CLINICAL LEARNING ENVIRONMENTS AND RELATIONSHIPS

HOW THE CLINICAL ENVIRONMENT SHAPES THE RELATIONSHIP BETWEEN

MEDICAL LEARNERS AND CLINICAL TEACHERS

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Lay Abstract

This thesis project aimed to understand how the clinical environment shapes the way medical learners interact and build relationships with their clinical teachers. We interviewed medical students and clinical teachers who worked together during the medical learner's clerkship year of clinical training in various healthcare specialties. In the interviews, we discussed learner experiences of positive and negative relationships with clinical teachers. We developed a theory which describes four opportunities that medical learners and clinical teachers will encounter that can support the development of a trusting relationship. This thesis project will contribute insight into types of interactions that can be highlighted as strategic points for educational interventions and administrative reform, to support the development of trusting learner-teacher relationships during clerkship.

Abstract

Introduction: A trusting relationship between medical learners and clinical teachers is vital for educational and clinical productivity. Perceptions of a trusting relationship are influenced by the learner's perception of the interpersonal risk (i.e. being humiliated) for engaging in learning behaviours (e.g. asking questions, seeking feedback, learning from mistakes). Perceptions of low interpersonal risk are linked to learners feeling comfortable engaging in learning behaviours. What is less clear is how the clinical environment may influence a medical learner's perception of trust.

Methods: Using constructivist grounded theory, we conducted semi-structured interviews with 19 medical clerks and 10 clinical educators affiliated with a single institution. Interviews explored participants' personal experiences of positive, negative or challenging learner-teacher relationships in the clinical environment.

Results: Through qualitative analysis, we developed a theory of Co-Navigation which describes how teachers and learners have common points of interaction to solidify or diminish trust as they navigate the dynamics of the clinical environment. These points in the relationship that each must co-navigate include: preparing to work together; asking questions; engaging in clinical work; and addressing learner mistakes. Perceptions of whether the opportunity solidified or dissolved trust, arose from learners' perception of the amount of effort their teacher made to mitigate stress learners experienced in the learning environment.

Limitations: Our interview participants were recruited as individuals; we did not examine their perceptions of their relationships with each other. Co-recruitment of teacher-learner dyads may be a strategy to further refine this theory in future research.

Conclusion: The Co-Navigation theory helps teachers and learners identify key opportunities in the relationship and suggests approaches to solidifying trust at these critical junctures. It highlights the role the clinical environment plays in facilitating and constraining opportunities to establish trust.

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List of Abbreviations

LICM Longitudinal Integrated Clerkship Model

CGT Constructivist Grounded Theory

UMA Unprofessionalism Mistreatment and Abuse

Declaration of Academic Achievement

The topic for this thesis was developed in consultation with Dr. Meredith Vanstone. All content was written and completed by Emily Block, acknowledging the contributions to the project by Dr. Meredith Vanstone, Dr. Allyn Walsh, Dr. Karl Stobbe and Dr. Keyna Bracken.

With the guidance of my thesis supervisor Dr. Meredith Vanstone, and with the supervision of my thesis committee members, I have carried out the research required to complete this thesis. I conducted a search of the literature, co-developed a study protocol and was included in the ethics application that obtained approval, that Dr. Vanstone applied for the Unprofessionalism, Mistreatment and Abuse research project that my thesis was one particular aspect of. I also recruited and interviewed participants and collected all relevant data. I analysed this data and from this analysis developed a theory of Co-Navigation explaining how teachers and learners navigate the clinical learning environment during clerkship to build trusting relationships. This theory was developed and refined with input from my supervisor and committee. This data has been presented in committee meetings, conferences and will be presented at the Canadian Medical Education of Canada conference with hopes of also a co-publication with a Dr. Rosalind Bihun a former medical learner who assisted with recruitment and provided her experience as a learner to help ground the analysis.

Chapter 1 Background

Introduction

In this qualitative research study, I examine the impact of the clinical environment on the formation of relationships between medical students and their clinical teachers. By interviewing medical student clerks and those engaged in a variety of clinical teaching roles, I have created a theory that identifies the ways in which the structure of the clinical learning environment can promote or strain efforts to develop trust in the teacher-learner relationship. This theory explains how trusting relationships are central to positive medical learner-clinical teacher relationships but that trusting relationships can be difficult to build in certain clinical environments. In the explanation of this theory, I identify four opportunities that can make a difference in building trust between teachers and learners in clinical environments.

In the final chapter, I discuss implications for the design and structure of medical education clinical learning experiences.

Teacher-Learner Relationships

The medical learner-clinical teacher relationship is "very important for a good learning environment" (Al Nasseri, Renganathan, Al Nasseri and Al Balushi, 2014, p.167). Moreover, it was suggested that the "teacher's attributes and positive relationship with the students can be a powerful motivator for students learning" (Gillespie, 2002 as cited by Al Nasseri et al., 2014, p.167).

While the individual personalities and experiences that each party brings are important, we posit that the learning environment in which these relationships are formed

and maintained also play an influential role in shaping these relationships. The effect of the environment on medical learner-clinical teacher relationships could encourage behaviour that results in positive learning experiences (e.g. mentorship, role modelling) and the formation of trusting relationships.

Learners have described positive relationships as an important source of support and learning, which enable personal and professional growth, inspiring confidence and commitment to a career in medicine (Al Nasseri et al., 2014; Bianchi, Stobbe and Eva, 2008; Cuncic, Regehr, Frost and Bates, 2018; Teherani et al., 2009; and; Telio et al., 2016). For clinical teachers, positive relationships with learners have been reported to contribute to a greater satisfaction with teaching and working, increased engagement and value of the student's contributions while also providing a platform for effective supervision in medical training (Hudson et al., 2017; Walters et al., 2012). Moreover, "the quality of the relationship is arguably the most important factor in effective supervision" (Kilminister and Jolly, 2000 as cited by Hudson et al, 2017, p. 8).

Conversely, the environment may promote behaviour that results in negative learning experiences such as mistreatment and abuse. Approximately half of medical learners experience mistreatment and abuse, with the most common source being from their clinical teachers (Fnais et al., 2014; Graduation Questionnaire National Report, 2015). Mistreatment and abuse of medical learners has been a problem identified and thoroughly discussed in the literature since the 1980's and continues to remain widespread (Hasty, Miller, Berenknyei Merrel, Lin, Shipper and Lau, 2018). The

concentration of mistreatment and abuse from clinical teachers highlights for us the importance of the relationship between learners and clinical teachers.

Toxic relationships may result in the student perceiving that they have been mistreated and abused. Experiences of mistreatment have been shown to make learners more likely to express doubt or regret in choosing medicine as a career (Pololi, Conrad, Knight and Carr, 2009; Frank et al., 2006). The effects of negative relationships for learners include: negative personal health outcomes such as depression (Elnicki et al., 2002); alcohol abuse (Jennings, 2009; Richman, Flaherty, Rospenda, Christensen, 1992; Dyrbye, Thomas and Shanafelt, 2005; Frank et al., 2006); decline in their confidence of abilities (Kassebaum and Cutler, 1998; Schuchert, 1998; Seabrook, 2004). When learners who have experienced mistreatment become clinical teachers themselves they may be more likely to perpetuate this behavior (Barrett and Scott, 2017). For instance, by engaging in *pimping*. Pimping is an approach teachers use to ask learners a question that can be perceived by learners as a form of intimidation. This is where the teacher asks a series of questions to a learner often in front of an audience until the learner can no longer answer the questions being asked (Ogden et al., 2005). There has also been a comparison made between neglectful and abusive family models to medical education in how they share problematic patterns of communication behaviour (McKegney, 1989).

While there is significant evidence indicating the importance of positive clinical teacher-medical learner relationships, we do not fully understand how this relationship is formed and sustained. In particular, there is a lack of knowledge about the influence of structural elements of the learning environment that this relationship is formed in. By

structural elements, I mean the formal and informal affordances for both the physical and social environment. Formal affordances refer to the organizational features implemented at the institutional level (e.g. mentoring programs) and the informal affordances refer to the ways in which individuals interact with these organizing structures (e.g. using patient exam rooms for debriefing clinical learning sessions). For example, little is known about which affordances allow for or encourage meaningful interaction between learners and clinical teachers that help develop positive relationships. Affordances refer to Gibson's (1978) theory of affordances whereby he described how the physical environment can offer or provide animals varying levels of allowance for certain types of movement (i.e. walking versus climbing). This theory of affordances is also applied to workplace engagement, where the "readiness of the workplace to afford opportunities for individuals to participate in work activities and access direct and indirect support are key determinants in the quality of learning that arises from participation" (Billet, 2001). If we apply the theory of affordances to the clinical learning environment, we understand that environments provide different affordances or opportunities for relationship building. With respect to affordances in teaching and learning, I mean the "explicit and implicit invitational qualities and learning opportunities" (Hauer et al., 2012) present in the learning environment that create opportunities or "margin" to build trust between teacher and learner and encourage feelings of safety for the learner that also support learning.

Longitudinal integrated clerkship models are one such affordance for building trusting relationships. Longitudinal clerkship models have been shown to be more conducive for meaningful relationships because they are longer in length (i.e. 6 weeks or

more) and structure more opportunity for continuity of relationships and learning (Walters, Prideaux, Worley and Greenhill, 2011; as cited by Strasser and Hirsh, 2011) with respect to settings, supervisors and patients (Hirsh, Ogur , Thibault and Cox, as cited by Hauer et al., 2012).

In contrast, block-rotation clerkship models which are shorter in duration (i.e. 2-12 weeks of clinical learning in a single discipline) offer fewer affordances for building positive relationships. Englander and Carraccio (2018) offer one explanation is that it is the fragmentation of block rotations that is harmful to learner's ability to work in high-functioning teams because of the absence of sustained meaningful relationship. Hauer et al., (2012) explain that this might be because this model has an increased potential to "marginalize early learners who face busy teams and frequent turnover in supervisory staff" (p. 699). In addition to this potential, learners find integrating into the culture of each specialty challenging (Patel and Dauphinee, 1985 as cited by Hauer et al., 2012) and having to adapt to each specialty setting that may not coherently meet their learning needs or provide appropriate learning opportunities (O'Brien, Cooke and Irby, 2007 as cited by Hauer et al., 2012).

With a few exceptions, we do not know what affordances of the clinical learning environment encourage or discourage the development of positive relationships in medical education.

The consistency and continuity of interaction between learners and teachers is important. Osman et al. (2015) found that learners who have a low frequency of interaction with one particular clinical supervisor or those who have multiple supervising

physicians during clerkship may experience a relationship dynamic which may "lead to concomitant effects on assessment, feedback, role-modeling and clerkship education" (p. 130). This study is an example of how the duration of the relationship in longitudinal models can have increased affordance for interaction because there is more time to interact, but it cannot be assumed to mean more interaction without structuring opportunities for interaction.

The change in structure affords more and more consistent interaction between teacher and learner. While it has been established that longitudinal and integrated clerkship models are more conducive to positive relationships, we are only beginning to understand the process of teaching and learning that contributes to these outcomes (Cuncic, Regehr, Frost and Bates, 2018). I speculate that longer periods of time spent together inherently affords a long enough time period to accommodate infrequent and short periods of interaction within a busy clinical setting. This leads to a question- how do teachers and learners build positive relationships within clerkship rotations that do not afford consistent exposure and a long duration of the relationship? Block rotations have been compared as the suboptimal model to longitudinal models by several authors, who note that it is because of the vast supporting evidence for the "ethical erosion that occurs in medical students, the impact of block rotation models on student well-being and the difficulty in establishing the trust necessary to provide meaningful roles for medical students" (Heddle, Robertson, Mahoney, Walters, Strasser and Worley, 2014, p. 138). Given the reliance on block models of clerkship at McMaster and other medical education

institutions, understanding the implications for teacher-learner relationship formation is essential to ensuring students have access to optimal learning experiences.

When there are few opportunities or affordances for positive relationship formation, learners and teachers may struggle to find ways to work effectively together. Students have reported that having structured time set aside throughout their clerkship as part of the curriculum was associated with a positive relationship building (Bell et al., 2008). Clinical teachers report role strain when attempting to balance their preceptorship duties while simultaneously providing safe clinical care (Henning and Weidner, 2008; as cited by Dodge, Mazerolle and Bowman, 2014) and often feeling that they don't have enough time to do both teaching and patient-care well (Dodge, Mazerolle and Bowman, 2014).

Research Question and Objectives

As we think about how we can encourage the positive aspects of the clinical teacher-learner relationship and discourage the negative aspects, it is important to consider what aspects of the clinical learning environment may be open to change. We cannot change the personalities and experiences that each learner and each clinical teacher bring to their role. However, certain aspects of the learning environment are open to modification. The first step in optimizing the clinical learning environment is understanding which features of the environment place unnecessary stress on the relationship, and which features are helpful in fostering positive teacher-learner relationships.

To better understand the effect of the learning environment on the clinical teacher-learner relationships, we will examine these relationships in clinical environments. We conducted a constructivist grounded theory study with the objective of understanding how the features of the clinical environment shape clinical teacher-learner relationships.

The purpose of this study is to examine how clinical environments shape the medical learner-clinical teacher relationships. The objective is to provide knowledge about key factors in the learning environment that may nurture or constrain positive relationships; these factors could be considered during future planning of structural elements of clinical learning environments. To meet these objectives, this study will answer the following research question:

How does the structure of the learning environment shape the relationships between clinical teachers and learners*?*

Defining the learning environment

I will be building on the definition of the environment from Palmgren (2016) who proposed the environment as a space which is defined by the thing it contains and interacts with. Palmgren (2016) notes that environment comes from the "root word *environ* which means *to surround*, *to envelope*" (p. 3) pointing out that this attribute does not provide much definition and therefore, defining what the environment surrounds can define it more clearly. In other words, having two points to relate to one another help define the other. In this project, the spaces and places that surround the learner-clinical teacher relationship will be considered the defining "thing" that aims to fulfill the purpose of teaching and learning. This means that the environment which surrounds this

relationship that also includes the environment where interaction happens between this relationship and other people, is defined by the interaction focused on fulfilling a learning purpose.

This next section describes how I have conceptualized different aspects that define the environment.

The Social Environment

Inspired by the literature on social systems such as a family system, the social environment is the summation of interactions between individuals and their environment, characterized by a collective approach to communication. The accumulating interactions can cultivate an environment which can feel hostile, welcoming or competitive (Vangelisti, 2004). McKegney (1989) draws similarities between neglectful and abusive family systems and medical education because medical education works similar to a family system (as cited by Sawa et al., 2006) in the way that medical learners accept the abusive behaviour from their teachers or "parents" as normal, making them more likely to repeat this parenting approach as parents (McKegney 1989). More specifically, McKegney (1989) draws the comparison between the two because "these systems are often characterized by their unrealistic expectations, denial, indirect communication patterns, rigidity, and isolation" that mirror "communication patterns within teaching hospitals that reinforce trainees' strivings for perfectionism" (McKegney, 1989, p. 452).

The workplace learning theory literature in medical education emphasizes the importance of participation in the social environment and activities of the clinical workplace (Billet, 2002; Lave and Wenger, 2005; Keating, 2006; Billet, 2010 as cited by

Strand et al., 2015). This body of theory emphasizes that individuals shape the meaning of their experience of the learning environment based on how they interact with each other and their physical environment. Building off this definition, the experience of the clinical environment can be shaped by the individual's experience of the social interaction with colleagues, allied health professionals, patients and staff. More specifically, the social environment is composed of interaction that is structured between learners and teachers with respect to their clinical role and the activities each individual performs or participates in because of that role. For example, interaction between learners and teachers may differ between a clinical teacher in an operating theatre from one in a psychiatric ward. Clinical work is outlined by a clinical teacher's clinical role, potentially shaping the way that the teacher integrates the learner into that clinical work as a learner.

The way that teachers and learners interact can also be shaped by the physical environment. For example, the layout of the physical space may change how a clinical team communicates (i.e. operating room with bright lights, everyone standing around the surgical table can work to increase communication). These physical features of the operating room influence the social environment and is seen when individuals practice social activity within the confines of procedures and rules often encouraging silence to reduce the potential for errors while directing and conducting surgical operations (Gardezi, Lingard, Epsin, Whyte, Orser and Baker, 2009).Since the physical layout of a clinical setting has potential to shape how teachers and learners interact, it may also work to create more or less supportive environments for positive interaction.

The Learning Environment

My definition of the learning environment stems from considering the context of undergraduate medical education learning environments. Medical learners spend most of their formal learning time in a variety of classroom environments during their first year (i.e. lecture, tutorial, workshop, seminar and laboratory) (Chan, 2004) and some time in clinical environments. As they progress in their program, the time they spend in clinical environments increases while simultaneously decreases the in-classroom time. Clinical learning can take place in a lab creating a less threatening environment that allows for students to gain knowledge and experience without the stress of impacting a real patient in a negative way. It can also take place in clinical field placements where they are expected to gain competencies in knowledge application, skills, attitudes and values inherent to the profession (Chan, 2004). One major difference between the classroom environment and the clinical field learning environment is that learning takes place within a complex social environment where interaction between learners and teachers—which now includes other health professionals—is in an environment that serves both as a work environment and a learning environment (Moos, 1987, as cited by Chan, 2004; Zwet et al., 2014). In this way, a student interacts with other health professionals within the role of a learner and a worker. These dual roles can change the learner's perception of the clinical environment. For instance, if we think of when the learner experiences failure, these experiences can be a rich opportunity for learning. However, because they happen in a work environment, failure may mean harming a patient. Because of the delicate dynamic of learning from failures, learning in a work environment can feel intimidating and overwhelming for the learner. I posit that this is because work environments may not

always structure clinical operations with procedures in place to gain insight from failures, from a learner's perspective it may also reinforce that the environment is primarily a workplace and not a learning environment. Learners feel intimidated to learn in these types of environments because of there may be no clear procedure of how mistakes they make may be handled and potentially encouraging the avoidance of learning which may mean a greater potential to make mistakes.

Consider how a teaching hospital that structures its environment for teaching. For example, a hospital which structures its environment for teaching may inherently expect to improve it's procedures based on the learning from the mistakes its learners and teachers make.

If an environment is not structured to take the possibility of error into account, there is an increased responsibility on the teacher in this situation to play the role of reframing these experiences by understanding the learning value of failure even though it may have negative consequences to a patient. In other words, the different purposes of place (i.e. is the individual to fulfill work or learning) may create some conflict for learners by putting pressure on the relationships because learning has the potential to jeopardize the clinical work if not restructured to suit the appropriate capacity of the learner. Also, learning something means a high probability that the learner does not do it perfectly the first time and so protocols for learner mistakes are important. In addition to this, learners also fear harming the patient which can be an additional layer of stress for the learner and teacher.

A teaching hospital environment creates systems, protocols or rules for when learners make a mistake and uses these opportunities to improve learning and patient care procedures. Improvements might include adapting teaching approaches or healthcare team communication in order to accommodate potential for learner error. Having structures that protect learning behaviors such as teaching hospitals are examples of clinical environments where work and learning objectives are more harmonious.

When a learner is learning to perform clinical work in a workplace environment this means there is potential for learners to perceive to be held to the same expectation as a health professional in this environment to a certain degree. Learners having clear expectations is critical for learning well in this environment.

Part of why the learning environment is more complex, is that often the clinical environment has a less structured dyadic teaching and learning relationship that is inherent to the classroom environment. This less pronounced structure means that teaching and learning is blended with social interaction and clinical work. Learners now need to learn how to navigate the social environment in order to gain access to clinical learning opportunities within the clinical workplace (Daly et al., 2013). Positive learning experiences within clerkship are associated by learners with access to learning opportunities. Access is granted based on their ability of knowing how to negotiate, "crossing over social boundaries" and participate in communities of practice by engaging in the shared activity of clinical work (Daly et al., 2013, p. 360; Egan and Jaye, 2009). It has also been emphasized that "students require additional guidance to identify, negotiate and cross boundaries" (Daly et al., 2013). Daly et al., (2013) suggests that this is because

for learner and clinical teacher, access or navigation of these boundaries benefits from the individual being socially competent and having relationship credibility. Being socially competent and having relationship credibility are key to building trust.

Social competence is an asset to understanding the social rules and knowing how to follow or participate within them (Daly et al., 2013). It may mean interacting with others in such a way so that they are perceived by teachers for good qualities such as being trustworthy and make them a candidate for opportunities for participation in clinical activities (Damodaran, Shulruf and Jones, 2017). For example, playing a part of a medical team to help treat a patient would require the team or clinical teacher to guide and direct the learner for a role within the team (Hauer et al., 2012).

Defining Structure

Another term that is important to my definition of the learning environment is "structure". The term structure applied to social concepts carries notions of being *rigid*, *hard or unchanging* and may seem unfitting for the dynamic, evolving, or emerging nature of social phenomena. Work by Sewell (1992) addresses these associated terms with *structure* that seem unfit to describe the way an institution shapes the way people interact, like in the example of education. Sewell (1992) provides a new way to conceptualize structure that allows human agency and change over time. Building on this, Sewell articulates how structure can embrace both institutional and individual level qualities in the "duality of structure" where, "structure shapes people's practices, but it is also people's practices that constitute (and reproduce) structures" (p. 4). This is echoed in the "way that communities of practice develop within larger historical, cultural, and

institutional contexts with specific resources and restraints" but "produce a practice that is uniquely their response to the explicit and implicit expectations of the institution" (Egan and Jaye, 2009, p. 115).

Essentially, a core part of this definition in medical education is that "structures must not be conceptualized as simply placing constraints on human agency, but as enabling" (Giddens, 1976 as cited by Sewell, 1992) and this is where the term of affordances means enabling both positive or negative outcomes of human agency. Furthermore, "that structure must be regarded as a process, not a steady state" and if they are enabling then when "enough people who are powerful enough act in innovative ways, their actions may have the consequence of transforming the very structures that gave them the capacity to act" (p. 4, Sewell, 1992). For example, those in leadership positions have a lot of influence in changing the work culture through how they interact with those of less influence. The influence of leadership is an example of how human agency and institutional structures such as hierarchy can shape the clinical environment.

Hierarchy as a structure in clinical environments

I define hierarchy as a social structure because it organizes social interaction which aims to accomplish clinical work and therefore, is the structure that impacts interaction in the learning environment. Hierarchical management structures in healthcare –where position and professional affiliation are inseparable from status in the workplace (Rautio, Saunnari, Muutinen and Laitala, 2005) – are a structure which holds the potential to facilitate abuses in power by those with high positions (Austenfield, Paolo and Stanton, 2006; Angoff, Duncan, Roxas and Hansen, 2016). Within this hierarchy, medical clerks

are positioned to be under the authority of a clinical teacher who is enabled to guide, teach, evaluate and provide feedback for their learning while also acting as a role model for the profession and performing clinical duties. This structure creates a dynamic between learner and clinical teacher that highlights the interconnectedness of the quality of their relationship and learning experience. With respect to the dynamic, the clinical teacher acts as a gatekeeper or gateway to opportunities for learning because of the authority they have in a clinical setting and their social status as teacher can pave the way for learners who have little to no clinical authority. Here, it could be argued that the hierarchical nature of medical education impacts how students interact with their clinical teachers. For example, learners may be tempted to compromise their own values and well-being for the sake of preserving their status or being "perceived positively" by their clinical teacher (Baird, Bracken and Grierson, 2016). An example of compromising values due to low status in the hierarchy includes a student acquiescing to a teacher's request to perform a pelvic examination on an anaesthetized patient who had not provided consent (Ubel, Jepson and Silver-Isenstadt, 2003).

Upon examining the literature on power and structure, it has been observed that a learner perceives to be in the most vulnerable position within the health professional hierarchical system because of their dependency on clinical teachers. Learners are dependent on teachers to legitimize their knowledge and performance and to give them access to opportunities to improve their learning (Linderman and Haque, 2016). This vulnerability puts pressure on the learner to heavily invest in the way they interact and build a relationship with their clinical teacher. This draws attention to the structural and

relational dynamics that put pressure on learner agency in the relationship with their teachers. It emphasizes the importance that access to learning opportunities not be solely explained by learners choosing not to access these opportunities. Rather, the learning environment is dependent on the quality of the relationship between learner and clinical teacher and not just the efforts of a motivated student. The clinical teacher plays an influential role with what type of learning experience, both positive and negative (Ockerby, Newton, Cross and Jolly, 2009).

Defining "Positive" Relationships

Because of the potential for the power dynamic to have a negative influence just as much as a positive influence on the relationship between clinical teacher and learner, it is important to define positive relationships. "Positive" relationships in the clinical teacher-learner context are highlighted in the literature as associated with being "caring", feeling "safe", and building trust. In a review of the impact of clinical teacher-learner relationships on learning, Al Nasseri et al. (2014) highlight that "students highly value the caring relationship that clinical instructors provide as the atmosphere in caring relationships alleviates student anxiety and stress and caring relationships encourages the nursing students to learn safely without pressure. " (p. 168)

Caring is demonstrated to a learner through a clinical teacher practicing attentive listening by providing their full attention and demonstrating empathetic behaviour to learners, colleagues and patients (Sawa et al., 2006). Another facet of caring is showing empathy and is defined by learners, not a quality of a person but a way of engagement between two individuals (Sulzer, Feinstein and Wendlend, 2016) resonant with my

definition of interaction. With regard to learners feeling "safe", this is associated with experiencing a sense of "belongingness" in clinical placements that works to enable and empower learners to take advantage of learning opportunities and feel they have a legitimate place in the team. Belongingness is defined by Jones and Lathlean, (2008) as:

> A deeply personal and contextually mediated experience that evolves in response to the degree to which an individual feels secure, accepted, included, valued and respected by a defined group, connected with or integral to the group, when their professional and personal values are in harmony with those of the group. (p. 104)

Young, Williamson and Egan (2016) found that a learner feeling safe also refers to having the potential negative consequences of their learning on patient safety mitigated. This aspect of feeling safe points to the attention and effort a teacher dedicates to ensure that the learner's learning is appropriate and engage them in clinical work that does not put them at risk of hurting a patient.

I suggest that these are characteristics described in the literature point to a positive relationship with a clinical teacher being one that contributes to a positive learning experience. I speculate this may be because positive relationships allow the learner to spend more attention on learning itself and less on wondering how to interact with teachers in a way that will not have a negative impact on the learner's experience or evaluation. This connection between the impact of a stressful relationship and learning is reinforced by neurocognitive evidence finding that negative emotions (e.g. stress, fear of failure, hostility) can have an impact on neurocognitive processes associated with learning (McConnell and Eva, 2012).

Trust

Trust is an important characteristic of positive relationships. Within the trust research, there are three main ways trust is studied: trusting actions (Kramer, Shah, & Woerner, 1995; Pillutla, Malhotra, & Murnighan, 2003, as cited by Jones and Shah, 2015); trusting intentions (Colquitt, Scott and LePine, 2007; Mayer et al., 2003, as cited by Jones and Shah, 2016) and trusting beliefs (Ferrin and Dirks, 2003; Ferrin et al., 2006; Mayer et al., 1995). A study conducted by Jones and Shah (2016) examined the influences of trusting beliefs. They defined trusting beliefs as the perceptions of trustworthiness formed as a trustor observes, interprets and ascribes motives to the trustees' actions and found that like other studies examining the impact of time on developing a sense of a person's trustworthiness (Lewicki & Bunker, 1995; Rousseau et al., 1998), "initial trust is calculative, while trust forming later is relational" (p. 406).

One particular aspect of the trust literature is perceived trustworthiness, "a multidimensional concept comprised of ability, benevolence and integrity (Mayer et al., 1995, as cited by Jones and Shah, 2016, p. 4). More concretely, an individual (the trustor) would not be expected to have the same level of trust for all other individuals (trustees) they interact with but work to gather information to "uncover a trustee's inherent level of trustworthiness" (Jones and Shah, 2016, p. 7) or perceived trustworthiness. What most assists in uncovering a trustee's inherent level of trustworthiness is when the trustor observes "cooperative behaviors [which] signal trustworthiness" (Butler, 1985 as cited by Jones and Shah, 2016, p. 7). In contrast, competitive or self-interested behaviors would signal that the observed individual is untrustworthy. (Jones & Shaw, 2016) With regard

to how assessments of trustworthiness are further developed, "trustee behaviour is more likely to be diagnostic of trustworthiness if performed voluntarily and consistently over time and across situations (Kelley, 1973; Korsgaard et al., 2002 as cited by Jones and Shah, 2016, p. 7).

As mentioned in the previous section *Defining Positive Relationships*, I discussed how learner's perception of safety can refer to a sense of belongingness within the clinical team and be strengthened when a teacher mitigates the risk of the learner harming a patient while learning. A learner's perception of safety may also be linked to the perceived risk of the impact their relationship with their teacher has on their evaluation. In the trust literature, perceived trustworthiness goes hand in hand with perceived risk because trust is the act of anticipating something positive in the context of there being some degree of risk to the trustor. Perceptions of risk may also be influenced by perceptions of safety. I am making the connection between the literature on trust and psychological safety because of how "trust between trainees and supervising medical professionals is key to effective clinical education" (p. 191, ten Cate et al., 2016) and "health care is an inherently complex and dangerous business, in which clinicians are continually required to manage risk […] and understand the potential problems each time they delegate a clinical task to a learner" (p. 893, Damodaran, Shulruf and Jones, 2017). Work by Damadoaran, Shulruf and Jones, (2017) suggests that trust can be bi-directional.

One way to consider this is how the level of perceived risk also shapes the level of perceived trust the trustor needs to have for the trustee (Jones and Shah, 2015). In the literature, perceived risk and trust are conceptualized as constructs of psychological

safety. These describe "the degree to which learners (i.e. medical learners or residents) perceive their work environment as conducive to engaging in behaviors that have inherent intrapersonal risk" and in clinical education "it describes how the learning environment mitigates or exacerbates the risks learners must take to learn medicine" (p. 780 Bynum and Haque, 2016). Bynum and Haque (2016) identify that low levels of psychological safety are most likely to be where the minimal risk of learning medicine is higher. The risk however, is often not part of learning but the way that teachers navigate the challenges of teaching in the higher risk environment such as "punitive responses to error, learner mistreatment, derision within teams and hierarchical oppression" (p. 781).

Study done by Carmeli and Hoffer Gittell, (2008) found supporting evidence for "Edmonson's theory that psychological safety is necessary for effective learning in organizations" (p. 723) and explicated how it is enhanced by "high-quality relationships of shared goals, shared knowledge and mutual respect" and "learning from failures" (p. 723). These three practices of high-quality relationships describe one specific manifestation of a concept of high-quality relationships —relational coordination (Dutton, 2003; Dutton and Heaphy, 2003; Ragins and Dutton, 2007 as cited by Carmeli and Hoffer Gittell, 2008). Carmeli and Hoffer Gittell (2008) found that these practices "foster psychological safety and enable individuals in organizations to learn from failures" (p 710, Carmeli and Hoffer Gittel, 2008). An organization's ability to learn from failures made by individuals is found to be challenging in surgical environments. One example in a study done by Edmonson, Bohmer and Pisano (2001), they examined psychological safety in surgical settings and found that "the divisions that exist between members who

play different roles in the organizational division of labor may constitute an important inhibitor to psychological safety" (p. 713). Moreover, that in the surgical setting, health professionals "feel constrained to remain within their roles due to the function-specific goals, specialized knowledge, and status differences that divide them, creating a fear of consequences of speaking out of role even when patient safety is at stake" (as cited by Carmeli and Hoffer Gittel, 2008, p. 713). Edmonson, Bohmer and Pisano (2001) go on to explain that the dynamic in a surgical setting where there are competing goals, lack of understanding and respect for each other's roles, it increases the likelihood that they are to blame one another for failures (as cited by Carmeli and Hoffer, Gittel, 2008). It is the likelihood of being blamed for failures and fear of speaking out which describe the breakdown of psychological safety.

Specifically, in medical education, one of the many aspects of trust can be conceptualized as entrustment or entrustable professional activities (EPAs). For clinical teachers, trust is essential for them to feel comfortable to allow a medical student to learn from working with a real patient. We have literature on entrustable professional activities which examines the qualities to identify observable behaviours that teachers can identify to help them make decisions as to when to trust learners with clinical work (ten Cate, 2016).

In a review of the impact of clinical teacher-learner relationships on learning Papp, Markkanen and Bonsdorrff (2003) found that "the presence of trust, respect and support" experienced in the learning environment "creates an atmosphere where learners are free to ask questions, disclose their lack of understanding without fear, clarify any

doubts, which in turn, improves student's learning" (p. 170, as cited by Al Nasseri et al., 2014). These descriptions allude to "positive" relationships for learners, as ones where they can be vulnerable and transparent without fear in their learning process (i.e. admitting and discussing failure, mistakes, fears etc.). However, it is "continuity of patient care and supervision in clerkship that facilitates entrustment which enables learners to take on more central roles in patient care" (p. 890, Walters and Brooks).

Working in an organization where there is alignment of personal and organizational values can "contribute to job satisfaction, trust, organizational commitment and performance" (Adkins and Russell, 1997; Alas, 2009; Cable and DeRue, 2002; Cazier et al., 2006, 2007; Chatman 1989; Liedrka, 1989;Meglino et al., 1989, 1992; Posner and Schmidt, 1993; Valentine et al, 2002; and Watrous et al., 2006, as cited by Posner, 2010, p. 536). However, values that are communicated explicitly by leadership such as through the organization's vision, may not always be the ones that are experienced by all its members. This can create a misalignment or incongruency between what is valued by the organization and what is experienced by its members.

In the context of medical education, the way an organization structures the way healthcare providers operate in order to achieve the healthcare goals communicates what the organization of healthcare values explicitly and implicitly. A misalignment of values can be when the values are not experienced in the way that healthcare is structured, how it is delivered and how it experienced. For example, one value in healthcare is to provide care and communicating "caring" to patients is an important aspect of medicine. However, healthcare providers often are challenged to provide an experience that patients

feel cared for, while also trying to perform highly efficient and time-constrained clinical activities (Evans and Gusburg, 2014). I posit that a challenge for the teacher learner relationship is that learners, have role models who are working within an organization that makes it difficult to communicate "caring" for their education and personal well-being that in turn, can also challenge the learner's perception of their role model. I would also posit that the lack of organizational affordances for communicating caring may stem from structuring the interaction between the work and learning environments in such a way that institutional values of efficiency and productivity overshadow what is valued in positive relationships. Echoed by Dyrbye, Thomas and Shanafelt (2005) "the goal of medical education is to graduate knowledgeable, skillful and professional physicians and the medical school curriculum has been developed to accomplish these ambitions; however, some aspects of training may have unintended negative effects on medical student's mental and emotional health that can undermine these values" (p. 1613). It is likely that the structure of the work and learning environment may be in some scenarios, counterproductive to building positive relationship development.

Affordances as "space" makers

The development of positive relationships cannot depend solely on the student's and clinical teacher's efforts but rather, efforts need affordances or "spaces" in a complex and demanding clinical learning environment to support them. These affordances that support individual efforts may include dedicating time and space within clinical operations in order to invest in the relationship. Other affordances may be the university and clinic or hospital working together to endorse, allocate resources (i.e. educational

materials, training, rooms, professional development etc.) and set up a administrative and clinical systems to balance fulfilling clinical work and learning to ensure these efforts are fruitful. An example of how affordances facilitate the development of relationships is when clerkship models structure continuity of teaching and relationships in longitudinal integrated clerkship models (LICM). With regard to continuity of the relationship, this means that there are consistently structured points of contact between learner and the same teacher affording them to build a relationship over time. The structured continuity in the clerkship model, is an example of when time and "space" are structured for the same teacher and learner pair into the clinic workflow for them by the university and clinic, so they can accomplish the learning goals. Continuity refers to learners having consistently accessible time, space and persons within the clinical environment that have been dedicated to fulfilling teaching and learning purposes in an environment that operates primarily as a work environment. In this way, continuity is an affordance of a work environment to create a learning environment within it. I speculate that creating a positive learning environment within a work environment is important in clinical education because the transition from classroom learning to workplace learning can be challenging for learners.

Structures of medical education and affordances for negative relationships

While LICM's structure relationship development into the way the curriculum is delivered there is evidence from the literature that structural elements such as limited time create varying affordances for frequency of interaction between teachers and learners that contribute to suboptimal learning experiences (Gan and Snell, 2014). Other structures that

did not have an integrated model had reported a lack of supervision, challenging time constraints and when students had less supervision or variability in supervision and support (i.e. a form of interaction) it "impeded their progress to a deeper level of participation in a particular learning space" (Daly et al., 2013). Less supervision and support for students is seen as "benign neglect" – "where learners at lower levels of hierarchies experience being excluded from meaningful learning experiences (Haque and Linderman, 2016) and contributing to unfair assessment, evaluation and unhelpful feedback (Bates, Konkin, Suddards, Dobson and Pratt 2013). Gan and Snell, (2014) investigated medical learners experiences of suboptimal learning environments where they felt mistreated and found that "some voiced feeling mistreated when they were 'disrespected' in their role as students" and this was reported commonly as scenarios when "they were performing work without perceived appropriate supervision or adequate learning opportunities. They labeled the environment as 'exploitative' ". (p. 610)

I would speculate that the lack of affordances for teachers to provide adequate supervision during clinical work can contribute to learners defaulting to perceiving an 'exploitative' environment where they feel they are expected to work but not receive adequate and appropriate learning experiences. While we might consider these suboptimal experiences of learners we also need to consider the challenges of teaching in a clinical environment. In the next section, I will discuss the literature that examines the challenges clinical teachers face when teaching in clinical environments.

Clinical teachers with heavy workload

Stress described by clinical teachers comes from the challenge of balancing effectively the clinical workload while also teaching and mentoring (Roff and McAleer, 2001). One particular focus in the literature is how having a heavy patient load can impact a physician's ability to community empathy. Empathy is critical to both learning and positive patient outcomes but declines as learners progress through medical school because of "mistreatment by superiors, high workload, lack of support and unsuitable learning environments" (Neumann et al., 2011 as cited by Ross, 2016; Sulzer, Feinstein and Wendland, 2016). Empathy is clearly highlighted in the literature to be important for teaching, learning and clinical practice however, some studies have also pointed out that burnout can compromise an individual's ability to communicate empathy (Neuman et al., 2011; Ross, 2016).

Empathy is viewed in the literature as providing two benefits in medical education. One benefit is role-modeling empathy to learners demonstrated by how teachers interact with their colleagues, patients and learners modeling a form of professionalism; a core competency in medicine that has also been correlated with learner's clinical competency (Thomas et al., 2007). The second benefit is it acts to relieve the stress and anxiety for learners in a complex learning environment allowing them to focus on learning (McConnell and Eva, 2012). However, what we do not know in the literature is the role of the environment plays in contributing to or creating barriers to communicating empathy in clinical practice and education. I posit that when individuals are able to interact empathetically, it is because there are affordances for empathetic interaction in the organizational structure. In addition, the presence of these affordances

facilitates the opportunity for the learning environment and work environment goals to be symbiotic.

Learners experience pressure from the environment on their clinical relationships

Within clerkship models, one means of pressure that learners can experience is from the fragmentation of the clerkship year (Bell et al., 2008). Fragmentation refers to clerks navigating a clerkship model that structurally produces a non-cohesive relational dynamic with clinical teachers. Clerks have to navigate: being in placements for short periods of time (i.e. 6-week rotational blocks) (Hauer et al., 2012); the many new places and various proximities to familiar environments (i.e. rural placements) that can be challenging even more so when clerks have too many clinical teachers (Osman, Walling, Mitchell and Alexander, 2015) and having a low frequency of interaction (Osman et al., 2015; Daly et al., 2008). Another example of challenge that leaners encounter in rural clerkship placements (i.e. a new geographical place and social space) is that the previous social supports they had in the place closer to their home community are unavailable or less available because of distance which in turn creates a greater need to feel belonging in the new community (Daly, Roberts, Kumar and Perkins, 2013). Feeling a sense of belonging is important because within a workplace learning environment because when a learner gets the impression from the health professionals that make up the community they have joined, it means the learner feels they have a sense of place within the community means and often feel they can have greater access learning opportunities and support (Bell, Krupat, Fazio, Roberts and Schwartzstein, 2008). There is also a lot of

pressure on the student to integrate well into a workplace environment. Only some models have structured opportunities in place to help with this transition.

Fragmentation of the clerkship year also describes the lack of continuity for interaction among key players in learning for a medical learner. Continuity of education and of clinical care means that there is repeated interaction over a period of time with the same key individual players that include peers, faculty and patients that can help build a strong sense of place and confidence (Bell et al., 2008). During learner's short periods of time such as in block rotations while also in a complex and demanding environment, having less time can mean there is higher priority for accomplishing clinical work and achieving learning objectives and less prioritization for building positive relationships.

Work by Louis (2006) pointed out how trust plays a major role in learning and found that health professionals reported that it is "difficult to learn from your college and share your ideas if you do not believe that you will be treated respectfully or if you fear being judged" (p. 483). A student that is positioned in a vulnerable role as learner within the hierarchy because they depend on clinical teachers to progress through training, there can be a "state of perceived vulnerability or risk that is derived from individuals' uncertainty regarding the motive, intentions and prospective actions of others on whom they depend" (Kramer, 1999, p. 571). Because of the role-based trust where a person of authority within a hierarchy who is expected by others in the organization to trust them (Kramer, 1999), along with trust that is assumed in the practice of medicine of good intent (i.e. Hippocratic oath) this is a challenging dynamic that may have clinical environments relying too much on entitled trust that comes from the professional role in a

hierarchy and not supported structurally through the building of actual trust by cumulative and consistent interaction in each unique relationship (Liao, 2016; Russell 2002).

Although a bold statement to make, unfortunately there may be those in authoritative positions who have abused this type of trust. I would argue that it may take time for the learner to learn that a clinical teacher is genuinely interested in their learning apart from the assumed trust that they have been given in their role as a clinical teacher. I theorized that there may be some structural elements that contribute to the issues around building trust.

In the next Chapter, I will discuss the methods that I used to conduct this project.

Chapter 2 Methods

Contextualization of this research project

This thesis research project is one arm of a larger project that examined Unprofessionalism, Mistreatment and Abuse (UMA) of medical learners at McMaster University. The overarching research question for the UMA project asked: what is the impact of UMA and unproductive behaviour in the clinical learning environment?

Within this research question, dedicated focus was given to understanding: how do medical learners and educators understand what constitutes UMA and unproductive behaviors in the workplace; what barriers do learners encounter to reporting these behaviors and what mediates them; and how does the learning environment arrangement contribute to UMA and unproductive behaviour.

It was this project that provided the theoretical groundwork for developing my research question, choice in methodology and data collection resources.

Introduction to methods

This Chapter details the methodological process that I used to conduct my research.

First, I will give a brief overview of the historical evolution of Grounded Theory methodology, followed by a general description of this methodology and an explanation of why it is best suited for my research question and objectives. In the second part of this chapter, I will discuss a more detailed description of my process for collecting and analyzing data.

For the methodology, I decided to use a constructivist grounded theory (CGT) approach, a recent evolution of grounded theory developed by Kathy Charmaz. Charmaz (2014) points out that this methodology is useful for studying social processes, such as the formation and evolution of relationships. For this reason, it is an appropriate way to study learning processes in workplace environments.

Since the emergence of grounded theory in the 1960's, it has evolved and been refined by multiple scholars who have taken the method in different directions. Classic, Straussian and Constructivist are the three main versions of grounded theory that exist; the most recent development is constructivist (Kenny and Fourie, 2014). Below I detail the evolution of grounded theory to highlight the distinctions between the first version of the theory developed by Barney Glaser and Anselm Strauss and the version I have chosen for this project, Charmaz's constructivist approach.

The evolution of grounded theory

The discipline of sociology held a long and successful history of ethnographic fieldwork and case-study methodologies up until the 1960's, when the rigour of these methods came under question as "quantitative methods gained momentum and dominance—scientific logic, objectivity and truth supported and legitimized reducing qualities of human experience to quantifiable variables" (p. 29, Charmaz, 1996). This dominating paradigm, also known as positivism, is based on a theory of observable reality that assumes reality can be measured empirically. Moreover, it assumes that if one cannot measure a phenomenon empirically then it cannot be validated as a reality. It was because of this view of reality and how an experience is considered real or valid, that the

dominant paradigm implicitly brought into question whether qualitative research methods were capable of validating theories. The goal of positivistic research methods was using empirical measurements to prove or disprove a theory. Sociologists Barney Glaser and Anselm Strauss identified this as a major weakness of the positivist approach and were frustrated with the movement of research methodologies that emphasized verification of a theory, leaving a gap in methodologies for generating theory (Kenny and Fourie, 2014).

While Glaser and Strauss were undertaking the *Awareness of Dying* study in the mid 1960' s (Kenny and Fourie, 2014) grounded theory "emerged from the fruitful collaboration" (Charmaz 1996). They developed a method that used inductive reasoning in tandem with a rigorous, methodical and structured approach inherent to a positivist paradigm (Kenny and Fourie, 2014). This new approach offered a method of qualitative research that appealed to the empiricists and was credible in its own right as a qualitative method able to accomplish something different than the positivist approach (Charmaz, 1996**).**

The theoretical foundation of the methodology

The history of grounded theory highlights that views of reality are important building blocks of methodologies. Glaser and Strauss's grounded theory was founded on a positivist view of reality which claims one single reality or one absolute truth that can be found empirically (Kennedy and Lingard, 2006). Charmaz's (2014) CGT took one more step towards evolving the underlying view of reality to accommodate a view of reality that was co-constructed, emphasizing that individuals make meaning of their experiences in a way which leads to multiple understandings of reality. Today in medical

education, there are similar attempts to build on Charmaz's constructivist grounded theory in order to accommodate more complex constructions of reality such as power structures of organizations (Kennedy and Lingard, 2006).

Why this methodology is appropriate

As a researcher, I understand the Constructivist approach to be more suitable for understanding social processes made up of observable and experienced actions, including capturing how learning is understood by learners and teachers. CGT can be a useful exploratory method to generate a theory to explain how a social process works because it focuses on developing theoretical explanations for social processes, social interactions and experiences (Charmaz, 2014; Kennedy and Lingard, 2006).

A second and more practical distinction between the two versions of grounded theory is that rather than having the researcher participate as an objective observer such as in the Glaser and Strauss's version, in CGT the researcher is included as a participant in the meaning-making process. Reflexivity is an important element of the methods needed to accommodate this change, providing a methodologically rigorous way to gain from the researcher's unique perspective without jeopardizing the views of participants.

With respect to studying a social process such as learning, CGT is appropriate because it views the interaction that occurs between people as a process of co-building knowledge and not necessarily just a transference of knowledge; this resonates with my worldview of the learning process. Using a constructivist lens emphasizes learning as a meaning-making process that the individuals use to make sense of their experiences. This view of learning as a process of making-meaning through interaction is helpful because

"interaction" is deemed as one of the most important components of any learning experience and identified as one of the major components, particularly in distance education (Vrasidas, 2000). Therefore, paying attention to meanings of interaction from the perspectives of those experiencing it makes this a useful lens to examine learning.

One assumption that I make within this view of learning is that learners in the context of medical education make sense of their experiences through interacting with structures of education (i.e. block rotations) and the environment (i.e. community hospital or teaching hospital) in addition to the relationships where they co-construct meaning with (i.e. teacher-learner). The exploratory approach of grounded theory will allow me to generate language used by those who experience these interactions to describe the relationships between the type, frequency, and environmental context of learning interactions. This approach will also allow the perspective and experiences of people to inform how larger social processes and institutional structures are experienced at the individual level and how they shape interaction between individuals.

Now I will discuss the details of the methodology pertaining to more of the practical aspects.

Grounded Theory

Grounded theory is a systematic but flexible set of guidelines for collecting and analyzing qualitative data for the purpose of constructing theory (Charmaz, 2014). It is an iterative methodology where data collection and analysis occur concurrently. This means that the analysis of the initial data collected works to inform subsequent data collection. The researcher does this by allowing the research question, sampling strategies, and data

collection strategies be refined through the process of following theoretically promising narratives in order to move from broad questions to more focused questions (Charmaz, 2014). When we consider the name of the methodology, "grounded" refers to the way the researcher maintains orginiality of and recieves guidance from the data. In other words "grounded" in the data can be done by maintaining as much of the original language of participants as possible throughout the process and choosing to use the data as a way to inform the research process (i.e. data collection and direction of analysis) while also. For example, if participants describe a certain experience using a particular metaphor or continually allude to an unspoken social rule that they feel they need to follow, the language used to describe the experience, the meaning of the metaphor in that particular context or exploring the origins of unspoken rule the participants use can all be opportunities for the research to "follow" the data throughout the research process. Grounded also refers to the researcher making an effort to maintain as much as the original language used by participants to describe their experiences when describing codes (Mills, Bonner and Francis, 2006). Codes are the researcher's description of the data and become the building blocks for the analysis and the first point at which the researcher interprets data.

Constructivist Grounded Theory

The constructivist grounded theory method has unique characteristics and in this research study, I draw upon Kathy Charmaz's constructivist version of grounded theory (CGT). It differs from Glaser and Strauss's objectivist version because it acknowledges the impact of the researcher-participant interaction. "Reflexivity" is the an active

consideration of the reseacher's influence on the interpretation of the data and is practiced by the researcher through various tools such as writing memos, to reflect and consider their own role in the construction of data; "relationality" is the process by which researcher and participant co-create data together, acknowledging the importance of power and trust in this relationship. To address these dynamics, the approach contains methods to practice and document reflexivity and increase awareness of relationality throughout the research process (Hall and Callery, 2001).

Following this section, I discuss how I operationalized Charmaz's version CGT in my study of teacher-learner relationships. From this point on, references to "Grounded Theory", unless otherwise stated as a deviation or   adaptation, refer to Charmaz's description of CGT.

Why constructivist grounded theory is most appropriate for my specific topic

Charmaz (1996) explains that "grounded theory methods are suitable for studying individual processes, interpersonal relations and the reciprocal effects between individuals and larger social processes (i.e. personal experience, identity, emotions, interpersonal co-operation and conflict)" (p. 29). I chose CGT because it lends itself well to studying social phenomena where reality is co-constructed, extending that assumption to understand the researcher as an active participant in the co-construction of meaning. Within the context of the study, co-constructing reality reflects the way learners and teachers interact with each other in the clinical environment and how these interactions contribute to each other's experience of the relationship (i.e. contributing to a positive, challenging or negative experience). The constructivist view of reality has the capacity to

capture the way students and teachers interact and experience the relationship differently, with each perspective contributing to the experiences of the other particularly in the way they co-build trust. For this reason, CGT is the appropriate methodology for my research question exploring learner and teacher's experiences of trust, with the assumption that the building of trust is an interactional process that is experienced differently for each individual and setting.

What are the recommended steps?

The methodology of CGT is a constellation of data collection and analytic methods that are not necessarily conducted in a linear fashion. There are five central principles to CGT design that include: *theoretical sensitivity, theoretical sampling, coding, memoing* and sorting with the use of a *constant comparative approach* throughout (Brown, 2006). Research conducted according to these principles follows a semi-linear and cyclical structure that includes: 1) asking open-ended questions; 2) exploring participants' experience through interviews; 3) initial coding; 4) memo writing; 5) focused coding; 6) finding reoccurring statements that show theoretical potential, 7) creating and developing tentative categories; 8) identifying theoretical direction; 9) conducting follow up interviews for theoretical sampling; 10) defining theoretical centrality and assessing theoretical adequacy (Charmaz, 2014, Fig. 4.1 adapted).

A researcher begins with developing a broad research question oriented to examine a process or action and then selects participants. If the research question is well defined, then selective sampling can be employed. Selective sampling is a calculated decision of who and where to sample (Hentz Becker, 1993). As data is collected and the researcher

begins to formulate a theory, sampling participants based on what participants would provide experiences that would help develop the theory are sampled. This is known as theoretical sampling.

To collect data, the researcher may choose to use interviews, documents, observation or a combination of these as a format to investigate the experiences of participants. While many other methods conduct analysis after data collection, grounded theory analysis begins as data is collected. Data collection methods such as an interview, are tweaked to accommodate collecting data with more depth. The researcher may ask questions that were highlighted in previous rounds of data collection. Data collection ends when no new concepts or ideas are brought up in participant data coding. The coding process highlighted by Charmaz (2014) works to help the researcher then build a theory to explain the process being examined (Charmaz, 2014).

Memoing

Memoing is an important and ongoing practice for CGT methods that consists of recording detailed reflective notes or "memos". Memos are the researcher's theoretical "play-space" to engage with and make sense of the data throughout the research process. More specifically, they help the researcher develop ideas because it documents the comparisons they make between descriptions of codes such as articulating how one code may be different, the same or in a grey area along with the implications of these comparisons (Charmaz, 2014). For example, if the researcher has certain ideas about a code but finds an example that challenges their ideas about a code, the memo is the place

to record how it changes the researcher's thinking and how it might shape future data-gathering.

Charmaz (2014) recommends documenting observations, thoughts, reflections and scenarios in the form of a memo throughout the research process but especially during the data collection. Writing memos is a way to capture the analytic process of the researcher. This is because as a researcher makes decisions about what they see in the data, the decisions and observations need to be supported by careful documentation to capture how the data informs the analytic process. Documenting the questions, observations, surprises, connections, or challenging examples that the researcher draws out of the data can help highlight how the data and researcher shaped the research process.

Theoretical sampling

Theoretical sampling means that the study sample is not determined before starting data collection. Instead, data is selected purposefully to contribute to emerging theoretical insights (Kennedy and Lingard, 2006). Theoretical sampling means sampling participants who show promise of providing rich data that will help further develop theoretical concepts of interest (Draucker et al., 2007). The aim of theoretical sampling is to develop the properties of the categories (Charmaz, 2014) and aid in theory construction (Charmaz, 1998) however, it can only be used after preliminary data is collected.

For example, during the initial stages of data collection, the researcher may start with convenience sampling or maximum variation sampling to encourage a diverse and rich data sample that can be later refined and focused through theoretical sampling. This is done so that sampling is not based on the researcher's previous assumptions about ideal

participants or data sources and includes a more diverse source. It also is done this way so that sampling and data collection can be done simultaneously with data analysis which would be difficult if the data was collected all at once. A researcher may choose to conduct convenience sampling and sample whichever participants are most available. This approach to sampling helps direct theoretical sampling by helping further solidify what concepts are key to the research question that are used to help direct which participants would provide more in depth understanding of the theoretical concepts of interest.

Coding

Grounded theory recommends a staged coding process, where the analyst returns to the data multiple times, coding in progressively theoretical ways (Charmaz, 2014) but coding can be operationalized in many ways. A code is a written description of a section of the data created by the analyst. For example, a participant might describe an experience working in emergency medicine and say, "I found the fast-paced environment challenging to learn in". To code this, the researcher would highlight this one sentence and name it to describe what is happening (i.e. learning in emergency environments). The description itself is the code.

Some analysts prefer to code by hand, others use simple word processing software to manage their codes, and others prefer purpose-build qualitative computer software. There are many examples of software for the management of qualitative data, such as N-Vivo, DeDoose, Atlas Ti and Hyper Research. I decided to use N-vivo software to conduct my coding because it is an appropriate software for qualitative research. This is because it has

the capacity to organize named sections of data that are generated into a code which can be organized within a hierarchy. The software also can run data analysis and produce basic visual representations of relationships with the data that are helpful for developing broad relationships (i.e. word tree) and compare coding to other researchers who collaborate on the same project (i.e. triangulation).

Initial Coding

The first stage of coding in grounded theory is the initial or "open coding". Open coding is when the researcher generates a brief description of the data, known as a code, from a broad perspective or "high-level" (Charmaz, 2014). The overall purpose of initial coding is for the researcher to pay attention to as many possibilities within the data while summarizing and condensing it. It is done by naming each line of data focusing on using action words to describe what is happening in the data. Charmaz (2014) encourages the researcher to do initial coding quickly and to focus on describing actions. This approach helps the researcher: a) stay close to the originality of the data; b) avoid inputting personal motives, fears or unresolved personal issues (Charmaz, 1996) and deter from interpreting deeper meanings and reflecting these in the descriptions (Charmaz, 2014) and; c) formulate a theory which explains a phenomenon of social interaction.

In Vivo Coding

InVivo coding is a term used to describe a type of coding, that is used in the software Nvivo ©. InVivo are codes of words or phrases in the data that participants use as common expressions that are unique to their context. These codes represent the discourse unique to a particular social setting that participants are active in. Coding In vivo means

creating a code using the same word (s) the participant used, to name the code. This is one way the researcher can maintain the original language. Coding exact words or phrases also brings nuance to data analysis and ways to consider a complex social phenomena based on the descriptions of those who experience it. It also helps with what Charmaz (2014) describes as "staying close" to or "staying grounded" in the data by using the words of participants and can provide insight into how participants are similar and how they are unique in their perspectives. Böhm (2004) says that in-vivo codes are "interpretations of the phenomenon in question made by the producers of the data" which another way is to have an analysis of the experiences shared, represented by the people who experienced them.

Focused Coding

After initial coding, the researcher can move to focused coding. Focused coding is selecting certain codes that point to central theoretical concepts which are formed during initial coding and are now deemed to have greater significance because they have potential to move towards the development of a theory (Charmaz, 1996). Moving a code to the level of a category requires the researcher to treat it more conceptually and analytically (Charmaz, 1996). The transition from initial coding to focused coding involves a great deal of reflexivity and analytic work—often done through considering its potential to explicate properties, characteristics and or features (Charmaz, 1996)—in order to see evidence in the data that it can be moved in this direction. Reflexivity refers to "an awareness of the ways in which the researcher as an individual with a particular

social identity and background has an impact on the research process" (Robson, 2002, p. 22 as cited by McGhee, Marland and Atkinson, 2007).

The two main purposes of initial coding are to expand the data and help generate as many avenues of analytic direction to take. I moved from initial coding to focused coding when I had identified a central idea that, while common across many sources of evidence, seemed presented as fragmented in the data. Moving from initial coding to focused coding provided an opportunity to refine these connections by looking specifically at that idea across multiple pieces of data. This transition was evident in my process when I had identified a central body idea that had come through vividly in the data and I had coded a large sample of example of scenarios that demonstrate it as a concept though I did not understand how it all worked together. The most obvious indicator was when I heard participants continually point out a specific characteristic of the learning environment that they attributed to be extremely influential on their experience. However, as the researcher, it seemed unclear to me of how this characteristic worked to be extremely influential. Based on this string of ideas that were connected to the influential characteristic participants had identified, I attempted to analytically organize potential categories by drafting diagrams to consider what types of relationships existed between the fragments in the data that I had identified as significant. From these relationships, I created a broad framework based on the theoretical concepts of interest and provided this framework to a McMaster medical learner who was hired to help assist with recruitment and data analysis. This coding framework that we used to conduct focused coding is provided in **Appendix A**. I later compared our focused codes, contrasting examples that

each of us shared and any theme or idea that became the focus of our phone discussions in memos, tables and reflections. These memos captured examples for the constant comparison stage of analysis discussed in the next section.

Constant comparison

Constant comparison is a key tenet in CGT (Charmaz, 2014). Comparison refers to contrasting the similarities and differences among incidents that illustrate theoretical concepts and is the analytical work undertaken to help refine, expand or challenge emerging theories (Kennedy and Lingard, 2006). The research can use empirical indicators such as actions and events in the data, looking for similarities and differences between them to help sharpen the definition of a category (Draucker et al., 2007).

I operationalized constant comparison in two ways. The first was while coding, I took note of extreme or contrasting events or events that also challenged my assumptions about my evolving theory. For example, I compared between participants (i.e. teacher and learner perspectives) of similar accounts (i.e. working in the operating room) and considered what type of environment (i.e. community versus teaching hospital). Second, I had bi-weekly meetings with a medical student hired to assist me with analysis, where we spent time over the phone comparing our coding, major themes and the examples that stood out to us. I also spent time reflecting and recording any thoughts pertaining to any assumptions we may have been making as a researcher and as a medical learner. After each discussion with the medical student, I took time to reflect on what themes examples and concepts stood out in our conversation and asked myself questions regarding why they might have stood out to me and why they may have stood out to the medical student.

I used these notes to record how certain examples challenged confirmed or made more complex our previous assumptions regarding the theory we were trying to develop.

What are the recommendations for achieving high quality research?

To achieve high quality research there must be rigor demonstrated throughout the research process. Rigor describes the systematic practices in research methods to increase the validity and credibility of the process and the findings. There are many different versions as to what constitutes rigor in qualitative research, reflecting the broad variety of approaches and perspectives in the field (Majid and Vanstone, 2018). For this project, I have chosen to use Cooney's criteria for rigor. Cooney (2011) expresses each criterion in the format of a question to evoke reflection and facilitate the use of evidence to support answering these questions. This strategy is helpful for a novice researcher.

Cooney (2011) provides a broad description of criteria to measure the level of rigor in qualitative research: credibility, auditability and fittingness (Cooney, 2011). Credibility refers to evaluating how trustworthy the process is and the interpretation of the data into theory. Auditability refers to what extent the research process has been documented to demonstrate the chosen methodology has been followed. Fittingness refers to the extent to which the findings of the research are transferrable in a meaningful way to similar contexts (Beck, 1993, as cited by Cooney, 2011).

With respect to how each of these were operationalized, credibility was practiced by using the systematic approach to data analysis described by Charmaz (2014) and a detailed record of my observations at every stage of the research project. In addition to these practices, having a medical student work with me as a research assistant to help

facilitate reflective dialogue when working on the analysis also helped me accomplish this criteria. This helped me to challenge my own assumptions that I may have been making about the evolving theory or the medical student could provide background information that was not explicitly communicated in the transcripts but was key to understanding the experience of medical learners.

Audibility was operationalized through the recording of analytic memos, using analytic software *Nvivo* that recorded my data analysis process and by recording meeting minutes of the phone conversations I had with the medical student research assistant (R. Bihun).The last criteria will be discussed in my Chapter 4 Discussion as to how these findings are meaningful and transferrable to similar contexts.

Methods

The research question

In the beginning of the project my research question was broad in scope and asked: how does the structure of the clinical environment shape the medical learner-clinical teacher relationship? As I progressed in the data analysis and generated a theory, the research question evolved into asking: how does the medical learner-clinical teacher relationship shape the learner's perception of the clinical environment? This suggests that while the initial exploration of the structures of the clinical environment and their influence on relationships, that those in higher positions of authority have influence on how an environment is percieved and experienced by learners.

Participants

There were two types of eligible participants: medical learners and educators. The criteria that I used to determine who was eligible is provided in the next section.

Inclusion and exclusion criteria

The following descriptions include the criteria we used to define what participants could be included in the study.

Medical learners

These participants included those students who are currently enrolled in the undergraduate MD program and those who have been enrolled at McMaster within the last five years. Students who were previously enrolled that dropped out, transferred or graduated were all eligible. Undergraduate medical students were recruited from the three campuses of the Michael G. DeGroote School of Medicine (i.e. Hamilton, Waterloo regional and Niagara regional). These students include those who have some experience and relationships with clinical teachers. Students early in their course of study would have had most of their experiences within the classroom while others in their later years (during and post clerkship) would have encountered clinical teachers in their placement in community hospitals or clinics, and at other academic medical centers that may be in another city.

Medical educators

These participants were those who interacted closely with McMaster medical learners as a clinical teacher that include: those who are practicing physicians with a McMaster clinical faculty appointment; community physician clinical teachers; residents who are working within a clinical teaching capacity with clerks; and other health care

professionals who perceive themselves to be in a clinical teaching role with McMaster medical learners.

Sampling and Recruitment

How I employed convenience and theoretical sampling

The project began with a convenience sample and later employed theoretical sampling. Convenience sampling involved participants being collected from the networks already established through the McMaster medical education community. I analyzed the initial data as it was collected, leading to specific theoretical insights which we followed up with purposeful sampling. This process informed the next set of participants who may have shared experiences that with further exploration could reveal some interesting insight into the emerging trends or areas of interest. Strategies for purposive sampling included using my own and my committee's professional networks to find participants who teach in surgical settings in order to test the evolving theory. Testing involved taking scenarios that were key to my evolving theory before purposive sampling and finding participants that might have had experiences that would challenge the evolving theory.

CGT recommends that theoretical sampling is making sampling decisions regarding participants, directed by the ideas which are evolving as the main theoretical constructs of interest (Draucker, Martsolf, Ross and Rusk, 2007). In my study, theoretical sampling began after I had noticed hierarchy was a common descriptor in experiences of negative learning environments and relationships. This observation in the data helped direct the decision to focus the next wave of recruitment on teachers in surgical specialties. In initial data analysis I had identified the operating room as theoretically important, but mainly

described by learner participants. Learners identified surgical environments as negative learning environments likely to result in challenging relationships with clinical teachers in surgical rotations. From here with my committee, I worked to focus recruitment through their professional networks and my own, in order to recruit clinical teachers who, teach in a surgical context.

How I recruited

Students

Medical learners were recruited through e-mails from their program office and through online advertisements. Online advertisements are included in supplementary documents in the **Appendix B**. Potential participants were directed to contact Emily Block (the lead researcher for the thesis project), who is not a physician and not affiliated with the student's evaluation, career trajectory etc. Names of potential and secured participants were never accessible to physician members of the research team. Recruitment materials specifically invited learners who had varying experiences with clinical teacher relationships. We included any learner who had started clerkship. At McMaster, clerkship starts at month 15 in the undergraduate program.

Teachers

Medical educators and professionals were contacted through professional networks of my own, Dr. Karl Stobbe and Dr. Allyn Walsh's by e-mail. E-mail addresses were derived from professional networks through the greater McMaster community that were publicly available. We also asked education programs to circulate our recruitment notice to current educators.

How I started recruiting and how it evolved

I recruited participants until theoretical saturation was reached. Theoretical saturation was reached when all themes reoccurred in the data and new interviews stopped producing new theoretical ideas to support the developing theory (Charmaz, 2014). We reached saturation with a total sample of 29, including 19 of medical learners and 10 teachers.

Data Collection

Data was gathered by conducting individual semi-structured interviews. All activities that involved data collection with learners were either conducted in person or by phone by me or another interviewer who was not a health professional. Sample interview guides for learners and educators are included as **Appendix C**. Interview guides evolved as data collection progressed and analysis indicated concepts to pursue that were of theoretical interest during theoretical sampling.

For ethical reasons, it was important to preserve the confidentiality of medical learners from those who have influence over their evaluation or career trajectory. For this reason, interviews were conducted by those who were neither a physicians nor in a position of authority with medical learners. Interviews were de-identified when they were transcribed.

How data was collected from participant interviews

I used semi-structured interviews with participants to collect data. Interviews were conducted in a quiet, private space that was mutually convenient for the participant and the interviewer. This included the participant's office, a quiet room on campus, at a

hospital, or clinic. Interviews were also conducted over the phone, if this was preferred by the participant. After verbal or written consent was obtained, interviews were recorded over the phone or in-person using a voice recorder and sent securely to a professional transcription company who transcribed the interviews verbatim. I read over each transcript, removing any remaining information that could be identifying.

How I designed my interview guide and how it evolved throughout the project

CGT recommends an iterative approach to data collection and analysis which also informs the evolution of interview guides. Before creating my own interview guide, I had the opportunity to interview participants in the UMA project using a different set of interview questions that I did not design. Even though the focus of the project was different, there was a common element regarding relationships between teachers and learners. When a participant mentioned in these interviews anything regarding positive or challenging relationships with teachers or learning environment, I recorded these observations in a memo to inform what questions I may want to include in my interview guide. Once I had determined that there were some core ideas, concepts and the beginnings of a theory to explain my research question, I refined my interview guide to ask very specific questions pertaining to these concepts.

I operationalized this in my first wave of interviews, by asking broad and general questions in the interview guide (i.e. could you please tell me about a positive experience with a teacher during a particular rotation that you had during clerkship). In the memo for each interview, I recorded any interesting responses, scenarios or phrases participants

shared that stood out to me. I then designed two unique but similar interview guides for: 1) learner participants and; 2) clinical teacher participants. For example, I asked both types of participants about positive or challenging experiences working together but only in the teacher interview guide did I include questions that inquired about teaching context to capture some of the contextual information that impacts how a teacher may interact with a learner.

Data Analysis

My analytical strategies were based on grounded theory (Charmaz, 2014); they included a staged coding strategy consisting of line-by-line coding, focused coding and theoretical coding. This approach facilitated constant comparison analysis where the data is analyzed both descriptively, in an attempt to stay close to the data and interpretively. Categories and themes were identified at each stage of coding and be compared, contrasted and re-grouped. Data analysis proceeds concurrently with data collection, with analytical insights that work to inform the direction of future data collection.

How I analyzed the data

My analysis began for interviews with participants #001-007 from the Mistreatment and Abuse project that I conducted as the research assistant. I wrote memos and reflected on how participants highlighted broad questions to include in my interview guide while also considering specific questions and how did my research question relate to the Mistreatment and Abuse project.

I did initial coding for any specific mentions of the learning environment, positive or challenging relationships between learners and teachers. For interviews 008, 010, 017,

022, 026, 027, 028, 029 and 031 I used my own interview guide that evolved to help me generate a framework of concepts. Interviews 022, 026, 028, 029, 031 were conducted using a more refined interview guide as other interviews for the mistreatment and abuse project were conducted, I continued to perform initial coding until there were obvious and reoccurring themes that pointed to the beginnings of a more clearly defined theory.

For the actual analysis for each coding session involved I used N-Vivo software which help organize my coding and provide tools to run some aspects of data analysis. In N-Vivo I conducted the following process for initial coding: 1) line-by-line coding taking handwritten notes on reoccurring events, phrases used by participants (i.e. in vivo codes) in my memos; 2) talking through my ideas with my supervisor and sketching diagrams (i.e. flow charts, mind maps, lists and visual metaphors, N-Vivo tree diagrams based on relationships with certain words) to lay out how certain codes were connected (see appendices); 3) attempting to put my thoughts in a logical order so that I could present my analytical work to my colleagues, which helped me clearly articulate the analytic relationships between ideas and concepts by highlight gaps in my rationale, assumptions or bringing attention to the need for stronger evidence from the data to support them. Once I had found that no new ideas emerged from these interviews, I decided on the "analytic story" I was going to tell and developed a framework as to which codes to begin applying focused coding.

The analysis for focused coding involved the following process: 1) using the framework consisting of broad codes I began describing line-by-line large sections of data that had been put into these broad codes (i.e. within parent node → "Positive

relationships" → child node "relational dynamics"). The nodes that came from the child node helped explain the evolving theory.

I spent time writing extensive memos to help articulate how these codes related to each other, highlighted specific examples that demonstrated my theory and attempted to sketch out these relationships in diagrams to further develop the analysis (see **Appendix D**).

The way I operationalized memoing was by systematically organizing how I would document my thoughts at specific points in the research process. I recorded my thoughts following each interview and series of interviews; each coding session or a series of coding sessions; and when comparing codes or ideas about theories. I created folders to organize these memos and attempted to use a consistent naming process for each memo (i.e. interview name, date, initial reactions, reflections, questions that came up etc.). The purpose that these memos served included: documenting the preliminary analysis; recording other thoughts or questions that came to mind while interviewing in addition to specifics about the data; keeping track of thoughts to inform later analysis; and developing categories or revealing theoretical questions. Memos are also written to reflect on any analytically interesting theme that became prominent as well as any explicit or implicit social expectations highlighted by the participants. Recording these observations documents an iteration of how the researcher thinks these phenomenon occurs based on what data supported that theme under observation for the theory development.

Who was involved in the analysis

I led the analysis while receiving input from a current medical student (R. Bihun), my supervisor (M. Vanstone), and my committee members (A. Walsh, K. Stobbe). Together we represented both learner and teacher perspectives as well as physicians, physician trainees, and researchers. As the primary analyst, I coordinated the input of the other team members. I shared analytic work with my supervisor during bi-weekly meetings where we discussed the data and decided on the next analytic steps. I provided an orientation for the medical student with respect to the process of coding and delegated particular analytic tasks. We held bi-weekly phone meetings to discuss and compare our coding work. I presented findings to my committee and collected input from them at several stages in the analytic process. I also presented a preliminary analysis to a group of qualitative research trainees in my supervisor's lab group. The discussion after this presentation was thoughtful and stimulated interesting reflections on my analysis. These colleagues came from different disciplines and provided different perspectives that provoked new ways for me to consider the data.

In the next chapter I will share my results and analysis.

Chapter 3 Results

The Theory of Co-Navigation

Our analysis generated a theory which describes the way the clinical environment shapes learner-teacher relationships during clerkship. Using the metaphor of co-navigation, we describe how teachers and learners get to know and form opinions about their working relationship. The relationship builds on the foundation of these initial impressions (positive, negative, or neutral) and without disruption, will continue to grow in that direction. Positive relationships are characterized as ones that adopt a "co-navigation" approach to clinical learning and teaching and as a result, build trust and increase familiarity.

The metaphor of navigation is a useful one because it draws attention to the learner's position as an explorer, venturing into new and uncertain territory. As the journey progresses, the challenges and opportunities encountered may elicit feelings of excitement, curiosity, or fear from the learner. The journey may challenge their skill set and confidence in their ability and their teacher's ability to navigate, ideally building both as they successfully surmount challenges. In this metaphor, the teacher is a traveller accompanying the explorer. The role the teacher plays here can vary significantly. They can be a guide, offering resources and advice. They can act as an obstacle themselves, presenting additional challenges to forward movement. They can be a more neutral presence, offering neither assistance nor obstruction. The role of the teacher may vary or be unpredictable, which can also be a challenge to the student who may not know what to expect when they seek help or support.

By building a strong and trusting relationship, the teacher and learner can rely upon each other to meet their individual and shared goals of learning and patient care. The theory of Co-Navigation describes the way that learners and teachers work together to navigate the challenges of learning in the clinical environment. It describes the way that the environment can shape the learner's perception of trust in their teacher. It suggests an approach to relationship-building which does not assume that trust is not always built in a linear fashion or gradually over time. Instead, this theory recognizes the transitory nature of teacher-learner relationships, recognizing that initial opportunities to build trust can have particular significance, and if not realized, may be harmful to future trust-building. The theory of Co-Navigation highlights particular opportunities for trust-building, identified by learners and teachers, making explicit the importance of capitalizing on these opportunities as they present themselves.

The opportunities for teachers and learners to build trust described in this theory are important because they are ubiquitous across clinical learning environments, presenting teachers and learners a strong basis for comparison with previous relationships. Learners and teachers can anticipate encountering four opportunities within each individual relationship. These opportunities are: *preparing to working together, engaging in clinical work, asking questions and making mistakes.*

Preparing to Work Together

For teachers and learners, taking time for introductions and planning out the work is important for establishing a strong relationship. This introduction serves to initiate educational planning through sharing mutual expectations and personal information that

acts as context to inform what may be meaningful learning opportunities. This introduction is valuable for relationships, especially those of short duration, as it acts like a map, helping each party co-navigate the challenges they will encounter together.

In this study when learners were asked to describe a positive relationship with a teacher, each person mentioned some form of a plan for working together. Typically, the teacher used this introduction to help the learner become familiar with the environment, to share expectations, and to make a plan to meet those expectations: "[my teacher] gave me a quick tour of the clinic and showed me where everything was. Then we sort of sat down and we discussed what my objectives were and how she wanted to run things I guess and sort of ran those by me and asked how I felt about those" [participant 027 medical learner]. In contrast, when asked to describe a negative relationship, learners often remarked on the lack of an opportunity for an initial introduction or plan to work together: "I was just supposed to show up and find him" [participant 017].

Learners appreciated when teachers indicated interest in their learning objectives: "sometimes they can just be asking what stage of training you're in, what you know and what you don't already know. Or what you're interested in and how they can tailor your clinical experience to what you're ultimately interested in as well" [participant 026 medical learner].

Participants described these initial introductions as both formal and informal, depending on the rotation. They included both staff physicians and more senior learners. Participant 014 [medical learner] recounts an orientation to the clinic in the second year of their clerkship medical education:

Instead of just throwing us in feet first in to the service, the first day we actually had a one day sit down orientation where the four clerks and then the one third year medical learner did a full introduction to the program, like, what was expected of us, how the day was organized, took us through a newborn exam, we practiced a history and physical and the things that they look for in history and physical in [type of specialty] patients.

Since the clerk is accountable to different clinical teachers, including all types of clinical teachers (staff and senior learners) in preparing to work with clerks may be helpful for learners because teachers often have different sets of expectations. Teachers who will be working with a learner can talk through their expectation with the other teachers while preparing to work with the learner. Having all the teachers who are working with the learner voice their expectations of the learner and other teachers may mitigate potential frustration from having contradicting expectations of them. Participant 014 describes how the staff and resident teacher had voiced different expectations regarding the learner's start time and whether they had to write a note or not after seeing a patient:

I asked if I had to write a note and [the clinical teacher] said, no, no, don't write a note, we'll just chat when I meet you, just show up at 9:00 and do all that I'll meet you at 11:00. And then when the resident started, she was like, okay, well, we'll meet at 8:00, and I'd say, okay, that's fine. And then when we met at 8:00, she was a little bit, like, I could just tell in her voice that she was a little bit taken aback that I hadn't been starting at 8:00 the few days prior and that I hadn't been

writing notes on the patients. I wouldn't say she chastised me, but she definitely took some time to inform me the way things are done according to the resident which is different than what I'd heard from the staff.

Participant 014 explained that having different expectations of her impacted her relationship with the resident teacher: "I kind of started off, maybe, on the wrong foot with this resident, so for the rest of the time that I was with her, I did feel a little bit less comfortable with her than I did feel with the other doctor. So, maybe I didn't access the same learning opportunities that I could have accessed with her."

Setting expectations happens while preparing to work together and is established throughout the learning relationship as they are re-visited. It may be important to re-visit the expectations shared while preparing to work together if the learner engages in new and unfamiliar tasks. Returning to a conversation about expectations and a plan for success helps to establish the learner's comfort because they feel supported by their teacher:

The second day of clerkship we did a shoulder injection and I not only never done a shoulder injection, I never even given like a vaccine kind of injection. So I was a little uncomfortable at first, but in preparation of that she told me we'd be doing it the next day. She told me to find some resources and read about it and then she also sort of spent the time to demonstrate one and then for the person's other shoulder had me do it after watching. She was sort of present and observing the whole time [participant 027 medical learner].

This data suggests that the work that teachers and learners do to prepare to work together is important for several reasons. It is the first step towards establishing a relationship built on trust and communication, where each individual has the opportunity to communicate their priorities and commitment to working together. It creates a pattern of accountability and open communication that may encourage each individual to re-open the conversation if they feel they have strayed or may be in danger of straying from initial plans or intentions. Finally, it establishes a relationship of mutual respect and concern, which may be especially important for learners who may experience significant discomfort as they are continually faced with new challenges and being in a lower position within the hierarchy. Understanding that the teacher is invested in their learning and willing to support them can create a strong foundation for this new work.

Engaging in Clinical Work

Preparing to work together helps to instil the learner's confidence in the consistency between their teacher's intentions and actions; this is how teachers and learners build trust. Preparing to work together helps teacher and learner define a shared goal of accomplishing clinical work that also permits the learner to contribute to patient care while learning. By defining these goals before engaging in clinical work, it presents the opportunity for the teacher to further solidify.

When the teacher provides opportunities for clinical work which are meaningful to the learner, the learner may understand this to demonstrate the teacher's engagement in the learner's development.

When learner participants talked about solidifying trust through clinical work, they emphasized the work they were engaged in felt like an access to a learning opportunity. Those who discussed clinical work as failing to solidify trust were more likely to characterize that clinical work as menial "scut work". Here, "scut work" refers to tasks which the learner perceives do not require medical expertise or as an opportunity to develop as a clinician: "in terms of scut work, I guess I see it as something that doesn't really contribute to your learning as much" [participant 026 medical learner]. Learners typically understood scut work as necessary, but not meaningful: "[scut work] needs to be done and as the lowest person on the ladder that you do. For example, just printing out the lists every day in the morning before you round on patients. That's something that has to be done, but that doesn't really add anything of value" [participant 026 medical learner]. In contrast to their description of scut work, valued clinical work was work in which learners identified as opportunities to 1) further their learning objectives or development as a clinician and 2) contribute to clinical care operations:

> An example of non-scut work is that we're given four patients, and we're responsible for them in terms of looking up their blood work, interpreting the results, coming up with a plan, or noticing changes. And given that responsibility to say, what's going on here, what do we think is contributing, and have a more intellectual process in terms of diagnosing, assessing, and re-evaluating patients [participant 026 medical learner].

Learners do not always independently perceive the potential to learn and contribute in the tasks they perform and so teachers can play a role in explaining how a

learner is contributing to clinical work and what they can learn from it. Helping learners identify value by describing their task as it fits into the larger clinical goals or it's importance (i.e. the learner is keeping the patient's heart pumping and that is keeping the patient alive) in the tasks they are given, is the teacher ascribing value. Ascribing value is a tactic many teachers used to solidify trust. Teachers demonstrate to learners they understand the learner's learning objectives by finding and explaining how the opportunities they give them in the clinical setting can help the learner achieve their learning objectives. Ascribing value to clinical tasks is also an explicit way that teachers communicate their efforts to learners who may not know them well, and may be looking for evidence that the teacher genuinely cares about their learning and development. Ascribing value often times require the teacher to be attentive to how learners are experiencing the clinical work and help give meaning to some scenarios where engaging in certain tasks may be perceived by the learner to have less value:

 Depending on how you approach a subject, it could be perceived a number of different ways. I think that part of your job as a teacher is to read the room, read your student, and see how they're perceiving it…whether they're rolling their eyes, oh, I don't get to run this code, I have to do chest compressions [participant 035 clinical teacher].

Learner perceptions about the learning value and the clinical relevance or importance of a task is strongly influenced by how the teacher engages the learner. One learner describes a clinical environment in which they did not identify value of or feel engaged in their clinical task:

The general surgery example where you're rounding and the physician assistant or the resident is inspecting the patients and then they just call out what they notice to you and you're responsible for writing it. And to me, there's no intellectual process that actually contributes to your learning there. You're literally just copying out what the other person had said … to be fair, there can be an aspect of learning to it if they're letting you do the physical exam and they're asking you what you think and then you write it down. But I think that's rare. That rarely happens [participant 026 medical learner].

Another participant describes how a teacher effectively engaged them during a similar clinical task: "When we're doing rounds, for example, if a staff actually asks, you know, [Name], what did you think about that? What do you have to contribute? What do you think we should do? I think that makes a big difference" [participant 037 medical learner].

In describing meaningful clinical work, learner participants make clear that they are not after unlimited independence, autonomy, and maximal potential for making clinical decisions. Discomfort and anxiety arises when learners perceive the assigned clinical work to be beyond their ability and comfort levels. Just as there is a role for teachers to ascribe meaning and importance to menial tasks, there is also a role for teachers to ascertain the level of independence a learner is ready for, and provide a corresponding level of support: "It's hard to judge as a student I guess where you really are and you sort of trust that your teacher has a good idea of where that line is and being

comfortable with how much they push the learner I guess" [participant 027 medical learner].

The key aspect of these findings is that the type of clinical task the learner is performing is less important than the work the teacher does to support the learner in both identifying and realizing the educational value. The work a teacher does to ascribe value to a clinical task is often visible to learners, who view these efforts as evidence the teacher cares about the student's learning: "teachers who do care, will do the extra work for good learning experiences and those who do not care, won't bother" [participant 005 medical learner]. Beyond the opportunity to learn, learners also value the opportunity to contribute to the team. An experienced clinical teacher explained their efforts to create a sense of belonging through a learner's contribution to the team: "I want them to feel like they belong there, they're helping, and they are, and they're benefiting. And that's where if you don't do that and you kind of marginalize them, they just feel like you're wasting their time" [participant 025 clinical teacher]. One teacher shares his strategy for highlighting the importance of tasks which may not seem to have significant learning value but are vital for clinical care by recounting his response to a medical student who rolled their eyes at a request to do chest compressions:

> Well, you know what, everyone does chest compressions at some point because that's how you keep someone alive. I will talk to the … pull the med students aside now, and give them a pep talk and say, look, the three of you, you two medical students and you nursing student, you guys are going to be this person's heart, until the heart decides that it's not on vacation anymore. You literally are

pumping blood and oxygen to this person's brain, if you stop, this person dies. Can you get behind that? They're now super motivated. [participant 035 teacher]

In this section on engaging in clinical work, I highlighted the opportunities for building trust when teachers demonstrate their engagement in the learner's success by providing meaningful opportunities to engage in clinical work. The identification and contextualization of meaningful activities is facilitated when the teacher is aware of the learner's learning objectives and the learner understands the teachers is invested in their success, as described in the first section, *Preparing to Work Together*. Often, engaging the learner means creating opportunities for intellectual engagement within the clinical task. In the next section, I will discuss the particular strategy of asking questions as an opportunity to solidify and dissolve trust.

Asking questions

In the clinical setting, asking questions is an inherent part of teaching and learning. In our data, learner participants focused on describing instances in which teachers questioned them in a way that dissolved trust. In contrast, teacher participants talked most frequently about asking questions as a means of solidifying trust with learners; a way to appraise the learner's knowledge and develop comfort in the learner's likelihood of seeking help when needed. Occurring relatively infrequently in our data were discussions of learners asking teachers questions to access assistance, clarify instructions, or add to knowledge; we interpret this to mean that learners do not perceive this as a significant solidifying-trust or trust-dissolving activity.

A small number of learners talked about teachers solidifying trust through predictable responses to learner questions. Typically, this meant that the learner was not afraid of the teacher reacting negatively if the learner asked a question to clarify instructions or gather knowledge. Participant 027 characterized these teachers as "open", describing working with this type of teacher as removing one potential source of stress, "reducing pressure that's not related to the actual learning" [Participant 027 medical student]. This description of the teacher's behaviour as being an added source of stress in the learning environment was consistent with many other learners who feared being "put on the spot" [participant 014 medical learner] when teachers would ask them questions which the learner understood were designed to make them intentionally uncomfortable.

Teachers described a very specific function for asking learners questions: investigating the learner's thought process during a patient encounter to both gather information about the patient, and assess the learner's knowledge, ability, and progress in order to offer feedback or teaching at an individualized level. One teacher describes the educational value in reviewing a complex case with a learner:

> "I was able to ask a lot of questions and understood how she felt in the encounter and what her ideas were and why she made some of the decisions she did about how she handled it. I think I was able to stimulate her thinking and help her consider other perspectives and kind of maybe gently help her expand her thinking about some of the key issues and approaches " [participant 032 clinical teacher].

For this teacher, asking questions also served to solidify trust in the learner's ability to work independently in an appropriate way: "the ability to [move towards independence]

really does hinge on trust that they're going to be able to self-identify the important times that there are gaps or that there should be questions or check-in " [participant 032 clinical teacher].

There were learner participants described another approach to question-asking who recounted stories of teachers asking questions that they perceived to have had no clear connection or relevance to the current clinical task or learning objectives. Sometimes described as "pimping", learners were clear to mark these as irrelevant and as acutely trust-dissolving behaviour:

> He started pimping me, asking me questions about things that, personally, I didn't feel were, I don't know, relevant to what was going on at the time and asking me very specific questions that I didn't know the answer to and I didn't think that most people actually would know the answer to either, so, that, in combination with being pushed up to first assist, I just got very, very stressed out and was not feeling good about myself [participant 005 medical student].

A key aspect of pimping is continued questioning past the learner's ability to provide meaningful responses: "there's a point where you know that the student, for example, in pimping, they don't know the answer, why are you continuing to push?" [participant 005 medical learner].

A key factor in whether learners perceived question-asking to be solidifying or dissolving of trust was their perception of whether or not the questions contributed to their learning. Pimping, or the asking of questions escalating in difficulty, may be perceived by those who are teaching in medicine, to be a pedagogical technique which

operates by inspiring learners to assimilate large amounts of information for fear of being humiliated when a gap in their knowledge is exposed. Learners acknowledged the potential that a teacher might intend pimping to have educational value, but disavowed the effectiveness of this technique: "to me it's just like, [pimping] it's not good for anyone, it's not a helpful learning technique, I don't think" [participant 002 medical learner]".

There is a tension here in our data: teachers describe asking a series of questions as a way to solidify their trust in the learner and offer educational support while learners also offer many stories of teachers asking a series of questions in a way which dissolved the learner's trust in the teacher because they perceived it to offer no educational value. This tension brings to our attention the challenges that teachers may have in solidifying trust with learner abilities to work independently, and the tendency under time pressure to resort to approaches which assess the learner's knowledge but have negative implications for solidifying trust. Each relationship example provided by participants, offers some contextual information about the ways in which questions can be asked to solidify or to dissolve trust.

Learners describe question-asking as dissolving trust when it occurs in front of an audience, whether that audience is a patient or colleagues because it had the potential to break down other's trust in them and it would potentially embarrass them. Asking a learner a series of questions in front of a patient has a greater risk to "erode the patient's trust if the doctor who I was seeing didn't know the answer for something" [participant 002 medical learner]. Asking question in front of colleagues may create distress for the

learner because of the fear of humiliation at having their knowledge inadequacies revealed to peers: "the nastiest way to do [pimping] is in front of a huge audience of your peers and medical learners and other physicians. But the physician will ask questions until the student can't answer. And often, that's seen as a form of intimidation" [participant 003 medical student]. Question-asking can also dissolve trust when it is used as a way to stratify learners for the purpose of allocating teacher time and learning opportunities: "performance [while being pimped] will dictate how much teaching and attention you'll get for the remainder of that rotation. And, if you're weak in a particular rotation or a particular subject, I should say, and you don't perform well in the beginning because this stuff is new, it's possible, and I've seen this with others, and I've experienced it myself, that you become invisible" [participant 003 medical learner].

Asking questions can build trust when the learner doesn't feel as if there will be a negative consequence if they answer incorrectly: "I really had a good experience with that [clinical teacher] I felt and I think some of the things that really contributed to that experience being a really positive one was my teacher seemed very open to answering my questions and sort of posing questions to me in a very non-threatening way you could say" [participant 027 medical learner]. Learners perceived a dialogic give-and-take to have had "a more relaxed feel", created when teachers communicated that "I'm going to ask you a question, you don't have to get it right, it's totally fine if you get it wrong… So, making it more of a dialogue, and trying to get a perspective of where they're coming from" [participant 019 medical learner]. A dialogic approach may be particularly helpful when the teacher-learner relationship is new, and there have not been many opportunities

to build trust. It may be particularly effective when the teacher and learner have had the opportunity to share expectations, goals and preferences working together beforehand.

Participants were more likely to feel comfortable asking questions when the teacher encouraged a comfortable, personal relationship. Learners often perceived the teacher's efforts to establish this relationship as evidence of the teacher's good intentions and focus on the learner's experience: "I think all the teachers I felt that were really good, like, you kind of connect with them on a personal level […] It just makes them feel like more of a person and you can connect with them better. And then there's that added layer of comfortability that allows you to feel more comfortable, and ask more questions, and further your learning" [Participant 014]. The teacher's approach to asking and answering questions was marked as a significant factor in establishing a trusting relationship: "I think part of it is they ask questions to you, as a learner. Sometimes these doctors can be so busy that they just go about their day and you're kind of along for the ride, and they're happy to teach, but they're not really happy to get to know you as a person. But he would inquire where I was from, and how things are going at school, and what was the University-X program was like. You could just tell that he kind of cared" [participant 014 medical learner]. This behaviour solidifies trust when it was conducted in a way which demonstrated collegial respect: "my preceptor in [specialty] saw me as a peer and saw me as someone who she respected, and my opinions were worth listening to. She was invested in me learning and succeeding" [participant 017 medical learner].

One teacher participant described his frustration with learner intolerance for receiving negative feedback about a gap in knowledge or mistake, when they describe this feedback as "pimping":

> I have seen a couple of instances where they're doing bedside teaching and a medical student afterwards says oh we just got pimped. And I think a lot of it has to do with the fact that they don't understand what pimping was versus what bedside teaching is. Like I've seen pimping done about three times in my 10 years of medical training and it is brutal. They identify a gap, they publicly shame you and they give you no feedback versus you listened at the pulmonary valve and you're supposed to listen at the atrial valve. You messed that up, listen over here on this space. And they do it in front of the patient, like that's not pimping, that's teaching. And I think a lot of people have made the term pimping synonymous with bedside teaching, which is a problem [participant 012 clinical teacher].

From this description, we identify that the learner may have labelled this interaction as "pimping" because of the vulnerability inherent in being corrected without an opportunity to demonstrate competence. Making a mistake or not answering correctly puts their image of being competent at risk, an important component of the fear of answering questions wrong, or avoiding asking questions so as not too look unprepared or ignorant:

> I feel like the more times that you feel that someone is ridiculing you for something the more you're going to shut down and not participate in answering questions or asking questions. I've had lots of people I don't feel comfortable

asking questions to, though I'm sure they have lots of knowledge in the area, but I'd rather just not interact with that person because it's not worth it [participant 019 medical learner].

Asking questions may create some vulnerability in learners, as it puts them in the position where they must demonstrate their knowledge or lack of knowledge. However, asking questions is an essential part of clinical work; learners ask questions to clarify instructions or glean information; teachers ask questions to ascertain a learner's level of readiness or competence and provide individualized teaching to safely allocate clinical tasks. Recognizing the potential for vulnerability around competence highlights the opportunity to solidify trust by asking questions in a dialogic way accomplishes many things: clarifies the purpose of questioning, gives permission to be wrong, provides learners the opportunity to show their thought process, leads to the identification of gaps as a non-threatening way to highlight the need to acquire new information.

Making Mistakes

The fourth identified opportunity to build or dissolve trust in the medical learner-clinical teacher relationship occurs when the learner makes a mistake. Mistakes take different forms and exist on a spectrum. Mistakes described in our data include incorrectly answering a question, sending a patient home before the supervising physician had signed off, and incorrectly performing a clinical task. Learners describe two main responses from teachers when mistakes occur. A trust-dissolving response occurs when the teacher corrects the learner but neglects to facilitate learning from the mistake. For example, a learner [participant 006 medical learner] described incorrectly filling out a

form because there was no option available for the information she was asked to include. Her teacher responded while in front of a patient, "don't you ever add something like this to my EMR again". There was no additional instruction about performance improvement, or inquiry about why the student had added the information she did.

These negative experiences can be compounding in their impact on solidifying or dissolving trust. This same learner reflected on how her first experience making a mistake while working with this teacher made her reluctant to clarify when she was unsure of the instructions given to her for another clincial task she was given . When asked to prepare a swab for an OB/GYN patient, the learner was not sure whether she was also being asked to complete the swab, but " I was too scared to ask for her supervision…I made this mistake literally because I was terrified to ask her a question" and chose to do the swab herself. This was a mistake; the teacher had intended the student to prepare but not perform the swab: "in front of the patient, she said 'no, no, no. I said I want you to have the swabs ready. I was going to do the swab. You don't just go do the swabs' " [participant 006 medical learner]. This example highlights the cumulative effect of not drawing attention to learning when making mistakes and for learners it can make it more difficult to ask questions; an important part of safe and productive learning. It also highlights that the stress for the learner came from the anticipation that their teacher may not respond well to asking for clarification because they showed a suboptimal response to making a mistake.

Making mistakes can also lead to increased trust in the teacher-learner relationship. When the teacher uses the mistake as an opportunity for learning, the learner

begins to trust the teacher as someone who will support their learning and efforts to provide safe and high quality care. One medical student recounts how a teacher handled a mistake well by " pulling me aside, telling me I made a mistake, and this is how I can improve or change for next time. Or why the mistake was serious, why it could have ended in patient harm, they want to teach you something, right, in a supportive manner or constructive manner " [Participant 013 medical learner]. Another participant describes a teacher who was so successful re-framing mistakes as learning opportunities that the participant had difficulty recalling experiences of making a mistake: "I'm sure he asked a question that I answered wrong that he was like, oh, you actually do this. I'm sure that happened, I just can't think … And that's kind of telling, I guess, that it wasn't burned into my memory as [in the previous example with another teacher] really negative interaction where I got something wrong" [participant 014]. A teacher participant told us of a memorable example from her own career as a learner, where her clinical teacher found an important learning opportunity within a significant mistake:

> For me I remember the first patient, in [Province in Canada] when I was in medical school, who I thought had a pneumonia but it turned out to be a COPD and the staff was like you made the wrong diagnosis. This could have ended up killing them but we caught it and this is why it was different. And she took me in front of the patient who had pneumonia and said this is how they look different. It was a wonderful learning experience but I don't see people really taking that investment any more (Participant 012, clinical teacher).

Learners recognize the necessity of taking measured risks when learning a new topic or procedure; they were more comfortable doing this when they trusted that their teacher would not respond negatively to their mistakes. For example, Participant 014 [medical learner] talked about a positive relationship with a clinical teacher where " I felt comfortable making mistakes as opposed to when you're nervous, and the preceptor is asking a lot of you, you don't necessarily want to put yourself out there, they might get a little upset or a little rude if you get something wrong." Participant 014 continued to explain their assessment of this comfort as stemming from an appraisal of the clinical teacher as someone who would not intentionally make learners uncomfortable: " I just got a sense of his learning style, and who he was as a person, and that he wasn't going to really put me on the spot or really make me uncomfortable, and so then I felt more comfortable going into the next stage, and I felt more confident, too." This example highlights that a key aspect of solidifying trust in the teacher-learner relationship takes place before the learner makes a mistake. The learner uses intial interactions to judge if the teacher would intentionally make them uncomfortable to anticipate how their teacher would also respond in the hypothetical scnenario of them making a mistake, to solidify perceptions of trust in their teacher.

Teachers appreciate that learners require some accommodation and acceptance when learning: " I think there has to be this culture of teaching, this culture of allowance for people to make mistakes, and to be slower" [Participant 031 clinical teacher]. At the same time, they identify a tension between optimizing the learner experience in a fast-paced, overburdened health care setting: "rightly or wrongly, I feel that if someone is

crashing or dying in front of me that that takes precedence over chatting through the whole process with people" [participant 023 clinical teacher].

For teachers, addressing mistakes and giving constructive feedback is a challenging task. Participant 023 [clinical teacher] sees communication with learners pertaining to correcting mistakes in constructive way is a key part of the preceptor role: "I think my role as a preceptor or whatever is to make sure I do that in the most sensitive and appropriate way to the student". Participant 023 [clinical teacher] also identified a tension between the commitment to sensitivity in teaching and the need to give blunt corrections:

> I don't want to come across as sounding mean, but I wouldn't want to also apologize and shy away from making corrections and if you feel bad because you did something not totally kosher I think that's okay. I personally would think that that might be an area where a lot of people, 1) disagree with me, and 2) get hurt and feel bad and feel like they're being targeted and feel like this preceptor is mean because they're making me feel bad [participant 023 clinical teacher].

These examples highlight that teaching is not about mitigating the discomfort that learners may feel because discomfort and extending outside of one's comfort zone is a part of learning. However, there is a distinction between discomfort that is inherent to learning in the clinical setting and discomfort that comes from the way learners are being taught:

> I think [being corrected] was hard for [the learner] and I think that's okay. I think that not only is it okay, I think it's appropriate and important because this is a hard

training program and if he did everything right he wouldn't need to be in it. We need correction and I think that it's not … I think none of us like to be corrected. I don't think any of us like to be told hey you know when you did that, didn't really like that, can you try and do things differently. No one likes that and I think it's invaluable. [Participant 023 clinical teacher]

Rather than focus on obviating the discomfort inherent in learning something new, teachers may show compassion and acknowledge the discomfort:

For instance, telling someone that they did poorly on an exam, not having the situational awareness to maybe have a tissue box, and understand that some of the people that are in your residency program may burst out in tears when you give them a poor exam result. That maybe this person would perceive your stern, flat demeanor, let's say, as being unsupportive, when you were trying to be supportive, and yet the words and your expression thereof, were not matched. That they may feel quite lost, even though you did offer to help them, it didn't come across as if you would like to. A lot of the interpersonal soft skills that we always talk about with patients, I think we can transfer some of those skills over to trainees [participant 035 clinical teacher].

This example highlights how the same skills that are valued in patient care are valued in the clinical teacher-medical learner relationship when it comes to communicating compassion and understanding in a constructive way. It also highlights that intentions in these situations may not always be clear because of how the learner is

feeling about their performance and may require more explicit efforts through actions and words.

A compassionate teaching approach is suggested as a trust solidifying approach in this data demonstrated in the scenario when the teacher understood their own experiences of making mistakes and communicated this to the learner and used the insight into the emotional experience to inform what they communmicated to the learner while teaching. For example, a compassionate teaching approach when learners make mistakes is by their teacher being transparent about their own process to show how it might feel, normalizing a challenging learning experience:

> One of the ways that we can deal with that is by teaching about it. So, by teaching learners about what happens and talking about how we deal with it, both from a pragmatic level, taking care of the patient, but also internally, on an emotional level, I think, having a conversation and letting learners know that it's normal to have feelings like that. Because if you recognize it then you can start to think about how you can deal with that" [participant 031 clinical teacher].

This is an important example to illustrate how a teacher can normalize discomfort that comes with working in a specialty such as surgery.

In summary, making mistakes, performing poorly, or not knowing an answer to a question is inevitable and so how teachers deal with these situations is critical for solidifying trust with learners. Participant 021 [clinical teacher] commented on when preparing learners:

"[teachers] have an obligation to be a bit of a tough teacher, a bit of a tough-love kind of preceptor. I think we're afraid to. It's a hard conversation to have unless you … again, this is where the trust comes in. If you've got a learner who really respects you as a mentor, and you respect them as a student, and you realise that everything you're teaching them … this is a safe place. This is a safe place for you to learn."

Participant 021 [clinical teacher] continued to explain that "I'm not going to teach my students by tearing them down" but have been called "highly critical" by learners and that they:

Find sometimes as hard as students think we are on them, it's nothing compared to what the real world is going to be like…It's a tough job dealing with the public. But like I said, it's not our job to beat up our students so that they're ready for it, I think it's our job to teach them to be firm. And if you know it and you're good at it, then stand up to me. Tell me that. Tell me, you know Doc, I think you're really wrong. I think I know this stuff hands down. I think I know it better than you do. Awesome."

Another teacher participant talked in a similar way about how being corrected by your teacher is not easy but it is to prepare you:

When I got there I realized medical school was way harder than trying to get in. Then when I finished medical school, residency was like 3 times as hard. It's hard and within the last week I've resuscitated a 25 week old fetus and I've resuscitated a 35 week old baby that was delivered preterm and you can't do that without a

hard training. It's going to be hard and you're going to go home and you're going

to cry because things suck. I go home and cry now because my job is hard and I

don't think I can prepare people for how hard that is without some of those

conversations that say hey listen, what you're doing here, it's not going to work,

we got to do it this way. That sucks and it's going to be hard for people to hear

that [participant 023 clinical teacher].

They reflected on their experience as a learner and found that the clinical setting

can make being corrected a bit overwhelming : "everything was critiqued and everything

was like in front of a room of 20 people and we walked out and my buddy was like, hell, I

would never want to do your training" but pointed out how learning to work through

correction in these settings ultimately works to prepare you for working on your own as a

practicing physician someday: "but now I resuscitate people in a room by myself with no

help and no one looking over my shoulder and no one saying hey Name-X, do you really

want to do that because that might make the patient worse" [participant 023 clinical

teacher].

How a teacher and learner work together to make sense of a learners making a

mistake is key to solidifying or dissolving trust. Learners learn to anticipate a teacher's

response to a mistake even before a learner makes one and so change their behaviour or

take educational risks accordingly. However, the "tough" approaches illustrated by

Participant 021 [clinical teachers] and 023 [clinical teachers] can work to dissolve or

destroy trust if the learner does not understand their teacher's intent.

In this project, we have explored medical learner and clinical teacher experiences working together in the clinical environment and asked how do clinical environments shape this relationship. We found that teachers and learners use four key opportunities to co-navigate the challenging dynamics when attempting to build positive relationships during clerkship that work to solidify trust. They do this by preparing to work together, engaging learners in clinical work that also engages the learner's intellect, asking questions using a dialogic approach and when mistakes are made, correction is done in tandem with framing it as a learning opportunity.

In the next Chapter, we will discuss the implications of these findings as they relate to current literature in medical education and compare the Co-Navigation theory to the theory of Psychological safety to draw out what the Co-Navigation theory may add and what literature it may further validate.

Chapter 4 Discussion

Introduction

In this chapter I will discuss the potential ways that this thesis research project can contribute to the existing literature and future research developments. First, I will begin by providing a comparison and relationship between my theory and the theory of psychological safety, followed by a discussion of the implications of this research project and my recommendations for clerkship medical education.

I have chosen to compare my theory of *Co-Navigation* to Edmonson's (1999) contribution to the theory of *Psychological safety* which "captures the degree to which people perceive their work environment as conducive to taking these interpersonal risks" (Edmonson, 2002, p. 3). The Psychological safety theory has been applied in studies to examine how individuals feel safe to take interpersonal risks in an organization are more likely to engagement in learning behaviours important for change in organizations, increasing team effectiveness and performance (Edmonson, 1999). Edmonson's (1999) work on psychological safety is built on previous studies that examined what factors enabled organizations to change.

How does my theory compare to existing theories?

To compare the Co-Navigation theory with Psychological safety, I will first begin by providing a general summary of the Co-Navigation theory and Psychological safety followed by a discussion of their similarities and differences. I will then highlight an area within the theory of Psychological safety that may be extended and refined by the Co-navigation theory.

General summary of the Co-Navigation theory

        The Co-Navigation theory suggests there are four opportunities for learners and teachers that are influential in shaping the direction of their relationship —either towards solidifying trust or dissolving it. The four opportunities include: 1) preparing to work together; 2) engaging in clinical work; 3) asking questions and; 4) making mistakes. I will now summarize each opportunity and describe how each may be influential in solidifying trust in relationships between teachers and medical learners.

        Opportunity 1: Preparing to work together

        Preparing to work together is when teachers and learners set aside time before working together, to voice their expectations (i.e. learning goals and clinical work goals) and share personal information (i.e. academic interests or background etc.) and professional information (i.e. work-style preferences) to consider how this information can inform the way they work together.

        Preparing to work together is done best when it occurs upon the first meeting of teachers and learners and can be re-visited throughout the relationship; in briefly before new or challenging learning experiences (i.e. re-iterating expecations). For example, teachers and learners who solidified trust describe a brief moment before asking the learner a question or engaging them in a new clinical task where they re-iterated the expectations of the learner with an explanation of how they would be accomplishing both clinical and learning objectives.

        The act of preparing to work together reinforces to the learner that their teacher would like the opportunity to work together in a collegial way. For learners, a collegial

approach to work and learning invites the learner to practice speaking up in the relationship early on. For learners, being encouraged to speak up is tied to feeling respected both as a learner and a person. A collegial approach may also contribute to a work-culture within the relationship of feeling valued and respected. Learners feeling valued and respected are important factors when learning in highly hierarchical environments, where they frequently reported feeling devalued, perceiving to receive less respect as a professional and/or feel vulnerable because of their lower position in the hierarchy. Preparing to work together with learners helps solidify trust because it provides evidence that their teacher is interested in their learning. This is especially important in block rotations structures where learners and teachers have very short periods of time to work together and learners are encountering many first-time experiences; meeting their teacher, being in a new clinical environment and specialty, or participating in a type of clinical work. Having so many first-time encounters that may be stressful because so much is unfamiliar, may make it challenging for learners to discern in stressful environments the intentions of their teacher if the learner has no other information to know if it is the teacher or the overall situation that is contributing to their stress.

Opportunity 2: Engaging in clinical work

Participating in clinical work is an essential part of learning during clerkship and learning now involves interacting with real patients. This dynamic makes trust core to participation in clinical work in order to learn safely; both for learners and patients. Teachers emphasize that in order to trust learners, they need to be honest about mistakes and be receptive to feedback. For learners to feel comfortable with being honest and

being receptive, trusting a teacher requires learners to feel comfortable knowing they can ask their teachers questions or make mistakes without fear of their teacher responding negatively (i.e. humiliating or penalizing them).

Trust is solidified when a teacher clearly demonstrates they have a genuine interest in the learning and personal well-being of the learner. Demonstrating genuine interest can be accomplished by preparing to work together initially when they first meet and continuously throughout their relationship. I found that preparing to work together is critical to making these intentions clear in highly-hierarchical environments. Intentions may become less clear to learners who experience a "tough" approach from teachers.

Opportunity 3: Asking questions

The main distinction between asking questions in a way that solidifies or dissolves trust is the learner's perception of their teacher's intent. When questions were uni-directional and asked until the learner reached the limit of their knowledge, learners were likely to perceive this as "pimping" unrelated to furthering the learner's knowledge.

Learners were likely to perceive their teacher to have a positive intent (i.e. concern for their well-being and learning) to create a dialogue when questions were asked in a bi-directional way where, alternates way of answering "correct" may be explored by the teacher and learner together instead of fixation on what the learner does not know.

Pimping is a way of asking questions that learners emphasized was not helpful for learning; failure to answer the question can humiliate learners. Humiliation dissolves the learner's confidence in their teacher's intention to respect them and be concerned for their learning. Asking questions using a pimping approach dissolves trust because humiliation

is stressful for learners; they perceive it to reduce the likelihood of accessing future learning opportunities because they are no longer perceived as competent. Asking questions using a pimping approach is often connected to feelings of shame that encourage negative perceptions of teacher's intentions because learners do not see how this approach facilitates learning. To contrast, asking questions by facilitating a dialogue helps learners showcase their thinking process and provides opportunities to demonstrate what they know instead of just getting a question right or wrong. When teachers ask questions by facilitating a dialogue there is a more obvious connection between the teacher's behaviour and intentions to help the learner progress because there are more opportunities to succeed.

Opportunity 4: Making mistakes

When learning something for the first time, there is a high probability the learner will make a mistake. Making mistakes is inherent to learning and something that both teachers and learners encounter during clerkship. Learners reported that they would use the initial interactions with their teachers to develop a hypothesis for how much they would trust their teacher. In the initial interactions that they had with their teacher, it was the level of sensitivity and awareness demonstrated by the teacher, to the learner's level of comfort while teaching that was used to develop a hypothesis of how their teacher may respond to their mistakes. Assessing the potential risk of making mistakes shaped the level of comfort learners felt asking their teacher questions or engaging in clinical work.

In the scenario of making mistakes, relationships between teachers and learners becoming more trusting when the teacher corrects the mistake respectfully, emphasizing

what the learner can learn from the mistake and explicitly communicating to the learner how they are aware of how making a mistake might feel.

These four opportunities resonate closely with Psychological safety but in some aspects are different. I will now provide a general overview of Psychological safety followed by highlighting the major similarities and differences to the Co-Navigation theory.

General overview of Psychological safety

Development of the theory

The first mention of the theory of Psychological safety in the literature was in the 1960s and focused on understanding what is required for organizational change. It was found that Psychological safety (i.e. being able to ask questions, seek help, report mistakes etc.) was key to helping individuals feel secure during the period of uncertainty inherent in organizational change (Edmonson and Lei, 2014). Moreover, worker perceptions of the consequences for taking interpersonal risks in their organization impacted their willingness to engage in certain behaviours involved with change (Edmonson and Lei, 2014). Work by Kahn (1990) revitalized the interest in the theory when he examined camp counselors and an architecture firm and found that those who feel Psychologically safe show a "willingness to 'engage or express themselves physically, cognitively and emotionally during role performance' rather than disengage or 'withdraw and defend their personal selves' " (Edmonson and Lei, 2014, p. 25)

Building off this work, Edmonson identified the theory as an important factor to illuminate how individuals work together in order to achieve a shared outcome

(Edmonson, 1999, 2004; as cited by Edmonson and Lei, 2014) and focused more specifically on psychological safety as it pertains to the willingness of individuals who work teams to engage in learning behaviours (Edmonson, 2002).

In more recent literature, psychological safety has been examined in healthcare and education organizations (Edmonson, Higgins and Weiner, 2016), using the theory of psychological safety as a lens to understand the phenomenon of burnout in surgery (Swendiman, Edmonson and Mahmoud, 2019) and to examine the tension in learning organizations between balancing Psychological safety and the motivation of individuals (Deng, Leung, Lam and Huang, 2019).

How it is defined

Psychological safety is a concept that describes essentially what "facilitates a willingness to contribute ideas and actions to a shared enterprise" (Edmonson and Lei, 2014, p. 24). More specifically, it is "the degree to which people perceive their work environment as conducive to taking interpersonal risks" (Edmonson, 2002, p. 5). When an individual judges the interpersonal risks of their work environment, they build upon beliefs about how others will respond when they take a risk (Edmonson, 2002) and may feel vulnerable because of the perceived risk if they ask a question, seek feedback, report a mistake or propose a new idea. The perception of this risk is formed by "engag[ing] in a kind of tacit calculus at micro-behavioral decision points, in which they assess the interpersonal risk with a given behavior" (Edmonson, 2002, p. 6). Simply, individuals who feel psychologically safe are more productive because they are able to "focus on the

collective goal and problem prevention rather than on self-protection" (Edmonson and Lei, 2014, p. 24).

One major indicator of whether an environment is perceived to be Psychologically safe, is when "people believe that others will not resent or penalize them for asking for help, information or feedback" (Edmonson, p. 9). In the context of learning, when those who are in the position of a learner believe they are psychological safe, "this belief fosters the confidence to take risks [risks inherent to learning] and thereby gain from the associated benefits of learning" (Edmonson, 2002, p. 5). Applied to learning, we can understand psychological safety to inform us of the calculation learners make to weigh the "potential action against the particular interpersonal climate, as in, 'If I do this here, will I be hurt, embarrassed or criticized?' " when making an effort to participate in activities which help them learn (Edmonson, 2002, p. 7). If the answer is no, they are unlikely to be hurt or embarrassed and the learner will be able to overcome defensiveness and "learning anxiety" (Schein, 1985, as cited by Edmonson, 2002, p. 7).

Psychological safety shares many characteristics with related constructs such as trust and perceived organizational support (Carmeli and Hoffer Gittell, 2009). For example, each concept concerns an individual's perception of interpersonal vulnerability and assessment of the potential for negative consequences. There are three main distinctions that differentiate trust and organizational support from psychological safety. The three main distinctions include: types of responses anticipated, the time frame that perceptions of others are developed and how specific the intentions are perceived to be (Edmonson, 2004).

Trust is a general concept where an individual anticipates good intentions of others towards them and expects that person's behaviour to be in alignment with those good intentions. In contrast, psychological safety is "about self and the extent to which others will give you the benefit of the doubt in the case that you might make an error" (Edmonson, 2004, as cited by Carmeli and Hoffer Gittell, 2009, p. 711).

The second difference between trust and Psychological safety refers to the time frame that the perception of the other individual, develops. Trust pertains to anticipated consequences over a longer amount of time where psychological safety pertains to an individual anticipating short-term interpersonal consequences as a result of a specific action they perform (Edmonson, 2004, as cited by Carmeli and Hoffer Gittell, 2009, p. 712). With respect to how Psychological safety is different from perceived organizational support, psychological safety refers to the individual feeling comfortable to take interpersonal risks while organizational support refers to an individual holding the belief that their organization values and appreciates their contribution while also caring about their well-being (Eisenberger, Cummings, Armeli, & Lynch, 1997; Eisenberger, Huntington, Hutchison, & Sowa, 1986; Rhoades & Eisenberger, 2002, as cited by Carmeli and Hoffer Gittell, 2009, p. 712).

Psychological safety captures the social influencers of behaviour in the organizational setting whereby people "feel a need to manage the risk to minimize harm to their image, especially in the workplace and especially in the presence of those who formally evaluate them" (Edmonson, 2002, p. 3) and often "the solution to minimizing risk to one's image is simply to avoid engaging in interpersonal behaviors for which

outcomes are uncertain" (Edmonson, 2002, p. 3). However, this solution is something that also means avoiding engaging in behaviors that are productive for learning (Edmonson, 2002).

Edmonson (2002) poses four specific risks to image that individuals face that include being seen as ignorant, incompetent, negative, or disruptive; these mirror the concerns of medical learners and teacher participants in my study. Edmonson (2002) describes that when there are individuals in the presence of others with more power or status who also evaluate them, this intensifies interpersonal risk (Edmonson, 2002). Having a disproportionate distribution of power in a relationship created by one party evaluating the other mirrors the teacher-learner dynamic in medical education. The influence of the distribution of power on perceptions of psychological safety may suggest that engaging in learning behaviors is based on the level of psychological safety perceived by learners. It is important to note that Edmonson (2002) is not suggesting that learning environments are comfortable because psychologically safe relationships are the same as creating friendships or because there is an absence of pressure or problems. Rather Edmonson (2002) is suggesting that psychological safety "describes a climate in which the focus can be on productive discussion that enables early prevention of problems and the accomplishment of shared goals because people are less likely to focus on self-protection" (p. 7).

In the next section I will discuss the similarities and differences between Psychological safety and the Co-Navigation theory.

Similarities

Both theories highlight key behaviours that can shape relationship trajectories

The Co-Navigation and Psychological safety theory, describe a tacit process of interpersonal risk assessment related to specific behaviours (Edmonson, 1999, as cited by Edmonson, 2002) (p. 6). Both are also "fundamentally about reducing interpersonal risk, which necessarily accompanies uncertainty and change" (Schein and Bennis 1965; as cited by Edmonson and Lei, 2014, p. 24). They both identify certain behaviours individuals use to develop perceptions of trust of another individual whom they work with. These perceptions of trust are ones that anticipate the individual whom they work with will not respond negatively (i.e. humiliate or penalize them) if they engage in behaviour that is conducive to learning and adapting to change in an organization (Edmonson, 2004; Deng et al., 2019). For example, psychologically safe work environments are evident when individuals feel comfortable asking for help, asking questions, sharing information, seeking feedback or reporting errors and it is because they perceive there is no interpersonal risk (Edmonson, 1999). Risky behaviour is defined as people having to take action without knowing if the outcome of their action will be what they expected (Edmonson 2003; as cited by Deng et al., 2019). For example, an individual may be concerned that asking their colleague a question may harm their image (i.e. being seen as disruptive, incompetent, negative or ignorant) within their organization, because they are unsure if the response from those they work with will be positive or negative (Edmonson, 1999). When individuals fear that their image will be harmed they are less likely to engage in learning behaviours (Edmonson, 1999). This suggests that

individuals assess the potential outcomes of their behaviours and their assessment influences how they will conduct themselves in their relationship with others in their workplace. This may in turn, influence how that individual conducts themselves in future interactions and influence how the relationship develops.

The Co-Navigation theory describes the four key opportunities that are similar behaviours described in Psychological safety that individuals use to develop perceptions of trust and include: preparing to work together (which includes exchanging information), engaging in clinical work, asking questions and making mistakes. Each of these opportunities to build trust were identified by participants as informative behaviours of another individual's trustworthiness (i.e. reliability, to have good intentions and be confident they will act upon them). Learners used each of the four opportunities as a hypothetical scenario (i.e. how might my teacher respond if I make a mistake) to make an assessment of their teacher's genuine concern for the well-being and learning either or as evidence to affirm their hypothesis of their teacher's concern.

In the next section, I will discuss how Psychological safety and the Co-Navigation theory are different and how they are complementary.

Differences

Identified destinations vs co-navigating those destinations

The general difference between Psychological safety and the Co-Navigation theory, is that Psychological safety maps out beliefs of individuals regarding their interpersonal risk in work relationships (i.e. having a belief that they do/do not have to fear negative interpersonal consequences of their colleague) at certain relational

"destinations" (i.e. asking questions, seeking feedback etc.) that mark one as feeling Psychologically safe.

The Co-navigation theory highlights two approaches for each relational destination and also suggests that there may be a particular order of these destinations or path, that leads to solidifying or dissolving trust in relationships.

The trust-solidifying process proposed in the Co-navigation theory is specific to clinical education and describes how teachers and learners are reducing uncertainty in their teacher's genuine concern for their learning and well-being that as a result, increases the perception that there is no or little interpersonal risk to engaging in certain learning behaviours. The Co-Navigation theory describes how the perception of the teacher develops and suggests a cyclical but not necessarily a linear process of solidifying trust. This is suggested in the findings when teachers and learners take the opportunity to prepare to work together before engaging in clinical work or making mistakes, it decreases perception of interpersonal risk in those opportunities; preparing to work together reinforces what was accomplished prior to working together. The studies examining Psychological safety have applied the theory in a variety of work contexts (i.e. architecture firms, healthcare, learning organizations), highlighting the type of interpersonal experiences that define psychological safety but not necessarily explaining the process that individuals in work relationships go through when developing perceptions of psychological safety in specific work contexts.

As discussed, in Psychological safety there are the four risks to image that individuals face: 1) being seen as ignorant; 2) incompetent; 3) negative or; 4) disruptive.

Individuals who ask questions can risk being seen as ignorant but asking questions is a

key behavior for learning to gain understanding (Edmonson, 2002) or when people admit

making a mistake, "accepting the high probability of failure that comes with

experimenting" can perceive there is a risk of being viewed as incompetent (Edmonson,

2002, p. 4). An individual can perceive that there is a risk of being viewed negatively

when they are giving feedback. It may be that they are concerned that others will

perceive them being critical even though they are being honest and so this concern often

"can stop people from delivering critical assessments of a group or individual

performance, which limits the thoroughness and accuracy of collective reflection"

(Edmonson, 2009, p. 4). The last perceived risk to image that individuals face is being

seen as someone who is disruptive to work. The individual may anticipate being

perceived by others to be disruptive in their workplace if they need to interrupt others

workflow to seek feedback, information or help and so will "avoid seeking feedback,

information or help" because they anticipate they are "imposing upon others time and

good will" (Brown, 1990; as cited by Edmonson, 2002).

The Co-Navigation theory adds the identified "landmarks" and the subtle

differences in approaches which can contribute to developing the positive relationship

specific to learning in clinical environments. The Co-navigation theory explains particular

approaches to learning behaviours that may reduce the perception of interpersonal risk

when engaging in learning behaviours. For example, the Co-Navigation theory identifies

two approaches to asking questions: pimping a uni-directional approach that pushes the

learner to answer until they no longer can and works to dissolve trust, while asking bi-directional questions such as in the context of a dialogue would encourage trust building.

Co-Navigation theory identifies four opportunities to build trust (i.e. preparing to work together, engaging in clinical work, asking questions and making mistakes) while psychological safety identifies four potential interpersonal risks (i.e. concern for being perceived as incompetent, negative, ignorant or disruptive). The Co-Navigation theory specifies that these four opportunities are interactions teachers and learners have, each with the potential to help the relationship move towards solidifying or dissolving trust. The Co-Navigation theory also suggests that the preparation phase is the most influential opportunity because it can increase the influence of the other opportunities to solidify trust by reinforcing expectations and perceptions of good intentions. In the Co-Navigation theory, there is some degree of interconnectedness between each of the opportunities in the way that they influence each other to strengthen perceptions of trust or dissolve it. Psychological safety suggests that the perception of trust is isolated to one interaction and describes four perceptions which can shape behaviour. This is because perception drives whether an individual engages in learning behaviors such as asking questions. In the Co-Navigation theory, the four opportunities to solidify trust depend on how teachers and learners approach them (i.e. asking questions in a stressful setting without acknowledging how it might influence the learner's perception of the intention behind the question).

In Psychological safety, individuals assess the level of interpersonal risk in scenarios within the workplace where they may be viewed as incompetent, disruptive or ignorant (i.e. pointing out a mistake during a surgical procedure). If individuals perceive

that there is a risk to their image if they partake in certain behaviours within their workplace, they may be less likely to for example, engage in asking questions even though they would be helpful for learning if they feel they would be humiliated or embarrassed (Edmonson, 2002).

Psychological safety describes the connection between how one individual perceives another and how that perception shapes behaviour of the perceiver. It does not necessarily put these perceptions and behaviours in any particular order. The Co-Navigation theory has proposed a constellation of opportunities that solidify trust most when one opportunity (i.e. preparing to work together) occurs before the others, suggesting a cyclical but non-linear order (preparing to work together is generally expected to be followed by engaging in clinical work but a learner may either make a mistake or be asked a question). The Co-Navigation theory explains how preparing to work together before asking questions, engaging in clinical work or making mistakes catalyzes solidifying trust. The conversation that teachers and learners have when preparing to work together can also be something that they revert back to when encountering learning behaviours, especially in the scenario when the learner is lacking confidence, it is a new experience or the patient care is high-risk, as a way to re-iterate, remind, clarify or adjust what was discussed. This is because it reinforces that the teacher and learner are navigating these experiences together in a way that is working to accomplish learning and clinical objectives. This was illustrated in the Co-Navigation theory; all the examples participants gave of positive experiences included mention of some form of preparing to work together beforehand. In all descriptions of challenging or

negative experiences, there was no preparation to work together, typically described by one learners as not getting off on the right foot.

Identified beliefs vs identified actions which may change perceptions or beliefs

Studies examining Psychological safety have focused on the conditions that formulate underlying beliefs of groups and how they support learning behaviours. For example, Edmonson found that there was a significant difference in healthcare team members' beliefs regarding the social consequences of reporting medical errors and these beliefs were described as tacit, automatic and taken-for granted (Edmonson, 1996; as cited by Edmonson 1999). Furthermore, Edmonson illustrated that these categories of beliefs shaped how certain team members may have seen the need to speak up and did so easily and others did it as a last resort. It was these beliefs that shaped their perception of Psychological safety.

What the Co-Navigation theory points to is that certain clinical environments may increase the learner's perception of interpersonal risk because of the type of clinical work that learners are engaged in (i.e. surgery), that may be exacerbated by their low position within the medical hierarchy and compounded by encountering so many new learning scenarios (i.e. common for clerkship) where there are often a high-degree of uncertainty in both their relationship with their clinical teacher, the environment and the clinical work.

Dual-path vs a constellation of opportunities

Psychological safety has been discussed in the organizational literature as a theory with positive attributes but fewer studies have examined how it may be counterproductive in certain organizational settings. Work by Deng et al. (2019) conducted three studies and examined their hypothesis of the underlying mechanisms of psychological safety. They posit that psychological safety works as a dual-path theory; that there are positive and negative implications which operate side-by-side. Their study findings affirmed the positive impact of psychologically safe environments found in other studies such as, workers increased feelings safety meant there was also an increase in engagement in learning behaviours. Moreover, that increase feelings of safety were because perception of interpersonal risk was low and that these perceptions were often in organizations that held collectivist orientations—individuals or organizations that highly value harmonious relationships and shared goals. However, Deng et al. (2019) found that in organizations that held individualist orientations—highly value the individual's needs or goals when it comes to group work, perceptions of psychological safety can work to decrease motivation and accountability to group work (Deng et al., 2019). Deng et al. (2019) used two theoretical frameworks to captures the regulating effects of a dual-pathway that included: accountability (Lerner and Tetlock, 1999; as cited by Deng et al., 2019) and; individualism/collectivism orientation to group work in organizations (Chatman, Polzer, Barsade and Neale, 1998; Dierdoff, Bell and Belohlav, 2011; as cited by Deng et al., 2019) that "both worry about negative interpersonal dynamics among group members and felt obligations to the group" (Earley, 1989; Erez and Somech, 1996; as cited by Deng et al., 2019, p. 1116). Using these frameworks for analysis, Deng et al.,

(2019) proposed that there is a decrease in workers' motivation because it decreases fear of failure (i.e. a positive attribute of psychological safety) and thus, individuals may exert less effort when they are not being monitored or being held accountable by others (Latane, Williams and Harkin, 1979; Mero and Motowildo, 1995; as cited by Deng, Leung, Lam and Huang, 2019).

These theoretical frameworks have important implications for the learner-teacher relationship because they involve concern "about negative interpersonal dynamics among group members and felt obligations to the group" (Earley, 1989; Erez and Somech, 1996; as cited by Deng et al., 2019). Teachers and learners may not share the same orientation to group work because of having different clinical, educational, legal and occupational obligations. For example, these theoretical frameworks applied to psychological safety are relevant to medical education because they highlight the interpersonal tension that teachers and learners face managing their different orientations to group work. In the Co-Navigation theory, learner perceptions of their teacher's orientations in clinical environments tended to represent an individualistic orientation when they did not make an effort or were unable to prepare to work together. What the Co-Navigation theory offers is how teachers and learners prepare to work together and are able to begin their relationship with clarifying and co-building these orientations; as a result, encouraging a greater collectivist orientation which encourages motivation and accountability for a clinical teacher.

For example, workgroups (i.e. anyone working with one other person who may or may not be evaluating them) are often centered on collectivist orientations and also

greatly value harmonious relationships whereas work groups with an individualist orientation tend to be more focused on individual goals. Deng et al. (2019) found was that in workgroups—a relationship where an individual is being supervised or evaluated by their colleague—often hold more collectivist values. The collectivist values that workgroups hold is an important consideration to apply to the theory of Psychological safety within the context of learner-teacher relationships in medical education. What I mean is that workgroups highlight the value systems at play within the relationship that may shape perceptions of psychological safety; suggested in the Co-Navigation theory which highlights how collegial dynamics are characteristics of positive relationships and collegiality may be connected to instilling collectivist values. The collectivist values in workgroups may be an important concept to apply to the medical learners-clinical teacher relationship because of the power distribution in the relationship defined within a work group (i.e. they are being evaluated by their teacher).   More specifically, workgroup values highlight why Psychological safety may be lower in clinical environments that have a tendency to carry an individualism orientation (i.e. inspired by hierarchy) and why there is a great amount of intentionality and effort required for teachers and learners to create Psychological safe learning environments within the clinical environment: "members in groups with an individualistic culture tend to place more emphasis on individual interest rather than group interests, a higher level of psychological safety may further reduce the members' sense of accountability… and "more likely to drive these individualistic members to reduce their effort and motivation to contribute to the group" (Deng et al., 2019, p. 1128).

The current literature on psychological safety

In this next section, I have chosen studies that represent the major topics found in the psychological safety literature that also pertain to medical education or learning in organizations.

One focus in the psychological safety literature is how hierarchies can create psychologically unsafe environments because they often discourage those of lower status to speak out. It has been well identified that individuals having the ability to speak up with questions, suggestions and concerns is central to effective teamwork and learning but "still as much as 80% of all reported critical incidents in healthcare are a consequence of communication errors in which failure to speak up to those further up the hierarchy seems to play a crucial role" (Institute of Medicine, 1999; Leonard, Graham and Bonacum, 2004, as cited by Weiss, Kolbe, Grote, Spahn and Grande, 2017, p. 66). Furthermore, the most important reason for remaining silent is the fear of negative sanctions from those with higher status in the hierarchy (Miliken, Morrison and Hewlin, 2003; Morrison and Miliken, 2000; Morrison and Rothman, 2009, as cited by Weiss, Kolbe, Grote, Spahn and Grande, 2017). Study conducted by Weiss, Kolbe, Grote, Spahn and Grande (2017) compared 20 healthcare teams who participated in traditional and assertiveness-specific training programs to see how they aided in addressing the silencing effect of hierarchies. The training programs can be integrated into organization activities which help those of lower status in the hierarchy feel safe to speak up or practice "assertive voice behaviour" to encourage higher participation in teamwork. These training programs provide framework for sharing concerns, questions or feedback called "after-

event reviews" that are used to "promote voice behaviour and hierarchy-attenuating beliefs" (Weiss, Kolbe, Grote, Spahn and Grande, 2017). Study by Weiss et al., (2017) study resonates with the Co-Navigation theory in the way that it mirrors the findings for positive relationships, which highlights the importance for intentionality in structuring interaction in highly hierarchical environments for learners in order for them to feel comfortable to speak up in these environments. The Co-Navigation theory explains how preparing to work together beforehand engaging in clinical work, establishes a relationship culture in the teacher-learner relationship that is more collegial. The work culture created by the teacher and learner can act as a guide for how a learner might engage with a clinical teacher while also engaging in clinical work that is likely to be perceived as a more hierarchical work culture.

The difference between this study and my study is that it encourages a debriefing practice after working together as a means to overcome hierarchical barriers instead of a preparing to work together beforehand to encourage individuals to speak out. The program also facilitates structured reflection, gathering individuals' feedback on the overall clinical performance but not necessarily ways they can participate during work.

"Failures are potentially a rich source of learning however, they also tend to provoke fear" and so reducing this fear encourages individuals to learn from them (Carmeli and Hoffer Gittell, 2009, p. 710) and that "interpersonal work context is a key enabler of or impediment to effective learning in organizations" (Edmonson, 1999, 2004, as cited by Carmeli and Hoffer Gittell, p. 711). Moreover, it was highlighted that support for psychological safety occurs when "organizational culture is designed for managing

failures" and this is because "fundamental attribution biases are reduced and people are more willing to discuss their mistakes without being concerned that they will be blamed" or not fear that "their actions be held against them or their image harmed" (Edmonson, 1996, 1999, 2004; van Dyck, Frese, Baer, & Sonnentag, 2005, as cited by Carmeli and Hoffer Gittell, 2009, p. 712).

Understanding how organizations are able to learn from failure is another focus in the psychological safety literature. Study by Carmeli and Hoffer Gittell, (2009) examined how high-quality relationships support the ability of individuals to be able to learn from failure in organizations. They studied relational coordination (i.e. shared goals, shared knowledge, and mutual respect), one dimension of high-quality relationships and how it fosters psychological safety. Relational coordination is a specific manifestation of high-quality relationships that is more specifically defined as "a mutually reinforcing process of interaction between communication and relationships carried out for the purpose of task integration" (Gittell, 2002, p. 301, as cited by Carmeli and Hoffer Gittell, 2009). Carmeli and Hoffer Gittell (2009) Furthermore, there were both direct and indirect effects of psychological safety on learning from failures; shared goals, shared knowledge, and mutual respect appear to encourage a perception that an individual is safe to speak up about errors and problems without fear (Carmeli and Hoffer Gittell, 2009).

Another area in the psychological safety literature is the role of leadership in creating psychologically safe clinical environments for learners. The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams was explored by Nembhard and Edmonson, (2006). They then posited

that psychological safety mediates the positive relationship between leader inclusiveness and intention to report events, as well as the negative relationships between power distance and intention to report events.

Leader inclusiveness is an important attribute in positive relationships which involve those in subordinate positions, particularly in healthcare settings where the "culture is deeply rooted in hierarchy" (Nembhard and Edmonson, 2006, p. 345). This attribute can be observed when a leader displays behavior of openness, availability and accessibility that helps facilitate the follower's perception that their leader acknowledges their contribution (Nembhard and Edmonson, 2006). Nembhard and Edmonson (2006) conducted surveys at an urban teaching hospital with residents and found that perceived power distance and leader inclusiveness significantly predicted intention to report adverse events of patient care when examining for the level of psychological safety (Nembhard and Edmonson, 2006). Their findings suggest that leader inclusiveness is a potential indicator of measuring psychologically safe learning environments for learners.

A more recent and similar study by Appelbaum, Dow, Mazmanian, Jundt and Appelbaum, (2016) examined the effects of power, leadership and psychological safety on resident reporting of patient adverse event . They also found that perceived power distance and leader inclusiveness both encourage reporting adverse patient care events, but noted that "because event reporting is shaped by relationships and culture external to the individual, it should be viewed as an organizational as much as a personal function" (Appelbaum, Dow, Mazmanian, Jundt and Appelbaum, 2016, p. 343). They concluded that minimizing the power distance supports greater reporting of adverse patient events.

From a general organizational psychology perspective, a recent study by Singh, Shaffer and Selvarajan, (2018) explored antecedents of organizational and community embeddedness and the roles of support, psychological safety, and need to belong. Embeddedness describes "a manifestation of the extent to which an individual feels connected within that life space— [or a sense of] connectivity" which encourages the desire to stay with an organization (Singh, Shaffer and Selvarajan, 2018, p. 339). Embeddedness is composed of three components. The first is fit, which is the level of congruence of their community role with organizational roles. The second is links, which describes the formal and informal connections with other individuals and institutions. The last is sacrifices, which refers to the perceived costs both on a material and psychological level that a member may lose if they decided to leave the organization (Singh, Shaffer and Selvarajan, 2018). It has been well documented that this theory can be used as a predictor of several outcomes that include employee retention, performance, commitment, innovation, job satisfaction and taking ownership of the organization (Felps et al., 2009; Harris, Wheeler, & Kacmar, 2011; Holtom et al., 2006; Hom et al., 2009; Lee, Mitchell, Sablynski, Burton, & Holtom, 2004; Ng & Feldman, 2010; Sekiguchi et al., 2008, as cited by Singh, Shaffer and Selvarajan, 2018).

The next section will explore the connection of the *Co-Navigation theory* to the dominating topic in medical education concerning physician burnout and wellness. First, I will discuss burnout and how it developed followed by how this phenomenon is being examined in the current literature.

Burnout and the Co-Navigation theory

Given the recent examination of the current literature and some of the highlighted gaps in the dominating topics in medical education, this section will provide suggestions as to what areas of research are further needed that this thesis project has potential to contribute to.

The majority of studies emphasize individual strategies to reduce burnout but fewer studies emphasize specific ways the burnout can be addressed at the level of the organization. This thesis project may offer insight into understanding burnout at the level of the organization, for learner and clinical teachers because it examined how the environment impacts the development of positive relationships for learning; positive relationships in the Co-Navigation theory are identified as ones that encourage an intentional step to ensure that personal needs (i.e the unique work and learning needs of the individuals in the relationship) are considered to increase a sense of accomplishment and collegiality.

Burnout is a complex work-related syndrome involving emotional exhaustion, depersonalization and a reduced sense of personal accomplishment (West, Dyrbye and Shanafelt, 2018) and one of its three domains –emotional exhaustion—describes an "extreme end state that shares many features with the clinical presentation of depression" (Firth, McIntee, McKeown, & Britton, 1986; Meier, 1984, as cited by Leiter, 1992, p. 237). Causes for burnout have been explored in study by Gazell, Liebschutz and Riess, (2014) that identified in addition to growing external pressures of the healthcare environment that "physicians are predisposed to burnout due to internal traits such as compulsiveness, guilt and self-denial, and a medical culture that emphasizes

perfectionism" (p. 508). In other words, there is not a cultural practice to support what medicine looks like outside the realm of perfection.

Gazell, Liebschutz and Riess, (2014) found that one strategy for physicians is professional coaching provides a "results oriented and stigma-free method to address burnout, primarily increasing one's internal locus of control" (p. 508). Coaching also decreases burnout because it reduces the number of internal contributors. This is because it "enhances self-awareness, drawing on individual strengths, questioning self-defeating thoughts and beliefs, examining new perspectives, and aligning personal values with professional duties" (Gazell, Liebschutz and Riess, 2014, p. 508). The Co-Navigation theory, may have much to offer in the medical learner-clincial teacher relationship with respect to the benefits highlighted in coaching as a way to address burnout; the four opportunities highlighted, particularily preparing to work together, work to increase self-awareness, consider the perspective of the other (i.e. teacher can consider learner perspective and vice versa) and help to align the personal and professional values with the clinical work performed together.

Strategies for promoting physician wellness to combat burnout in study by Callahan, Christman and Maltby, (2018) suggested individual and organization focused strategies. Individual-focused included mindfulness meditation, exercise, gratitude, healthy relationships with family and friends and seeking mental health care when needed. Organization-focused included evaluating workload, autonomy, choice and fairness. Callahan, Christman and Maltby (2018) concluded that future research dedicated to examining a holistic model that combines these two focuses is needed.

The majority of the literature dedicates itself to identifying the problem of burnout, what it is, the rates and potential strategies needed to mitigate it but they do not explain how it occurs in clinical contexts to help inform organization reform. While many of these studies focus on the role of the individual's efforts in employing strategies to address burnout, study by Card (2018) posits that one particular strategy, resilience training, is only part of the solution (Card, 2018). Resilience training is a "stress coping ability that enable one to thrive in the face of adversity" (Card, 2018, p. 267). While resilience training is helpful, and many health systems have turned to it as a solution to address burnout, Card (2018) helps distinguish between unavoidable occupational suffering that is what many physicians have accepted as part of their role as healthcare provider from avoidable occupational suffering which are as a result of system failures that could have been prevented. Card (2018) points out that the normal working conditions for physicians and trainees "would be considered unsafe, unprofessional and even illegal in other safety-critical industries but long tradition has made this appear acceptable to the medical community" (p. 268). Furthermore, the cultural expectations that physicians and trainees feel to not complain, not show pain and not show signs of mental health issues in the midst of these working conditions sets them up to suffer in silence which is "perpetuating this hidden curriculum that has historically promoted 'toughing it out' and foregoing help" (Card, 2018). One area of research explicitly mentioned in the burnout literature by Card (2018), is the urgent need to build an evidence base for improved practice that supports the prevention and mitigation of avoidable and unavoidable occupational suffering that also normalizes the humanity of

physicians. This would help support the normalization of behaviors that facilitate psychological safety and learning (i.e. asking questions or learning from mistakes)

Burnout is prevalent at an international level and it has been well identified in the literature that rates of physician burnout that exceed 50% of both physicians and those in training, with higher rates of burnout reported by female and younger physicians (West, Dyrbye and Shanafelt, 2018). The negative consequences of physician burnout have also been clearly identified that include adverse effects on patients, the healthcare workforce, costs and compromised physician health (West, Dyrbye and Shanafelt, 2018). The main culprit of the high rates are due to healthcare organizations and systems that facilitate "excessive workloads, inefficient work processes, clerical burdens, work-home conflicts, lack of input or control for physicians with respect to issues affecting their work-lives, organizational structures and leadership culture" (West, Dyrbye and Shanafelt, 2018). Solutions such as mindfulness-based stress reduction and small-group programmes to promote community, connectedness have been shown to be effective in reducing burnout (West, Dyrbye and Shanafelt, 2018).

There are a lack of studies examining burnout at the level of the organization which beckons the need for further research that take a holistic and systems oriented examinations approach to burnout as a phenomenon to further understanding the role of the organizational structures (i.e. on call structures, clerkship rotation scheduling etc.) to understand what may contribute to the development of positive relationships and the impact is has on burnout. Studies that examine what type of burden that the organization puts on the off the individual efforts of the teacher and learner are needed.

In summary, although there has been advancement in understanding physician burnout in recent years, many gaps still exist and there is a need for longitudinal studies to examine the impact of individual and organizational efforts that work together (West, Dyrbye and Shanafelt, 2018). This thesis research project study has potential to contribute a deeper understanding of burnout in hopes of helping design more sustainable and intentional approaches in medical practice and education because it offers specific ways that teachers and learners attempt to build positive relationships while also highlighting the barriers and affordances of the clinical environment specific to training.

The Educational Alliance and the Co-Navigation theory

Another area of literature that the Co-Navigation theory may be able to contribute to is the educational alliance; the way that teachers and learners can form a relationship dynamic similar to the therapeutic alliance between a psychotherapist and their patient:"the provision of expert insight from a psychotherapist alone is insufficient to evoke change in patients" and instead, it is the quality of the relationship that does (Telio, Aijiawai and Regehr, 2015, p. 611). Furthermore, the concept of educational alliance points to how the perception of this alliance can influence training (i.e. being receptive to feedback) because it influences perceptions of the credibility of its source (i.e. an aspect of trusting someone) (Telio, Aijiawai and Regehr, 2015). Telio, Regehr and Ajjawi (2016) further investigate the application of the alliance framework to feedback in clinical education and found that credibility "is a multifaceted judgement that occurs not only at the moment of the feedback interaction but early in and throughout the educational relationship" and not only does the feedback impact the learner in the moment but

influences future engagment with a teacher. These findings are in line with the results of the Co-Navigation theory study; that learners see efforts teachers make to prepare to work with them encourage judgments about their teacher with respect to how they anticipate their teacher being less likely to make them uncomfortable during challenging learning experiences (i.e. making mistakes) and feel more comfortable asking questions.

The educational alliance framework when applied to the medical learner-clinical teacher relationship, suggests that the quality of the relationship may be overestimated by the teacher and so, the quality of the relationship should be judged from the perspective of the learner (Telio, Aijawai and Regehr, 2015). The Co-Navigation theory may be used, to validate the learner-centered perspective and teacher-emphasized responsibility on solidifying trust by mitigating perceptions of interpersonal risks in their relationship.

The Co-Navigation theory may suggest each of the four opportunities be considered as a general "road map" for how to build educational alliance that identify areas of training which may hold greater potential to strengthen alliance. The Co-Navigation theory may also empower teachers to consider how a learner might percieve their interactions and become more aware that their intentions to help the learner to learn may not always be interpreted this way by the learner and ways to effectively communicate these intentions. In addition, having a concept such as educational alliance may empower the learner to bring up to their teacher, any concerns about the quality of their relationship at any point marked in the co-navigation theory, as a way to sustain improved quality and provide a quality measurement of how well they are co-navigating.

The Co-Navigtion theory emphasizes similar practical suggestions to the educational alliance in two ways. The first is how the opportunity to solidify perceptions of trust by preparing to work together (i.e. discuss educational plan, expectations, share relevant personal perferences for how to work together), resonates with the key aspects of an educational alliance; "the unity of goals, agreement on how to reach those goals and the bond between them" (Telio, Aijiawai and Regehr, 2015, p. 612). Secondly, the educational alliance literature has applied their concept to feedback, an important component in medical training that has often been considered a "uni-directional content-delivery process" but how there are efforts to reconceptualize feedback as "bi-lateral, context-based dialogue" (Bing-You and Trowbridge, 2009; Watling and Lingard, 2012, as cited by Telio, Aijiawai and Regehr, 2015, p. 613). However, it was also mentioned there has also been a gap between best practices for giving feedback suggested in the literature and the actual practices of teachers (Telio, Aijiawai and Regehr, 2015, p. 609) This suggests that the Co-Navigation theory may offer insight into how to build alliance as a way to increase the effectiveness of feedback in training .

Lastly, the Co-Navigation theory also emphasizes a bi-directional approach to solidifying trust and provides practical examples of contrast between a bi-directional approach to preparing to work together and asking questions which may work to empower teachers to strengthen a learner's sense of alliance with them.

Strengths and limitations to consider

Some limitations of this study include the study had a small sample size that included participants are from one institution. Strengths of this study include that this study was an in-depth description of individual's experiences providing a "how" explanation to trust building. It also provided two viewpoints from multi-levels of training that included: clerkship; reflections on clerkship experiences from a resident training level; clinical teachers with and without faculty appointments.

This project was an examination of learning and teaching experiences unique to McMaster University's medical school that can shed light on how to further improve and acknowledge the experiences of current McMaster teacher and learners. More specifically, this study helped highlight how McMaster learners and clinical teachers define positive relationships in the context of the busy clinical environment that can illuminate ways we can support these efforts and opportunities for the structure of clerkship to alleviate some of the pressures teachers and learners feel on their relationship.

Conclusion

This research project has contributed to the understanding barriers of building psychological safety in clinical environments and block rotation clerkship models. It offers suggestions for strategic focus on activities that can be catalytic in encouraging the formation of positive relationships between teachers and medical learners while also highlighting what support looks like at the organization level. These supports may need consideration of how to restructure clinical work or the timing of clerkship rotations to

ensure that teachers and learners are able to get off on the right foot and fulfill their learning and clinical work objectives. These supports need to be considered ways to reduce the learning curve for teaching in demanding environments especially in higher risk settings, in order to alleviate the challenges teacher's face while balancing work and teaching.

Recommendations

Since the data was collected from participants who were working and learning within the block-rotation model, the recommendations for aiding in the development of trusting relationships will be specific to this clerkship model.

In the comparison I made between the four opportunities in Co-Navigation theory and Psychological safety theory, improvements to clerkship may initially suggest that increasing psychological safety to encourage learning behaviours is a first step. However, as mentioned in literature that discussed the potential negative consequences of psychological safety, attempting to increase psychological safety may be best accomplished by examining first the ways that teachers and learners are able to balance the collectivism/individualism orientation to clinical work in the learner-teacher relationship. I recommend that further examination of the preparing to work phase and its impact on this orientation be further investigated. This is because focusing on efforts in educational interventions to help teachers and learners increase psychological safety, may be compromised because of the way that the clinical environment encourages teachers to unintentionally take on an individualism orientation within their relationship with learners because of how their clinical obligations often take priority. In Deng's

(2019) work that highlighted increasing psychological safety in individualist oriented organizations may actually be counterproductive in clinical environments without encouraging a sense of accountability inherent to collectivist orientations: "if people are so comfortable with each other that they spend an inappropriate amount of time in casual conversation at the expense of their work" and that a psychologically safe workplace environment may dampen the level of overall work motivation in groups because individual members may lack the edge to drive themselves forward (Edmonson, 2004, p. 264; as cited by Deng et al., 2019) or be encouraged to procrastinate (Hemmert, 2010; as cited by Deng et al., 2019). Considering this dynamic and what the Co-Navigational theory offers I recommend:

1) Focusing on administrative and educational support for teachers and learners to be able to prepare to work together as described by the Co-Navigation theory. Further more, the Co-Navigation theory may be used as a template for strategic educational interventions and a way to bring awareness to these four opportunities.

Preparing to work together was demonstrated to be the most influential opportunity to build trusting relationships but was reported to be challenging for both teachers and learners for a variety of reasons. One scenario was in fast-paced environments or busy clinical settings, the timing of integrating the learner into the clinical environment may be better supported by examining what barriers exist and potential solutions for preparing the clinical teachers and learners for this encounter. This may be going through the expectations of this encounter, providing the learner with a profile that clinical teachers may review beforehand to give necessary background, that

includes learning objectives of the learner. For community physicians, a checklist or orientation through online modules for this encounter may be helpful. The challenge teachers reported was not always being able to prepare before working with the student due to the nature of clinical work needing to be prioritized, however, preparing to work together can be revisited every time teachers and learners engage in clinical work (i.e. a specific task or when given instruction), when learners are being asked questions or make mistakes. Further study of how this may be integrated into pre-clerkship or clerkship orientation may be beneficial.

2) Making mistakes was reported to be the most solidifying opportunity to build trust by affirming learner's assumptions about their teacher's intentions. This was often the case in surgical settings, which may have benefited from having a structured approach and educational intervention for dealing with mistakes. The intervention may include examining the issue from both the teacher and learner perspectives to draw awareness to the complexities of mistakes in medical education and the importance of the trust building opportunities (i.e. engaging in clinical work and asking questions) that are used to assess the interpersonal risk when making a mistake.

This project also highlights suggestions for teaching in medical education for where efforts can best be used to reduce unnecessary stress for learners and make the most of the little time that physicians have, in order to make the most of teaching. It brings to attention the need for self-awareness and the need for structures to help facilitate healthy learning cultures pertaining to failure and training as it relates to teaching in highly structured environments such as surgery. Lastly, while we have considered ideals

in this study of learner's positive experiences with teachers and the need for teachers to help facilitate psychological safe relationships to facilitate high quality learning, the role of the environment plays an influential role in how teachers can facilitate psychological safe relationships. The high rates of physician burnout bring an immediacy to develop life-giving models that integrate clerkship models more harmoniously with the work context of teachers and vice versa. This might be a way to develop a more sustainable continuing professional development education in order to meet the unique demands teachers face along with how to shape environments to better support learning.

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Appendix A

Code Book

1. **Positive:** any relationship, interaction or environment that is described by participants or you as 'positive'.

Positive

- Structural descriptions
- Relationship description
- Examples of positive actions, behaviour or experiences
- Descriptions of characteristics
- Negative within positive
- Other aspects that do not fit clearly

2. **Negative, challenging or difficult :** any relationship, interaction or environment that is described by participants as 'negative' or 'challenging'.

Negative, challenging or difficult

- Structural descriptions
- Strategies to navigate
- Description of relationship
- Positive within negative
- Examples of actions, behaviours or experiences that are challenging
- Description of characteristics
- Other aspects that do not fit clearly

3. **Hierarchy:** ways that people use power gained by virtue of their position, status, or role to influence the behaviour of another person

Hierarchy

- Examples of teachers using/relating via hierarchy to interact with learners
- Examples of learners anticipating the use of hierarchy (even though teacher hasn't done anything)

- Examples of subversion of/undermining/not assuming hierarchy
- Effects or consequences of hierarchy
- Other things about hierarchy that don't fit elsewhere

4. **Trust:** Positive perceptions of an alliance between teacher and learner

Trust between Teachers and Leaners

- Examples of Building Trust
    - Separate (maybe in next round) examples of it happening vs. strategies people discuss
    - Separate (maybe in next round) teacher strategies and learner strategies
- Examples of Failing to Build Trust
- Examples of Absence of trust
- Examples of Disintegration or Destroying Trust (whether implicit or already built)
- General abstract discussions of Trust

5. **Environment:** Contextual factors of the clinical learning environment. May relate to structural or organizational components of the specialty, the location of the setting, the set-up of the rotation, the physical space, the make up of the team (e.g. number of other learners) etc.

Environment

- Environmental factors that inhibit trust building
- Environmental factors that make difficult trust building
- Environmental factors that facilitate trust building
- Other things about the environment or learning structures that don't fit as inhibiting or facilitating factors

Intersections (not coding specifically for at this time- this will be next round, but you might see something that jumps out at you)

- Building trust despite environmental factors that usually inhibit trust building

- Failing to build or destroying trust despite environmental factors that usually facilitate trust building
- Examples of environmental features that reinforce or subvert hierarchy
- Trust and hierarchy co-existing

Appendix B

Appendix C

For the purpose of this recording, I would like to state that today is (*FEB 13th*) and this is my (*10:00AM*) interview with participant (*#26*).

Thank you for participating in this research project. This study is part of a larger program of research about professionalism, mistreatment and abuse. More specifically, within this we are hoping to better understand the way the learning environments learners encounter during clerkship, shape their relationships with clinical teachers. We aim to do this by exploring positive and negative experiences learners have had during clerkship. By understanding both, we hope to gain some insight into how we can better support positive learning experiences and relationships. Since we will be talking about difficult, challenging or even 'negative' experiences, there might be some content which may involve mistreatment or abuse that you share. Because of the potential for this, I would like to reiterate that because I am a researcher I will not disclose any information you share with me today. You should understand that this means that talking to me is not the same as anonymously reporting mistreatment or abuse you may have experienced from one of your preceptors, colleagues etc. Because I'm not a physician and not involved in the administration of the Undergraduate MD program, I am not able to initiate remediation or do anything administrative with the information that you share with me today. If reporting or sharing information with the program anonymously is something you are interested in, I can help you figure out how to do this, but I just want to be clear that this is a research interview and not a way to anonymously report mistreatment or abuse.

Does all that make sense?

If at any time you would like to discuss the topic of confidentiality or reporting further, just let me know. We can stop the recording and talk off the record. If you want to talk about it after the interview is over, you can always call me or send an email. I will provide you with some resources about the supports available to you today [via email after our interview].

These resources can all be found on MedPortal, so they might not be new to you, but I figured that having a copy to look at wouldn't hurt. On the top page you will see the contact information for Student Affairs. This is a group of physicians who are available to support students through tough experiences, including mistreatment or abuse. They are your first point of contact at McMaster- you can talk to them without formally reporting, and they can help you figure out how you want to proceed.

Ok- do you have any questions or anything you want to discuss before we start the interview?

Ok, let's begin. Can you tell me where you are in your training? What core/electives have you had so far?

1. I would like to begin with asking you to share a relationship that you have had with a clinical teacher that was a more challenging, difficult or maybe even a "negative". When I say clinical teachers this can mean attending physicians, residents, nurses , other allied health professionals or even peer teachers. Can you paint me a picture of this relationship?

    a. Why was it a challenging, difficult or 'negative' one?

    b. Where was this rotation? What city or town? In a busy community clinic,
    academic hospital etc?

        i. How long was it?

        ii. Was it core or elective rotation?

        iii. Were you thinking of asking them for a letter?

    c. What was your first interaction like?

        a. How did this relationship develop?

            i. How many times did you interact with them before you realized it was going to be a challenge?

            ii. Probe: Was it difficult initially or did it progress into something difficult?

            iii. Was there a 'tipper' in the relationship?

            iv. What were some of the things that you noticed that made it a difficult relationship?

            v. If you are comfortable, can you provide more detail ?

        b. Why do you think these things made it difficult for you as a learner?

        c. Was there anything that you attempted to do to improve this relationship?

        d. What sort of response did they have?

        e. Was there anything that the teacher did to improve this relationship?

            i. How did that impact your relationship?

        f. What were the outcomes?

      g. How did this relationship impact the way you learned or performed similar activities later on?

2. What sort of teacher-learner practices do you feel didn't "work" in regards to building a positive relationship?

    a. What sort of impact did it have on you? On your learning?

    b. How much of the challenge in this relationship came from personality traits? The overall environment?

    c. How did you work through this difficult situation?

        a. Was there anyone who noticed or got involved?

        b. If no, then why?

        c. If yes, then who?

        d. How did they get involved?

        e. What was the outcome?

    d. Did you seek help or support?

        a. If yes, who?

        b. What sort of help or support did they provide?

        c. Did it help at all?

        d. If yes, how did it help?

    e. Was there anything else about this relationship that you feel is important to share?

4. Can you describe the workplace atmosphere/environment where you worked with this teacher?

    a. What sort of clinical-work culture did it have?

    b. Can you provide examples or scenarios that illustrate this?

    c. What sort of sense did you get from the way people interacted in general?

    d. Did this impact you in anyway?

e. How was it different from other rotations that you had a more positive experience?

f. Did this impact your learning? If yes, can you explain?

g. Was there anything specific that was disruptive or unhelpful for learning?

5. Did this atmosphere/environment ever impact the way you interacted with your clinical teacher?

    a. If yes, can you explain?

    b. Is there anything else that you feel is important to mention that you noticed, felt or experienced in this environment?

6. If there were any experiences mentioned that may be reportable, was there anything that you felt you should report?

    a. Did you report it?

    b. If yes, how did it go?

    c. If no, can you explain why?

Thank you for sharing those experiences in detail. Sorry to hear you had some difficult experiences during your clerkship. If it is ok with you, now I would like to ask you to share any positive experiences that you have had during clerkship.

Let's think a bit imaginatively for a second. Pretend you are the Dean of the Faculty of Health Sciences and you could make any reasonable change to improve relationships between this person and future learners. So, you can't wave a magic wand and make that person more empathetic, but you could reduce their patient load or tell them they are not allowed to swear at learners. That kind of thing.

What kind of change would you make? Why?

9. Thanks for sharing those experiences in detail. We aim to improve the overall experience for learners and your stories will be contributing to research aiming to do so. Now, if it's ok with you I would like to ask you to share a positive relationship that you have had with a clinical teacher. Can you paint a picture of this relationship?

    a. What rotation were you on? Where was this rotation? What city or town? In a busy community clinic, academic hospital etc?

    iv. How long was it?

    v. Was it core or elective rotation?

    vi. Did you want a letter from them?

  b. What made you pick this example? Why was it so positive?

  c. What do you think contributed to this relationship being such a good one?

  d. How did this relationship develop over the course of your rotation?

    i. How many times did you interact before you knew it was a 'positive' one?

    ii. What scenarios interacting with them told you it was a positive relationship?

  e. What did sort of things "worked" for you and your clinical teacher in regards to having a good relationship?

  f. Were there things that could have made it better? Why?

  g. How did this relationship impact the way you learned or performed similar activities later on?

  h. Why do you think this impacted your learning?

  i. How do you think this sort of positive relationship could be better supported in clerkship?

  j. Was there anything else about this relationship that you feel is important to share?

10. Reflecting on all your experiences, what was structured for you in the clinical environment, your relationship with a teacher and your learning that was helpful? That was not helpful? Why or why not?

11. What was NOT structured for you that was helpful or not helpful? Why or why not?

12. Can you describe the workplace atmosphere/environment?

 a. What sort of clinical-work culture did it have?

 b. Can you provide examples or scenarios that illustrate this?

 c. What sort of sense did you get from the way people interacted in general?

d. Did this impact you in anyway?

e. How was it different from other rotations that you had a more positive experience?

f. Did this impact your learning? If yes, can you explain?

g. Was there anything specific that was disruptive or unhelpful for learning?

13. Did this atmosphere/environment ever impact the way you interacted with your clinical teacher?

   a. If yes, can you explain?

   b. Is there anything else that you feel is important to mention that you noticed, felt or experienced in this environment?

15. Can you describe any other rotations where you had a really positive experience? Feel free to give more than one example.

   a. Can you describe the atmosphere/environment?

   b. Can you provide examples to illustrate this?

   c. What sort of clinical-work culture did it have?

   d. Can you provide examples to illustrate this?

   e. How was it different from less positive experiences you had on other rotations?

   f. What sort of sense did you get from the way people interacted in general?

   g. Did this ever impact the way you interacted with your clinical teacher? If yes, can you explain?

   h. Were there clinical teachers you feel contributed to this positive experience? If yes, who were they? How did they contribute?

   i. What sort of position/role did they have?

   j. How did you interact during your clerkship (I.e. frequency, purpose, place, duration)?

   k. How might you describe the relationship you had with them?

16. Was there anything about the atmosphere/environment that was notably helpful for learning? If yes, can you provide examples?

    a.   If yes, why did you choose these particular examples?

    b.   Is there anything else that you feel is important to mention that you noticed, felt or experienced?

Thank you for sharing your experiences. Having some insight into what a positive experience is like for learners helps us better understand how we can encourage these experiences in the program.

Ok, that's all the questions I had. Anything else you want to share? Anything I didn't ask you about?

Is the email you have been using ok to use for me to send you an honorarium via e-transfer? Great! Thanks for your time today.

Appendix D

Coding Focus: Incident to Incident (I to I)

Date: October 2, 2017

Comparing Interview #005 to #003

Interview #: 005   Interview #: 003

Code	Excerpt	Why this code?	Code	Excerpt	Why this code?
abusive preceptor behaviour in preceptor-learner relationship

'student's first time in OR and a rotation'

pimping in OR | I was basically in the middle of a surgery with myself, a resident, and the preceptor. The resident had to be called away for something else so I got bumped up to being the first assist in the surgery, something that I'd never done before and really didn't have much exposure to being in an operating room before so this was very new to me and this was my first rotation ever. In the middle of me being the first assist, the preceptor would tell me to move things around in the field of view and everything, which was fine, but obviously I was feeling pretty stressed out already having been bumped up, and he started pimping me, asking me questions about things that, personally, I didn't feel were, I don't know, relevant to what was going on at the time and ask.. so just asking me very specific questions that I didn't know the answer to and I didn't think that most people actually would know the answer to either, so, that, in combination with being pushed up to first assist, | The code is very general so I have gone back into this excerpt to highlight areas that may provide 'components' of abuse in this incident. I will try to compare it to the other excerpt in 003. The yellow highlighted parts: refer to setting, context that 'set the stage'. The highlighted pink seem to be where the rising action is in the story or an integration of action, thought and feeling simultaneously or occurring quickly before meaning is made by scenario, or at least that is my theory. The highlighted red are sensitizing concepts and 'hot points', where something is more obvious, has intensity/energy within the story or immense impact.

Based on these highlighted areas: high stress; judgement; silence from both preceptor and those who are also in the OR that act as an audience (nurses, other staff etc.); 'this is all in my head' sounds like a fearful statement that has greater implications or speaks | 'figure it out buddy'

'if I had made a stink about it […], there are ways she can make my life very difficult'

'she can badmouth me to my preceptor who doesn't know me very well' | I was called during an on call shift to come see a patient in triage. And triage is where we sort patients. Are they going to stay, are they going to go home? Do they need surgery, etcetera? And so, on call, with the usual call shift, usually it's 26 hours. So, you work from 7:00 a.m. to 9:00 a.m. the next day. So, I was very tired, but I know the drill and the nurse said I had a patient in triage. So, I went upstairs and I approached the triage nurse and I said, hi, I'm the clerk on call. Where is the patient? And she pointed over to the triage desk and she said, figure it out, buddy. Okay, can you just tell me what room she's in? And she said, I said, figure it out. So, I had to go figure it out. But, there was literally no reason for her to do that. But if I had made a stink about it and I had to work with her, there are ways that she can make my life very difficult. And she can bad mouth me to my preceptor who doesn't know me very well, because he or she is so busy, that I don't spend that much | Yellow highlighted here is the setting and context.

Red highlighted here is emphasizing the defining feature of the story. Although less intensity than interview 005 red highlights, it seems what the student said following this is what makes it red, " *there was literally NO REASON for her to do that*. Here again, reason or unclear intent I would say say is made relative to a student's learning and maybe even getting the job done. It just made the experience more difficult than necessary for the student. This 'reason' points to a similar frustration found in interview 005 when the student mentions 'crossing the line'.

Pink highlighting here seems to frame the inner |

'medicine is a privilege' 'this is all in my head' 'he ended up leaving and then it was clear he had crossed the line' avoided preceptor and 'tried to recollect myself in the bathroom'	I just got very, very stressed out and was not feeling good about myself. And then, basically, what happened is that I wasn't able to answer any questions and the preceptor just basically said like, we just stopped talking for a moment and then he said, medicine is a privilege. That exact sentence. And then, to me, I was like, what is that supposed to mean? Are you saying, this is all in my head, obviously, are you saying that I don't deserve to be here because I can't answer your questions? What are you trying to get at here? Basically, at that point, I just didn't say anything, shut up, and just finished closing up the surgery, and he ended up leaving and then it was clear that he had crossed the line. All of the people in the OR were just quiet and didn't say anything, and he left, and then I finished up, and then I basically tried to avoid him for the next few minutes, went to the bathroom, tried to recollect myself, and then got out again. And then, basically, just finished up the rest of my shift and went home, like, I didn't bring it up, I didn't really want to talk to him anymore afterwards.	into an insecurity of a student, maybe even their power dyanmic they encounter with their preceptor who 'legitimizes' their learning; deserving; privilege; pimping Interesting Eq'n (*an equation would be something that equals something else or what does behaviour mean*): can't answer questions = do not deserve to be here This is mostly because the student is not clear of the intentions of the pimping. Would trusting/knowing this person change this eq'n? I find it interesting that it was when the preceptor left the room that it was made more obvious '*he had crossed a line*'. **I wonder what sort of 'line' we are talking about here.** Is the implicit assumption lack of respect? Unprofessionalism? Bad precepting? unnecessary? This 'line' could be an interesting concept to map out. in other interviews it seems that controllable things such as performance, learning etc are associated with interactions pertaining to abuse, where interaction that is questionable based on uncontrollable things such as race, gender, sexual orientation, religion , is more associated with abuse. In this example, I wonder if this would fit within this categorizing or 'line' defining around behaviours.	'he or she is so busy, that I don't spend that much time with that person'	time with that person. And I've heard the gossip in the OR and in the clinic and I know that you can be snowed in or snowed, I think, is the expression. If somebody wants to hurt you, they can	dialogue the student has trying to make sense of the scenario based on what information they have. These is less stress and more frustration in this section when compared to interview 005's pink highlighted section. There is also body language used here by the nurse (I.e. pointing) and less verbal communication when interacting with the student. This is interesting to compare to a similar way the preceptor in interview 005 used silence to frame " *medicine is a privilege'* in their interaction with the student. In both cases, words seem to carry threatening tones because there is little body or verbal communication to suggest otherwise. Gossip also supports the students decision making process of how to respond. Gossip in itself is a different type of silent communication where, people bypass communication because it is about them usually in a tainted light. In this case, it seems to be about student survival. This suggests in my mind, a stressful or hostile environment.

Appendix D