365-2702.2001.00495.x

McGettigan, P., & McKendree, J. (2015). Interprofessional training for final year healthcare students: A mixed methods evaluation of the impact on ward staff and students of a two-week placement and of factors affecting sustainability Curriculum development. *BMC Medical Education, 15*(1). http://dx.doi.org/10.1186/s12909-015-0436-9

Medves, J., Paterson, M., Chapman, C. Y., Young, J. H., Tata, E., Bowes, D., . . . O'Riordan, A. (2008). A new inter-professional course preparing learners for life in rural communities. *Rural and Remote Health, 8*(1), 836. Retrieved from https://www.rrh.org.au/journal/article/836

Meffe, F., Moravac, C., & Espin, S. (2012). An interprofessional education pilot program in maternity care: Findings from an exploratory case study of undergraduate students. *Journal of Interprofessional Care, 26*(3), 183–188. http://dx.doi.org/10.3109/13561820.2011.645089

Meyer, J., & Land, R. (2003). *Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practising within the disciplines.* Edinburgh: Universities of Edinburgh.

Neuberger J. (1999). Do we need a new word for patients? Let's do away with "patients." *The BMJ, 318*(7200), 1756–1757. http://doi.org/10.1136/bmj.318.7200.1756

Neve, H., Lloyd, H., & Collett, T. (2017). Understanding students' experiences of professionalism learning: A 'threshold' approach. *Teaching in Higher Education, 22*(1), 92–108. http://dx.doi.org/10.1080/13562517.2016.1221810

Nicola-Richmond, K. M., Pepin, G., & Larkin, H. (2016). Transformation from student to occupational therapist: Using Delphi technique to identify the threshold concepts of occupational therapy. *Australian Occupational Therapy Journal, 63*(2), 95–104. http://dx.doi.org/10.1111/1440-1630.12252

Oandasan, I., & Reeves, S. (2005). Key elements for interprofessional education. Part 1: The learner, the educator and the learning context. *Journal of Interprofessional Care, S1*, 21–38. http://dx.doi.org/10.1080/13561820500083550

Oandasan, I., D'Amour, D., Zwarenstein, M., Barker, K., Purden, M., Beaulieu, M.-D., . . . Tregunno, D. (2004). *Interdisciplinary education for collaborative, patient-centred practice: Research and findings report*. Ottawa, ON: Health Canada. Retrieved from http://www.ferasi.umontreal.ca/eng/07_info/IECPCP_Final_Report.pdf

O'Brien-Pallas, L., Tomblin Murphy, G., Shamian, J., Li, X., & Hayes, L. J. (2010). Impact and determinants of nurse turnover: A pan-Canadian study. *Journal of Nursing Management, 18*, 1073–1086. http://dx.doi.org/10.1111/j.1365-2834.2010.01167.x

Ogenchuk, M., Spurr, S., & Bally, J. (2014). Caring for kids where they live: Interprofessional collaboration in teaching and learning in school settings. *Nurse Education in Practice, 14*(3), 293–298. http://dx.doi.org/10.1016/j.nepr.2013.11.003

Olson, R., & Bialocerkowski, A. (2014). Interprofessional education in allied health: A systematic review. *Medical Education, 48*, 236–246. http://dx.doi.org/10.1111/medu.12290

Onwuegbuzie, A. J., Leech, N. L., & Collins, K. M. T. (2008). Interviewing the interpretive researcher: A method for addressing the crises of representation, legitimation, and praxis. *International Journal of Qualitative Methods, 7*(4), 1–17. http://dx.doi.org/10.1177/160940690800700401

Palmer, R. E. (2001). The liminality of Hermes and the meaning of hermeneutics. (Reprinted from: *Proceedings of the Heraclitean Society: A Quarterly Report on Philosophy and Criticism of the Arts and Sciences, 5*, (1980), 4–11.). Retrieved from https://is.muni.cz/el/1421/jaro2011/PHA0202/um/Hermes.pdf

Parker, J., Ashencaen Crabtree, S., bin Baba, I., Carlo, D. P., & Azman, A. (2012). Liminality and learning: International placements as a rite of passage. *Asia Pacific Journal of Social Work & Development (Routledge), 22*(3), 146–158. http://dx.doi.org/10.1080/02185385.2012.691715

Passmore, A., Persic, C., Countryman, D., Rankine, L., Henderson, M., Hu, T., . . . Cott, C. (2016). Student and preceptor experiences at an inter-professional student-run clinic: A physical therapy perspective. *Physiotherapy Canada, 68*(4), 391–397. http://dx.doi.org/10.3138/ptc.2015–87E

Pelling, S., Kalen, A., Hammar, M., & Wahlström, O. (2011). Preparation for becoming members of health care teams: Findings from a 5-year evaluation of a student interprofessional training ward. *Journal of Interprofessional Care, 25*(5), 328–332. http://dx.doi.org/10.3109/13561820.2011.578222

Perkins, D. (1999). The many faces of constructivism. *Educational Leadership, 57*(3), 6–11.

Perry, S. (2006). *Interprofessional identity formation: Observing social construction among students* (Dissertation). Available from Proquest Dissertations & Theses.

Pesut, B., McLean, T., Reimer-Kirkham, S., Hartrick-Doane, G., Hutchings, D., & Russell, L.B. (2015). Educating registered nursing and healthcare assistant students in community-based supportive care of older adults: A mixed methods study. *Nurse Education Today, 35*, e90–e96. http://dx.doi.org/10.1016/j.nedt.2015.07.015

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65–85.

Pinto, A., Lee, S., Lombardo, S., Salama, M., Ellis, S., Kay, T., . . . Landry, M. D. (2012). The impact of structured inter-professional education on health care professional students' perceptions of collaboration in a clinical setting. *Physiotherapy Canada, 64*(2), 145–156. http://dx.doi.org/10.3138/ptc.2010-52

Ponzer, S., Hylin, U., Kutsoffsky, A., Mattiasson, A.-C., & Nordstrom, G. (2004). Interprofessional training in the context of clinical practice: Goals and students' perceptions on clinical education wards. *Medical Education, 38*(7), 727–736. http://dx.doi.org/10.1111/j.1365-2929.2004.01848.x

QSR International. (2014). NVivo 10. Retrieved from http://www.qsrinternational.com/products_nvivo_features-and-benefits.aspx

Reeves, S. Fletcher, S., Barr, H., Birch, I., Buet, S. Davies, N. …Kitto, S. (2016). A BEME systematic review of the effects of interprofessional education: BEME 2016 Guide no 39. Medical Teacher, 38(7), 656–668. http://dx.doi.org//10.3109/0142159X.2016.1173663

Reeves, S., & Freeth, D. (2002). The London training ward: An innovative interprofessional learning initiative. *Journal of Interprofessional Care*, *16*(1), 41–52. Http://dx.doi.org/10.1080/13561820220104159

Reeves, S., Freeth, D., McCrorie, P., & Perry, D. (2002). 'It teaches you what to expect in future...' Interprofessional learning on a training ward for medical, nursing, occupational therapy and physiotherapy students. *Medical Education*, I(4), 337–344. http://dx.doi.org/10.1046/j.1365-2923.2002.01169.x

Reeves, S., Goldman, J., Gilbert, J., Tepper, J., Silver, I., Suter, E., & Zwarenstein, M. (2011). A scoping review to improve conceptual clarity of interprofessional interventions. *Journal of Interprofessional Care*, *25*, 167–174. http://dx.doi.org/10.3109/13561820.2010.529960

Reeves, S., Perrier, L., Goldman, J., Freeth, D., & Zwarenstein, M. (2013). Interprofessional education: Effects on professional practice and healthcare outcomes (update) *Cochrane Database of Systematic Reviews*. http://dx.doi.org/10.1002/14651858.cd000072.pub2

Rhodes, C. (2012). User involvement in health and social care education: A concept analysis. *Nurse Education Today, 32*(2), 185–189. http://eprints.hud.ac.uk/id/eprint/12662/1/Concept_analysis_submitted.pdf

Richardson, J., Letts, L., Childs, A., Semogas, D., Stavness, C., Smith, B. J., . . . Price, D. (2010). Development of a community scholar program: an interprofessional initiative. *Journal of Physical Therapy Education, 24*(1), 37–43.

Rob, M., & Rob, F. (2018). Dilemma between constructivism and constructionism: Leading to the development of a teaching-learning framework. *Journal of International Education in Business, 11*(2), 273–290. http://dx.doi.org/10.1108/JIEB-01-2018-0002

Rogers, D. (1932). Teamwork within the hospital. *The American Journal of Nursing, 32*(6), 657–659. http://dx.doi.org/10.2307/3410854

Romanow, R. J. (2002). *Building on values: The future of health care in Canada*. Retrieved from http://publications.gc.ca/collections/Collection/CP32-85-2002E.pdf

Royeen, C. B., Jensen, G. M., Chapman, T. A., & Ciccone, T. (2010). Is interprofessionality a threshold concept for education and health care practice? *Journal of Allied Health, 39*(3 pt 2), 251–252. Available from http://www.asahp.org/journal-of-allied-health/

Ruitenberg, C. W., & Towle, A. (2015). "How to do things with words" in health professions education. *Advances in health sciences education: Theory and practice, 20*(4), 857–872. http://dx.doi.org/10.1007/s10459-014-9568-7

Rutherford, G. E. (2011). Peeling the layers: A grounded theory of interprofessional co-learning with residents of a homeless shelter. *Journal of Interprofessional Care, 25*(5), 352–358. http://dx.doi.org/10.3109/13561820.2011.576789

Salhani, D., & Coutler, I. (2009). The politics of interprofessional working and the struggle for professional autonomy in nursing. *Social Science & Medicine, 68,* 1221–1228. http://dx.doi.org/10.1016/j.socscimed.2009.01.041

Salm, T. (2017). A school-based case study: Developing interprofessional competencies to support students with dual diagnosis. *Journal of Policy and Practice in Intellectual Disabilities, 14(*3), 224–232. http://dx.doi.org/10.1111/jppi.12177

Salm, T., Greenberg, H., Pitzel, M., & Cripps, D. (2010). Interprofessional education internships in schools: Jump starting change. *Journal of Interprofessional Care, 24*(3), 251–263. http://dx.doi.org/10.1080/13561820903051469

Saskatchewan Polytechnic Institutional Research & Analysis (2018). Saskatchewan Polytechnic Census Enrolment Report 2017–2018. Available from https://saskpolytech.ca/about/about-us/reports-and-statistics/docuents/2017-2018/SP%202017-18%20Census%20Enrolment%20Report.pdf

Schwandt, T. A., Lincoln, Y. S., & Guba, E. G. (2007). Judging interpretations: But is it rigorous? trustworthiness and authenticity in naturalistic evaluation. *New Directions for Evaluation, 114*, 11-25. http://dx.doi.org/10.1002/ev.223

Schwartzman, L. (2010). Transcending disciplinary boundaries: A proposed theoretical foundation for threshold concepts In J. H. F. Meyer, R. Land, & C. Baillie (Eds.), *Threshold concepts and transformational learning* (pp. 21–44). Boston, MA: Sense Publishers.

Seamless Care. (2008). *Seamless care: An interprofessional education project for innovative team-based care.* Available from http://solr.bccampus.ca:8001/bcc/file/c1be6cb9-74f0-ec01-8284-07596b040cb9/1/NS_SeamlessCare_FinalReport_2008.pdf

Sick, B., Sheldon, L., Ajer, K., Wang, Q., & Zhang, L. (2014). The student-run free clinic: An ideal site to teach interprofessional education? *Journal of Interprofessional Care, 28*(5), 413–418. http://dx.doi.org/10.3109/13561820.2014.907779

Solomon, P. (2011). Student perspectives on patient educators as facilitators of interprofessional education. *Medical Teacher, 33*(10), 851–853. http://dx.doi.org/10.3109/0142159x.2010.530703

Sommerfeldt, S. C., Barton, S., Stayko, P., Patterson, S. K., & Pimlott, J. (2011). Creating interprofessional clinical learning units: Developing an acute care model. *Nurse Education in Practice, 11*, 273–277. http://dx.doi.org/10.1016/j.nepr.2010.12.003

Springfield, E. A., Rodger, S., & Gustafsson, L. (2017). Threshold concepts and authentic assessment: Learning to think like an occupational therapist. *Practice and Evidence of Scholarship of Teaching and Learning in Higher Education, 12*(2), 125–156.

Stacey, G., Oxley, R., & Aubeeluck, A. (2015). Combining lived experience with the facilitation of enquiry-based learning: A 'trigger' for transformative learning. *Journal of Psychiatric and Mental Health Nursing, 22*(7), 522–528. http://dx.doi.org/10.1111/jpm.12228

Steinert, Y. (2005). Learning together to teach together: Interprofessional education and faculty development. *Journal of Interprofessional Care, Supp 1*, 60–75. http://dx.doi.org/10.1080/13561820500081778

Takacs, D. (2003). How does your positionality bias your epistemology? *The NEA Higher Education Journal, Summer,* 27–38. Retrieved from http://www.nea.org/assets/img/PubThoughtAndAction/TAA_03_04.pdf

Tajfel, H., & Turner, J. C. (2004). The Social Identity Theory of Intergroup Behavior. In J. T. Jost & J. Sidanius (Eds.), Key readings in social psychology. *Political psychology: Key readings* (pp. 276–293). New York, NY, US: Psychology Press. http://dx.doi.org/10.4324/9780203505984-16

Tew, J., Gell, C., & Foster, S. (2004). Learning from experience: Involving service users and carers in mental health education and training. Retrieved from https://pdfs.semanticscholar.org/3325/ffab08809303e42856607e342f7d6a0ff3b1.pdf

Thistlethwaite, J. (2012). Interprofessional education: A review of context, learning and the research agenda. *Medical Education, 46,* 58–70. http://dx.doi.org/10.1111/j.1365-2923.2011.04143.x

Thistlethwaite, J., & Moran, M. (2010). Learning outcomes for interprofessional education (IPE): Literature review and synthesis. *Journal of Interprofessional Care, 24*(5), 503–513. http://dx.doi.org/10.3109/13561820.2010.483366

Thomassen, B. (2015). Thinking with liminality: To the boundaries of an anthropological concept. In A. Horvath, B. Thomassen & H. Wydra (Eds.), *Breaking boundaries: Varieties of liminality* (pp. 39–58). Oxford, UK: Berghahn Books.

Timmermans, J.A. (2010). Changing our minds: The developmental potential of threshold concepts. In J. H. F. Meyer, R. Land and C. Baillie (Eds.), *Threshold concepts and transformational learning* (pp. 3–19). Boston, MA: Sense Publishers.

Towle, A., Bainbridge, L., Godolphin, W., Katz, A., Kline, C., Lown, B., . . . Thistlethwaite, J. (2010). Active patient involvement in the education of health professionals. *Medical Education, 44*, 64–74. http://dx.doi.org/10.1111/j.1365-2923.2009.03530.x

Towle, A., Brown, H., Hofley, C., Kerston, R. P., Lyons, H., & Walsh, C. (2014). The expert patient as teacher: An interprofessional Health Mentors programme. *Clinical Teacher, 11*(4), 301–306. http://dx.doi.org/10.1111/tct.12222

Towle, A., & Godolphin, W. (2013). Patients as educators: Interprofessional learning for patient-centred care. *Medical Teacher, 35*(3), 219–225. http://dx.doi.org/10.3109/0142159X.2012.737966

Tsang, E. S., Cheung, C. C., & Sakakibara, T. (2016). Perceptions of interprofessionalism in health professional students participating in a novel community service initiative. *Journal of Interprofessional Care, 30*(1), 132–134. http://dx.doi.org/10.3109/13561820.2015.1055717

Turner, V. W. (1967). *The forest of symbols: Aspects of Ndembu ritual*. Ithaca, NJ: Cornell University Press.

Turner, V. W. (1969). *The ritual process: Structure and anti-structure*. Chicago, IL: Aldine Publishing Company.

University of Regina Office of Resource Planning. (2018). 2018 National fall count. Available from https://www.uregina.ca/orp/assets/statistics/headcounts/2018-fall-FTE-census-headcounts.pdf

University of Saskatchewan Data Warehouse. (2019). Student headcount and demographics.Available from https://www.usask.ca/isa/statistics/students/headcount-demographics.php

Vanderzalm, J., Hall, M. D., McFarlane, L. A., Rutherford, L., & Patterson, S. K. (2013). Fostering interprofessional learning in a rehabilitation setting: Development of an interprofessional clinical learning unit. *Rehabilitation Nursing, 38*(4), 178–185. http://dx.doi.org/10.1002/rnj.78

Vanier, M. C., Therriault, P. Y., Lebel, P., Nolin, F., Lefebvre, H., Brault, I., . . . Fernandez, N. (2013). Innovating in teaching collaborative practice with a large student cohort at Université de Montréal. *Journal of Allied Health, 42*(4), e97–e106. Available from http://www.asahp.org/journal-of-allied-health/

Wahlström, O., Sanden, I., & Hammar, M. (1997). Multiprofessional education in the medical curriculum. *Medical Education, 20*(5), 402–408. http://dx.doi.org/10.1046/j.1365-2923.1997.00669.x

Walsh, E. (2000). Phenomenographic analysis of interview transcripts. In J. A. Bowden & E. Walsh (Eds.), *Phenomenography* (pp 19–33). Melbourne, AUS: RMIT University Press.

Weingart, P. (2000). Interdisciplinarity: The paradoxical discourse. In P. Weingart & N. Stehr (Eds.), *Practising interdisciplinarity* (pp. 42-59). Toronto, ON: University of Toronto Press.

Wilhelmsson, M., Pelling, S., Ludvigsson, J., Hammar, M., Dahlgren, L. O., & Faresjö, T. (2009). Twenty years experiences of interprofessional education in Linköping - Ground-breaking and sustainable. *Journal of Interprofessional Care, 23*(2), 121-133. http://dx.doi.org/10.1080/13561820902728984

Witz, A. (1990). Patriarchy and professions: The gendered politics of occupational closure. *Sociology, 24*(4), 675–690. http://dx.doi.org/10.1177/0038038590024004007

World Health Organization. (1988). *Learning together to work together for health*. Geneva, Switzerland: Retrieved from http://whqlibdoc.who.int/trs/WHO_TRS_769.pdf

World Health Organization. (2010). *Framework for action on interprofessional education & collaborative practice*. Retrieved from http://whqlibdoc.who.int/hq/2010/WHO_HRH_HPN_10.3_eng.pdf