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Using Virtual Reality to Develop Clinical Educators' Skills of Facilitating Challenging Conversations with Students

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Using Virtual Reality to Develop Clinical Educators' Skills of Facilitating Challenging
Conversations with Students

by

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A THESIS

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Abstract

Facilitating challenging conversations with struggling nursing students can be a stressful experience for clinical educators (CEs). By addressing identified issues in a timely manner, CEs ensure competent patient care while providing students with an opportunity to improve performance. With little to no opportunity to practice facilitating challenging conversations until the actual interactions, CEs are often unprepared to navigate these conversations. This study aimed to gain CEs' perspectives on the effectiveness of virtual reality (VR) in facilitating faculty development in navigating these conversations. A mixed-methods approach using a survey with demographic items, open- and close-ended questions, and interviews were implemented at the beginning and end of the Fall 2020 teaching semester with CEs teaching small groups (6-8 students) in the Faculty of Nursing. Data analysis included frequency distribution and thematic analysis. The study found that CEs perceived the VR experience as a beneficial tool to develop their skills. While providing a safe and positive learning environment to practice necessary skills, the VR experience prompted CEs to be actively engaged in their learning as well as enhance their confidence level in how they manage challenging student interactions. CEs suggested that the VR experience could be utilized for both new and experienced educators by incorporating it as a part of orientation and ongoing professional development sessions, respectively. Also, CEs shared that receiving feedback on their performance and making the experience more interactive may further enhance their learning. Gaining CEs' perspective on the usefulness of the VR experience for faculty development could be beneficial in better supporting CEs in their roles to provide quality learning for the students. With this insight, there is potential to implement the use of VR as a means to support faculty and develop additional learning experiences to build their capabilities as educators.

Keywords: clinical educators, communication, faculties, professional development,
virtual reality

Preface

This thesis is original, unpublished, independent work by the author, H. Ibbotson. The research reported in chapters three and four was covered by Ethics Certificate REB20-1058, issued by the University of Calgary Conjoint Health Ethics Board for the project “Using Virtual Reality to Develop the Skills of Facilitating Challenging Conversations” on July 14, 2020.

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List of Abbreviations

CARNA	College and Association of Registered Nurses of Alberta
CE	Clinical Educators
CNA	Canadian Nurses Association
ELT	Experiential Learning Theory
SSQ	Simulator Sickness Questionnaire
VR	Virtual Reality

Chapter 1: Introduction

Clinical learning is an essential component of nursing education. Clinical experiences provide opportunities for students to learn experientially and apply theoretical knowledge from the classroom to clinical practice (Budgen & Gamroth, 2008; Croxon & Maginnis, 2009; Heidari & Norouzadeh, 2015). While the majority of nursing students perform competently in the clinical area, some struggle to provide competent care to patients or apply theory to clinical practice (Chunta & Custer, 2018; Duffy, 2003; Mossey et al., 2012); they may lack the necessary knowledge or skills, exhibit unprofessional behavior or attitude, or have difficulty with interpersonal relationships (Chunta & Custer, 2018; Hrobsky & Kersbergen, 2002; Mossey et al., 2012). If these students are not identified and managed in a timely manner, they pose a risk to patient safety both as students and later as new practitioners (Chunta & Custer, 2018; Duffy, 2003; Larocque & Luhanga, 2013). As such, clinical educators (CEs) need to be proficient in facilitating challenging, yet necessary conversations, with these students to address unsatisfactory or unsafe practice and to provide an opportunity to improve performance (Chunta & Custer, 2018; Hunt et al., 2016a; Huybrecht et al., 2011; Plakht et al., 2013; Wells & McLoughlin, 2014).

Context of the Study

Failing to Address Struggling Students

CEs sometimes avoid and therefore fail to address struggling students despite concern about their fitness for practice (Duffy, 2003; Elliott, 2016; Heaslip & Scammell, 2012; Hughes et al., 2019; Hunt et al., 2016a, 2016b). Although CEs are often experts in their field of practice, their expertise may not extend to their abilities as educators. Few have formal preparation for teaching, and orientations vary widely between institutions (Dahlke et al., 2012; Morin &

Ashton, 2004). Many may feel unprepared for the role as they are expected to be capable of providing quality feedback conversations to support student learning and improvement as needed. Additionally, the receptivity of students to feedback conversations can be difficult to manage should the responses be unexpected. As such, providing CEs with opportunities to develop their competence in facilitating challenging conversations with underperforming students is beneficial.

Virtual Reality

There has been an upsurge with exploring the application of digital technology in teaching and learning to enrich the learning process. The demand for the development and use of extended reality technology, which encompasses augmented reality, virtual reality (VR), and mixed reality, has increased as its usability and applicability are studied across different disciplines and fields (Donovan et al., 2021; Parveau & Adda, 2019; Xie et al., 2021). While augmented reality embeds elements of digital world into the real world and mixed reality merges the two worlds to create a new environment, VR offers a complete immersion into a virtual world, allowing the user to interact with the virtual world in real-time (Parveau & Adda, 2019; Rauschnabel et al., 2022; Skarbez et al., 2021). VR has been used to provide a wide range of experiential learning environments, from dangerous (e.g., fire training simulation) to impossible (e.g., exploring and interacting with a cell to understand its function) experiences (Johnston et al., 2018; Xu et al., 2014). VR's complete immersion in the learning environment provides a medium for the user to learn by doing, through the first-person experience (Mast et al., 2018; Xu et al., 2014). As such, this technology has significant potential for simulation and training applications (Parveau & Adda, 2019; Radianti et al., 2020; Xie et al., 2021). Additionally, by including virtual humans who can move around in the virtual world and interact with the user,

VR further provides a sense of co-presence with adequate realism during such experiences (Hart et al., 2013; Hubal & Guinn, 2003; Mast et al., 2018). Co-presence is described as “being aware that other individuals are present and perceive [the user]; there is a psychological connection between the [user] and the virtual humans” (Mast et al., 2018, p. 12). Consequently, participants have the opportunity to experience possible interactions that are emotionally taxing, allowing them to navigate through these emotions before they encounter such interactions in real life (Mast et al., 2018). At the same time, as virtual humans are perceived as artificial, the stress from a potential perception of judgment from peers and colleagues is removed, allowing the participants more freedom to experiment with new, different behaviors as they refine their communication skills for such interactions (Fannon, 2003; Mast et al., 2018).

Although utilizing VR to develop communication skills is still a new area of research, there are increasing numbers of studies demonstrating the usability and feasibility of this kind of technology to develop social skills, such as public speaking (Anderson et al., 2005; Harris et al., 2002; Klinger et al., 2005; Pertaub et al., 2001), job interviews (Smith et al., 2014; Stanica et al., 2018), having to deliver “bad news” to patients and families (Ochs et al., 2019; Peddle et al., 2016), or having to ask difficult or embarrassing questions (Peddle et al., 2016; Real et al., 2017). Through active engagement in virtual social interactions, participants are exposed to anxiety-provoking social situations; VR then enables participants to “progress according to their individual training goals and dispositions” (Mast et al., 2018, p. 8). Suggested benefits of utilizing VR to develop interaction skills are:

- unlimited availability of the virtual social interaction partners, which allows participants to repeat the interaction as many times as they would like;

- participants being engaged in the experience and feeling safe to experiment with new behaviors, encouraging participants to try alternatives and alleviating some vulnerability;
- variability in training scenarios which optimizes learning and keeps participants interested;
- possibility for adaptive learning by adjusting content to meet participants' needs as their goals, preferences, and knowledge are considered; and
- possibility for new or uncommon experiences (Mast et al., 2018).

Additionally, compared to two-dimensional screen-based interactive methods, VR has higher ecological validity as results of participants' performances can be generalized to real world situations (Lessiter & Freeman, 2001; Pan & Hamilton, 2018). The increased sense of presence and interactivity evoke reactions and emotions similar to a real experience, and participants are able to practice working through their emotions and managing their reactions before they encounter such situations in the real world.

Although there has been extensive use of VR for learning in fields such as airlines and space programs, many people are still unfamiliar with this platform. Historically, some of the identified drawbacks include:

- the time required for learning how to use hardware and software;
- possible health effects such as nausea, disorientation, vertigo, motion sickness, general discomfort, headache, or anxiety; and
- possible reluctance to uptake and integrate new technology into a training regime (Pantelidis, 2009; Pottle, 2019; Radianti et al., 2020).

However, there is potential for the benefits of VR to outweigh possible drawbacks, especially when training scenarios require interactions that may be challenging or costly to generate in a real-world setting.

In order to address the notion that VR technology is confusing to learn and operate, both hardware and software are developed and designed with a focus on providing a comfortable and intuitive user experience (Ijaz et al., 2022; Mousavi et al., 2013). As such, as VR continues to become more widely accessible and adopted across different fields, the learning curve for this technology will continue to decrease (Ijaz et al., 2022; Mast et al., 2018). To mitigate possible health effects such as cybersickness during VR experience, many researchers continue to investigate the causes of adverse symptoms and explore ways to either eliminate or at least reduce the severity (Chang et al., 2020; Choros & Nippe, 2019; Garrido et al., 2022; Ijaz et al., 2022; Qionghua et al., 2019; Weech et al., 2019). Lastly, to reduce possible reluctance to uptake, strategies such as providing trial periods to allow potential users to recognize its benefits and become comfortable with the technology have been suggested and found successful (Marks & Thomas, 2021; Pottle, 2019). Therefore, as VR technology continues to expand and evolve to meet the needs of a diverse population of users and overcome the barriers, it has promising potential to be integrated and implemented as an educational tool which provides an experiential immersive learning experience for the users.

Study Purpose and Research Questions

The purpose of this study was to determine the potential of VR experiences to develop CEs' capacity in facilitating challenging conversations, from the perspective of CEs. I sought to understand whether CEs' capabilities to facilitate challenging conversations with underperforming students can be developed through simulated experiences. The main question

addressed in this study was: *How does the use of VR support faculty development in navigating challenging conversations with students?* The following interrelated sub-questions also explored were:

- What are the perspectives of CEs on using VR experiences for self-directed learning?
- How might VR experiences support CEs' capabilities to navigate challenging conversations with students?

Researcher Perspective and Assumptions

I am a nursing instructor and have facilitated the learning of practical nursing students. Early in my career, through my own experiences and colleagues' accounts, I learned that one of the stressors of the teaching role is challenging conversations between educators and students. These conversations often occurred when an educator needed to deliver corrective feedback to students about their performance, and the situation worsened when students responded with anger or became emotional. I witnessed and experienced students disagreeing with constructive feedback, which sometimes escalated to students yelling and making threats. Students cried and pleaded when they received corrective feedback that could affect their final grade.

Additionally, many colleagues, novice and experienced, expressed apprehension and annoyance towards providing corrective feedback to students. For many, this was because they were unsure how the student would react, and some educators avoided giving corrective feedback altogether because they believed their opinion would not be supported. Despite numerous occurrences of challenging conversations, there seemed to be a lack of support and resources for educators to develop their capacity in navigating challenging conversations with students. Instead, having uncomfortable or intimidating conversations was often viewed as a rite of passage into the teaching role, and educators were often expected to endure these situations.

With the nursing department's increased interest in utilizing immersive VR as a teaching tool for students, I became curious about its potential use for developing instructors' capacity as educators. Compared to lecture-based workshops, the ability to immerse oneself and actively engage in potentially anxiety-provoking situations seemed beneficial for reflecting on and improving one's practice. Furthermore, I was drawn to the possibility of practicing such interactions in a safe learning environment without any audience, which cannot be avoided in workshops that incorporate high-fidelity simulations.

Summary

Chapter One provided background information to demonstrate the significance of this study in relation to developing CEs' capabilities in facilitating challenging conversations with underperforming nursing students. This context demonstrates the potential of using immersive VR to facilitate faculty development in navigating these conversations. Chapter Two presents a review of relevant literature related to CEs facilitating performance conversations with their struggling students. The chapter will also explore highlighted areas for further research, providing justification for the study of interest. Chapter Three outlines the mixed methods approach taken to determine the effects of VR experience on CEs' capabilities to navigate challenging conversations. Chapter Four presents the findings from study data with relevant analysis in relation to the research questions. Chapter Five presents the findings with relevant analysis in relation to the research questions. Chapter Six discusses implications, future research, and concludes the thesis. The appendices include the survey instrument, examples of VR scenarios, and examples of interview questions.

Chapter 2: Literature Review

An important, yet challenging skill in which CEs need to be proficient is in facilitating conversations with a student whose performance is not meeting the program expectations. Timely feedback, given constructively, provides underperforming students with an opportunity to improve their performance and be successful in practice (Altmiller, 2012; Cantillon & Sargeant, 2008). When timely support and necessary feedback are not provided, not only the student in question but also the learning environment for other students can be negatively impacted (Larocque & Luhanga, 2013). Additionally, the nursing profession and patient safety can be negatively affected (Scholes & Albarran, 2005). As such, providing CEs with opportunities to develop their feedback skills, especially with underperforming students, would be beneficial.

With this study, I aimed to examine whether CEs' capabilities to facilitate challenging conversations with students can be developed through the use of immersive VR experiences. As utilizing VR to develop communication skills is still a new area of research, I focused on examining the current evidence to develop an understanding of CEs facilitating performance conversations with their underperforming students. I drew on a variety of sources for the literature review, which were implemented with the university's search engine, and included CINAHL (EBSCO), MEDLINE (OVID), and Embase (OVID) databases. To identify further relevant studies, I hand searched the bibliographies of the selected articles. The search was limited to peer-reviewed articles and dissertations in the English language from 2010 to 2022; this time frame was chosen to maintain currency of the findings. A study by Duffy (2003) was also added as it was cited in many articles and was regarded as the seminal work on the importance of identifying and managing underachieving undergraduate nursing students.

The following search terms were used to focus the search on CEs' experiences with facilitating challenging conversations with underperforming nursing students: (“academic fail*” OR “academic performance” OR “unsafe” OR “underperform*” OR “competence problem” OR “competence performance problem”) AND (“instructor*” OR “mentor*” OR “assessor*” OR “supervisor*”) AND (“nursing” OR “nursing education”). Articles were rejected if it was determined from the title and the abstract that the study failed to meet the inclusion criteria: feedback skills, clinical education, and studies specific to clinical educators, mentors, or preceptors responding to struggling students. Exclusion criteria included studies specific to students' perspectives or experiences and assessment tool development. Twenty-two full-text articles were assessed for eligibility and 11 of these articles were excluded as they did not meet the inclusion criteria. The resulting 11 articles include two literature reviews, one perspective paper, and eight primary research. Articles are based in Australia (1), Belgium (1), Israel (1), United Kingdom (7), and the United States (1).

Different themes that emerged from the literature include:

- characteristics of underperforming students;
- role of clinical educators;
- overview of challenging conversations;
- barriers to conveying difficult, yet necessary feedback; and
- interventions to support CEs.

Implications for practice and further research that were highlighted in the literature are also discussed to provide support for the study.

Characteristics of Underperforming Students

Although the majority of the reviewed literature addressed the issue of underperforming nursing students in clinical placements, only a few authors attempted to clarify identifying characteristics of underperforming students (Cassidy, et al., 2017; Chunta & Custer, 2018; Elliott, 2016; Hughes et al., 2019; Hunt et al., 2016a). Generally, “underperformance” refers to student behaviors that do not meet professional or ethical standards of practice. Chunta and Custer (2018) identified potential behaviors indicating underachievement in clinical practice as the following:

- Deficit in knowledge and skill, including but not limited to, disorganization and failure to ask questions;
- Poor attitude, including overconfidence, disinterest in nursing or patient care, and inability to accept constructive feedback;
- Unprofessional behaviors such as inappropriate verbal and nonverbal communication, lack of accountability, dishonesty, and intentional unsafe practice;
- Ineffective interpersonal interactions, including poor communication skills and inability to interact with others.

Additionally, students were considered in need of improvement when they were unable to reflect or perform critical thinking in clinical practice (Cassidy et al., 2017).

Internationally, Heaslip and Scammell (2012) noted that it is difficult to delineate these standards as there are no internationally agreed indicators of competence in clinical practice. However, nationally, the Framework for the Practice of Registered Nurses in Canada (CNA, 2015) guides Canadian nurses, including students, to understand the standards of practice and competencies of Registered Nurses. Provincially, the Entry-Level Competencies for the Practice

of Registered Nurses (CARNA, 2019) informs what is expected of the entry-level nurse in Alberta.

In addition to identifying characteristics, Cassidy et al. (2017) positioned that there are degrees of underperformance, distinguishing students who are on the borderline of achievement from students who are undoubtedly failing to meet expected levels of competence. Students are often considered to have borderline competence if they have satisfactory knowledge and skills but a poor professional attitude (Cassidy et al., 2017; Hughes et al., 2019). For example, the participants from Cassidy et al.'s (2017) study revealed the dilemma associated with assessing students who successfully completed a task but failed to “attach humanistic value to fundamental care activities” (p. 2170).

Role of Clinical Educators

In this study, “clinical educator” is the title used to denote Registered Nurses who are responsible for “supporting and assessing nursing students undertaking clinical placements” (Elliott, 2016, p. 25). This title includes the terms found in the articles reviewed – assessor, clinical educator or instructor, mentor, and preceptor – which are position titles used for this role depending on different countries or institutions. Regardless of varying terminology, they are the role models for nursing students as they exhibit clinical expertise, professional demeanour, and enthusiasm about the profession (Chunta & Custer, 2018; Elliott, 2016; Huybrecht et al., 2011).

Many authors emphasized the importance of CEs balancing the dual responsibilities of their role of nurturing and evaluating students (Cassidy et al., 2017; Chunta & Custer, 2018; Elliott, 2016; Heaslip & Scammell, 2012; Hunt et al., 2016a; Huybrecht et al., 2011). As “nurturers,” CEs demonstrate their commitment to their students’ success by showing a willingness to spend time and providing required support and guidance (Chunta & Custer, 2018;

Elliott, 2016; Hughes et al., 2019; Hunt et al., 2016a; Huybrecht et al., 2011). At the same time, as “evaluators,” CEs are responsible for assessing students’ performance and providing rigorous and trustworthy feedback on their progress (Chunta & Custer, 2018; Hughes et al., 2019; Hunt et al., 2016a; Huybrecht et al., 2011; Plakht et al., 2013; Wells & McLoughlin, 2014). Several authors have highlighted the importance of CEs’ capacity in providing constructive feedback to students, especially when students struggle to meet the expected outcomes (Chunta & Custer, 2018; Hunt et al., 2016a; Huybrecht et al., 2011; Plakht et al., 2013; Wells & McLoughlin, 2014). Plakht et al. (2013) found that this notion is also shared with the students as they preferred CEs who are willing to provide “constructive criticism rather than allowing inaccurate practice to continue” (p. 1267). Additionally, when students continue to display unsatisfactory behaviors, CEs are expected to be the “gatekeepers” to the profession (Chunta & Custer, 2018; Elliott, 2016; Hughes et al., 2019). As such, they are obligated to uphold their professional responsibilities by ensuring only students who meet standards of practice progress through the program.

Overview of Challenging Conversations

Challenging conversations occurring between CEs and underperforming students were often described as involving “critical or negative feedback” (Cassidy et al., 2017; Duffy, 2003; Elliott, 2016; Hughes et al., 2019; Hunt et al., 2016b; Huybrecht et al., 2011; Plakht et al., 2013; Wells & McLoughlin, 2014) or “constructive criticism” (Chunta & Custer, 2018; Hunt et al., 2016b; Plakht et al., 2013; Wells & McLoughlin, 2014). These conversations are useful, open dialogues that address students who are failing to meet expected levels of competence and can sometimes elicit emotional responses from one or more participants (Duffy, 2003; Elliott, 2016;

Hughes et al., 2019; Hunt et al., 2016a, 2016b). The emotional responses of CEs and students will be discussed further in the next section.

It was evident from several articles that challenging conversations, by necessity, incorporate the principles of effective feedback (Duffy, 2003; Elliott, 2016; Heaslip & Scammell, 2012; Wells & McLoughlin, 2014). Cantillon and Sargeant (2008) described feedback as “providing information to students with the intention of narrowing the gap between actual and desired performance” (p. 1292). As such, the purpose of these conversations is to support student learning and to provide students with opportunities to correct their behaviors, so that they are ultimately successful (Cassidy et al., 2017; Chunta & Custer, 2018; Duffy, 2003; Elliott, 2016; Heaslip & Scammell, 2012; Hunt et al., 2016b; Huybrecht et al., 2011; Wells & McLoughlin, 2014). This calls for CEs to provide specific examples and action plans that are clear, concise, and realistic to underperforming students (Chunta & Custer, 2018; Duffy, 2003; Elliott, 2016; Wells & McLoughlin, 2014). The conversations should be honest dialogues, occurring as soon as CEs detect unsatisfactory behaviors from their students (Chunta & Custer, 2018; Elliott, 2016; Heaslip & Scammell, 2012; Plakht et al., 2013).

Some authors highlighted the relationship between the quality of these conversations and how students self-evaluate their performance (Hughes et al., 2019; Plakht et al., 2013). Plakht et al. (2013) investigated the association between the quality of constructive feedback and students’ self-evaluation, with constructive feedback being the identification of negative student performance that would benefit from modification. The results revealed that high-quality constructive feedback is associated with more accurate self-evaluation. The authors postulated that high-quality constructive feedback provides students with a chance to consider factors that may have contributed to their unsatisfactory performance, thereby decreasing the likelihood of

students over evaluating their practice. Hughes et al. (2019) reinforced the importance of delivering quality constructive feedback, claiming that CEs' inaccurate reflection of students' level of fitness for practice can limit students' opportunities to develop accurate self-assessment.

Barriers to Conveying Difficult, yet Necessary Feedback

The need to provide necessary feedback, however difficult it may be, to underachieving students in practical placement is well recognized within the literature. Lack of confidence and students' negative reactions to feedback were frequently identified as the barriers within the literature (Duffy, 2003; Elliott, 2016; Heaslip & Scammell, 2012; Hughes et al., 2019; Hunt et al., 2016a, 2016b). Duffy (2003) identified that CEs feel more confident in providing positive feedback while lacking confidence in providing constructive criticism to underperforming students. The findings of Heaslip and Scammell's (2012) study reflected this tendency as they investigated students' perception of whether the feedback matches their grade. About 40% of the students who participated in the study identified a mismatch between CEs' comments and grades received and claimed that their "grades seldom reflect comments made" (p. 99). The authors postulated that this discrepancy is likely due to CEs' lack of confidence in providing necessary criticism to students face to face.

CEs' level of confidence in facilitating challenging conversations and in giving necessary feedback deteriorates further when they feel guilty or intimidated by the students' response to the feedback. Hunt et al. (2016b) identified students responding negatively, from "gentle persuasion to malevolent coercion" (p. 156), to CEs' feedback. The authors presented four types of coercive behaviors, which intensified CEs' feelings of guilt and fear:

- *Ingratiators* attempt to exploit their CEs' nurturing disposition by charming them or using persuasive emotional tactics like begging or crying;

- *Diverters* incorporate difficult personal circumstances or disability to distract and redirect the CEs' focus;
- *Disparagers* counter-challenge CEs by belittling them or accusing them of harassment, bullying, or discriminatory behavior;
- *Aggressors* display open hostility, verbally or physically threatening their CEs.

This issue was also emphasized by Elliott (2016) in referencing the studies of Ehrmann (2005) and Jervis and Tilki (2011). Both studies discussed CEs' aversion to confronting underperforming students if they are deemed aggressive or assertive. Hughes et al. (2019) identified that this issue continues to exist as they inquired into CEs' experience of managing underachieving students. Of 149 participants, 62% of the participants found providing feedback to be confrontational, with 30% of the participants reporting feeling intimidated when giving students feedback on their performance. Moreover, the participants reported experiencing negative student responses when discussing student performance, including "targeting, attacking, denigrating, or undermining the [CEs], personally and/or professionally" (Hughes et al., 2019, p. 213). In fact, 60% of the participants experienced student anger during feedback, 33% experienced aggression, and 10% experienced violence from students.

Interventions to Support CEs

Although the majority of the reviewed literature addressed CEs facing conflict when navigating through challenging conversations with their students, only a few authors identified interventions utilized to support these CEs (Cassidy et al., 2017; Chunta & Custer, 2018; Hunt et al., 2016a, 2016b; Huybrecht et al., 2011; Wells & McLoughlin, 2014). For newly hired CEs, mandatory orientation and faculty development sessions provided training on assessment procedures and strategies to be taken when providing critical feedback to students (Cassidy et al.,

2017; Chunta & Custer, 2018; Hunt et al., 2016a, 2016b; Huybrecht et al., 2011; Wells & McLoughlin, 2014). However, several authors highlighted that most training received is theoretical and CEs often need to learn on the job as what they learned in the classroom setting may not apply in the clinical environment (Cassidy et al., 2017; Hunt et al., 2016b; Huybrecht et al., 2011; Wells & McLoughlin, 2014).

For ongoing support, CEs were provided with online and paper-based resources such as manuals, websites, and toolkits (Hunt et al., 2016b; Wells & McLoughlin, 2014). Also, CEs were encouraged to take constructive feedback sessions to maintain competence and uphold their responsibility to support their students (Hunt et al., 2016b; Wells & McLoughlin, 2014). However, Hunt et al. (2016b) found that CEs were reluctant to access resources because they found them difficult to navigate. Also, a few authors suggested that having to access resources on their own time deterred CEs from taking opportunities to discover strategies to navigate challenging conversations (Hunt et al., 2016b; Wells & McLoughlin, 2014).

In addition to training sessions and resources, a mentoring system organized by the department to provide guidance from colleagues was another intervention utilized to support CEs (Cassidy et al., 2017; Chunta & Custer, 2018; Hunt et al., 2016a, 2016b; Wells & McLoughlin, 2014). CEs require emotional support, preferably from an expert who can help them unpack and organize their thoughts and experiences (Cassidy et al., 2017; Hunt et al., 2016a, 2016b). Through collaborative relationships with trusted colleagues, CEs were more likely to reach out for advice and support as they felt reassured and better able to cope with navigating through challenging conversations (Cassidy et al., 2017; Chunta & Custer, 2018; Hunt et al., 2016a).

Implications for Practice and Further Research

The literature confirmed that it is essential for CEs to be able to convey critical feedback to underperforming students in practical placements (Chunta & Custer, 2018; Hughes et al., 2019; Hunt et al., 2016a; Huybrecht et al., 2011; Plakht et al., 2013; Wells & McLoughlin, 2014). As CEs exhibit their dedication toward student learning through supporting and providing necessary guidance, they are responsible for providing quality corrective feedback to students who are not meeting expectations (Chunta & Custer, 2018; Hughes et al., 2019; Hunt et al., 2016a; Huybrecht et al., 2011; Plakht et al., 2013; Wells & McLoughlin, 2014). However, as suggested by many authors, CEs sometimes are reluctant to facilitate challenging, yet necessary conversations with underachieving students due to a lack of confidence or the fear of students' responses to feedback (Duffy, 2003; Heaslip & Scammell, 2012; Elliott, 2016; Hughes et al., 2019; Hunt et al., 2016b). As such, it has been suggested in the literature to support CEs through structured workshops or training opportunities. The training can be a part of the orientation as well as ongoing faculty development, with a focus on recognizing unsatisfactory student behaviors, developing feedback provision to underachieving students, and managing student responses to feedback (Cassidy et al., 2017; Elliott, 2016; Hunt et al., 2016a, 2016b; Huybrecht et al., 2011; Wells & McLoughlin, 2014).

For future research, some authors suggested developing CEs' capacity and competence in providing corrective feedback as a potential area of research (Elliott, 2016; Wells & McLoughlin, 2014). Many authors emphasized the need to support mental and physical safety of CEs by investigating ways to educate CEs to recognize and manage inappropriate student responses during feedback provision (Cassidy et al., 2017; Elliott, 2016; Hughes et al., 2019; Hunt et al., 2016a, 2016b; Huybrecht et al., 2011). Therefore, the study aligned with the need for

further research on ways to support CEs in facilitating challenging conversations. The use of an innovative strategy, such as VR scenarios, may assist CEs in gaining experience and capacity for navigating challenging conversations and managing potential student reactions during these conversations.

Summary

This literature review examined current literature on what is known about CEs facilitating challenging conversations with their underperforming students in undergraduate nursing programs. The literature confirmed that as nurturers, evaluators, and the gatekeepers to the profession, the ability to provide corrective feedback to students who are not achieving competence is crucial in CEs' role. Potential barriers to CEs conveying such feedback were highlighted in the literature, and further research and program development were suggested to expand CEs' capacity and competence to overcome such barriers. Therefore, the study evaluating the effects of practicing and managing challenging conversations and possible student reactions in a safe environment on CEs' preparedness was well justified. By undergoing the experience beforehand, the CEs will have time to reflect and be better equipped to manage similar situations, yielding positive outcomes and the provision of quality support to students in their real-life teaching practice.

Chapter 3: Research Design and Method

This chapter presents the research approach through discussions that delineate the theoretical framework, research methodology, research design, methods undertaken to collect and analyze the data, and the process of recruiting the participant population. The process of analyzing and synthesizing the data will be outlined with consideration of building trustworthiness and ethical factors. I will also review the limitations and strengths of the study.

Theoretical Framework: Constructivism and Experiential Learning Theory

The overarching theoretical frameworks for this study are constructivism and experiential learning theory (ELT). Constructivist philosophy holds that people construct knowledge as they engage with the world that they are interpreting (Chen, 2010; Doolittle & Camp, 1999).

Although there are differing views of constructivism, they share the following key tenets:

- individuals have an active role in the learning process and active cognition is required;
- all knowledge construction requires an interpretation of reality;
- experiences are a key element in the knowledge construction process (Doolittle & Camp, 1999).

Consequently, constructivism provides a good base for ELT. This learning theory, based on the work of Dewey, Lewin, and Piaget, places people's *experiences* at the center of the learning process (Kolb et al., 2001). Kolb (1984) stated that experiential learning is "the process whereby knowledge is created through the transformation of experience" (p. 41). This process involves individuals developing understanding and expertise by going through the four-stage learning cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb et al., 2001).

VR has been deemed one of the technologies that can support constructivist and experiential learning (Aiello et al., 2012; Chen, 2010; Fromm et al., 2021; Jarmon et al., 2009). As previously indicated, VR provides a controlled environment in which individuals can directly interact with virtual objects or humans, and the effects of these interactions can be observed in real-time. Moreover, it offers flexibility for repetition and reviewing previous interactions. Therefore, VR enables people to learn through experiences by prompting self-reflection and implementing different strategies in future situations, whether in real life or the virtual world. Constructivism and ELT also stress the importance of presenting an authentic problem that individuals can relate to (Chen, 2010; Kolb et al., 2001). As individuals feel that the problem is relevant to them, they may feel more motivated to be engaged and find a solution to the problem. VR can support this as it simulates real world situations or aspects of the real-world that are difficult to access. Moreover, the increased sense of presence, interactivity, and complete immersion that VR offers allows individuals to feel and react as a real experience, motivating them to problem solve.

How Constructivism Informed the Study: Constructivist Learning

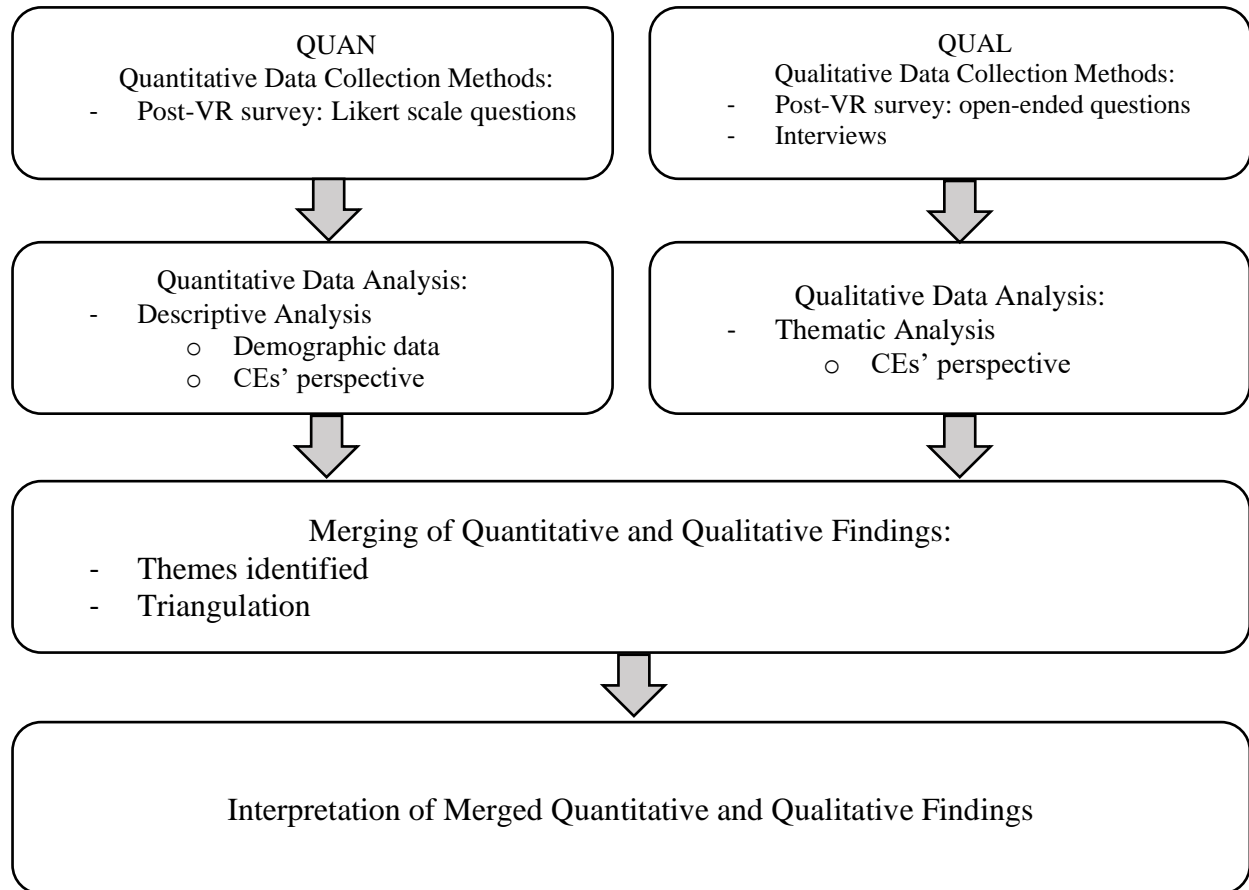
The constructivist conception of learning considers that “knowledge is individually constructed...based on their interpretations of experiences in the world” (Jonassen, 1999, p. 217). Constructivists view individuals as active agents in the process of knowledge acquisition and emphasize that learning is active rather than passive (Huang et al., 2010; Jonassen, 1999; Olusegun, 2015). Also, they envision learner-centered learning environments where individuals are motivated to actively engage in knowledge building as they reflect on their experience and their interpretations of the experience (Jonassen, 1999; Olusegun, 2015). Furthermore, the

learning environment should provide “real world, case-based environments for meaningful and authentic knowledge” (Huang et al., 2010, p. 3).

This study is interested in the effect of allowing CEs to experience uncomfortable student interactions beforehand using immersive VR. The constructivist approach to learning, therefore, forms the basis of this study as CEs’ experience and their interpretations of the experience are central to the study.

Methodology: Mixed-methods

For this study, a mixed-methods research approach was used to determine the effects of the VR experience on CEs’ capabilities to navigate challenging conversations. The key benefit of this approach is “its strength of drawing on both qualitative and quantitative research and minimizing the limitations of both approaches” (Creswell & Creswell, 2017, p. 216). It is also helpful in allowing in-depth research to be conducted with a meaningful interpretation of collected data (Tashakkori & Teddie, 2003). Among various types of mixed-methods designs, the convergent design guided this study as it matches the type of inquiry. I collected the quantitative and qualitative data simultaneously and with equal priority, then drew interpretations from integrated findings (Polit & Beck, 2016). The qualitative approach allowed me to gather CEs’ perspectives, while the quantitative aspect of the research gave me a way to measure CEs’ receptiveness and how they perceived the usefulness of the VR experience. The mixed methods integrated convergent design was implemented as outlined in Figure 1.

Figure 1*Mixed Methods Integrated Convergent Design***Research Design: VR Experience**

For the VR experience, a head-mounted VR display, Oculus Quest, with its hand controller (Oculus VR, Menlo Park, CA, USA) was used (see Figure 2). The scenarios for the experience were programmed by a team at the Energi Simulation/Frank and Sarah Meyer Collaboration Center at the University of Calgary. In each scenario, participants could see that they were in a secluded room with a student, and prompts for the key issue and when to speak to the student were provided (see Figure 3). The study followed the planned schedule of the study outlined in Figure 4.

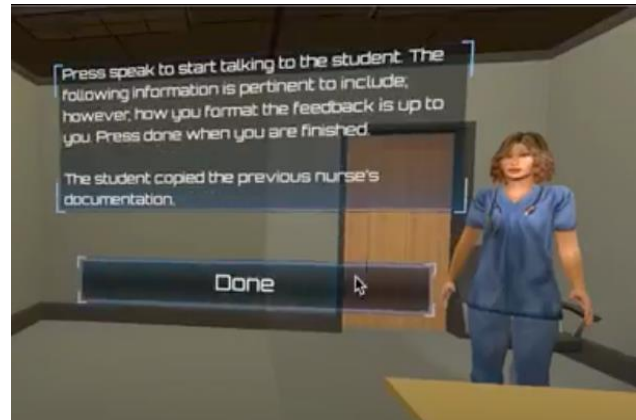
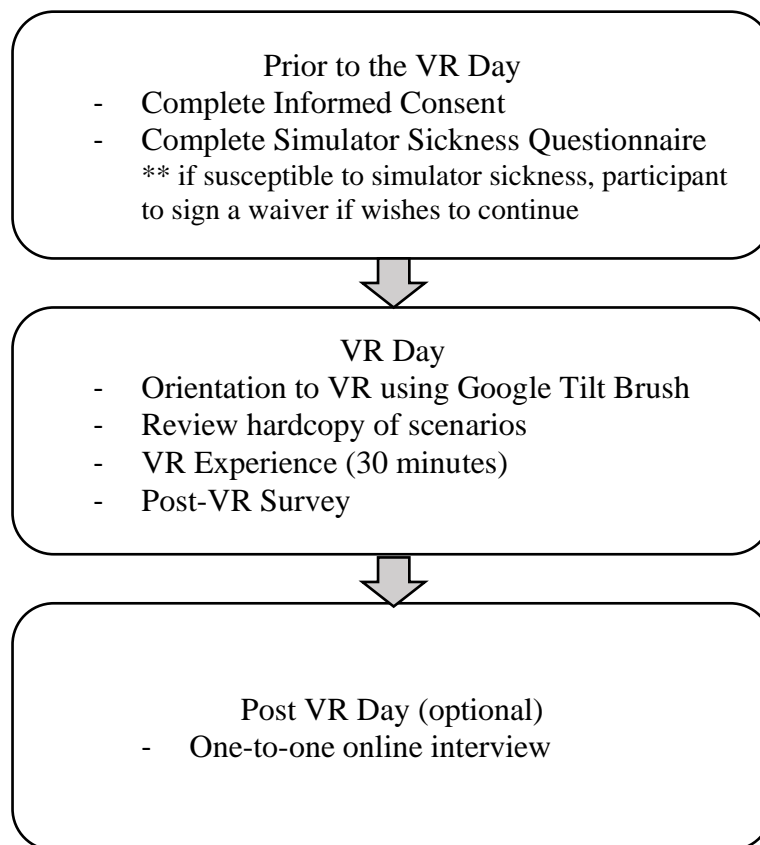
Figure 2*Oculus Quest***Figure 3***Screenshots of What Participants Saw During VR Experience*

Figure 4*Planned Schedule of the Research Study**Scenarios*

As the researcher, I created the scenarios based on a combination of suggestions attained through the literature reviewed, from personal experience, and from anecdotes from current nursing CEs (see Appendix A). In each scenario, CEs were asked to address a student issue and facilitate a one-to-one challenging conversation with a virtual student. These issues are current challenges that CEs face in their clinical teaching environment: students unable to recognize errors; students fabricating patient assessment records; and students plagiarizing documentation. Additionally, CEs may experience further challenges when students respond poorly to their feedback. As such, in addition to addressing initial issues, CEs were asked to continue and

navigate through the conversation when the virtual student responds to their feedback in one of the following ways:

- receptive to the CE's feedback;
- attempts to manipulate the situation by becoming emotional and making the CE feel guilty; or
- becomes aggressive and counter-challenges the CE's feedback.

CEs had the freedom to focus on one scenario or try out all three scenarios. Their interactions with virtual students were video recorded, allowing CEs to have the freedom to review recorded interactions, repeat scenarios to try out a different approach, or both. Video recorded interactions, however, were only viewed by participants and were not used for data analysis. This decision was made for two reasons: (1) to ensure a safe learning environment where the participants felt they could make mistakes, and (2) to emulate what the experience would be like when it is used as an individual activity.

Schedule for the VR Day for Participants. Participants who completed the consent form (see Appendix B) completed the Simulator Sickness Questionnaire (SSQ) to determine eligibility as participants (see Appendix C). Participants were introduced to the VR equipment, the buttons required, what they do, and moving/looking around in VR using Google Tilt Brush as an orientation to the VR experience. This program was used to ensure their comfort with the equipment but also to familiarize participants with the VR experience. By becoming comfortable with manipulating the equipment and VR in general, it was hoped that the participants could focus on their VR experience. Participants were then provided with a hardcopy of the scenarios to review prior to the VR session. All three scenarios provided participants with information on the context of why they were giving feedback to their students. As the participants were not

informed about how the student from each scenario was going to respond to their feedback, having the preview of the scenarios was assumed to have minimal to no influence on their interaction with the virtual students. They were given 30 minutes to independently undergo the VR scenarios, with the freedom to review and repeat their interactions. After the allotted time, participants completed the post-VR survey consisting of demographic items and close- and open-ended questions (see Appendix D).

To ensure participant safety during COVID-19, they were pre-screened for flu-like symptoms before they came into the lab and when they arrived. All participants were instructed to contact the researcher if they experienced symptoms after their participation. All participants were required to wear a face mask before putting on the headset. Any pieces of equipment used in the study (i.e., headset, controllers, etc.) were disinfected with alcohol wipes after each participant. Additionally, foam cushions on the headset were replaced with waterproof covers that were easily disinfected.

Recruitment of Participants

An invitation to participate in the study was extended to all CEs teaching in different terms of the nursing program at the Faculty of Nursing through online visits to their team meetings, occurring at the beginning of the Fall 2020 semester. Also, the Nursing Practice Course Coordinators for each term team were asked to upload the study information with my contact information (see Appendix E) on D2L for CEs who may have missed the team meeting. CEs who were interested in the study contacted me through email, and convenience sampling was used to recruit the study population. Originally, with a potential response rate of 50%, approximately 35 to 40 participants were anticipated. However, with the COVID-19 pandemic,

the target number of participants decreased substantially to 5 to 10 participants. The inclusion criteria for the study were:

- CEs currently teaching undergraduate nursing students; and
- Nursing Practice Course Coordinators who have in the past or are currently teaching undergraduate nursing students.

The exclusion criterion was participants who were highly likely to experience simulator sickness during the experience. To determine the eligibility of participants, the SSQ was used to screen the study sample. This questionnaire was designed by the Simulation and Visualization Research team at the University of Calgary, based on the works of Kennedy et al. (1993). The questionnaire consists of eight circumstances and 16 symptoms, and participants are asked to rate the presence and severity of their symptoms for each circumstance using the scoring scale. All participants ($n = 4$) were not susceptible to simulator sickness and were able to participate in the study.

Data Collection

Data was collected using both quantitative and qualitative methods. These methods included surveys with close- and open-ended questions and semi-structured interviews with the study participants.

Qualitative Data Collection

To generate qualitative data, both open-ended questions and semi-structured interviews with the study participants were utilized.

Survey: Open-ended Questions. Survey data was collected after the participants' VR experience. The post-VR survey includes a number and a variety of close- and open-ended questions to attain participants' perspectives on the use of VR to develop their capabilities in

navigating challenging conversations. The open-ended questions prompt participants to reflect on their VR interactions and respond with their own words, encouraging personal genuine perspectives (Baillou, 2008).

Currently, there is no validated survey that corresponds with the desired measures for the study. As such, a survey designed by the Simulation and Visualization Research team at the University of Calgary was adapted for this study. The questions were modified, with permission, to align with the research questions. The adapted survey was provided to the Technical Manager, the Research Engineer, and three Master's students from the Faculty of Nursing for review on readability and clarity to ensure the questions would be consistently understood and all needed information was available for the respondents (Fowler & Cosenza, 2013). All feedback was incorporated, and the questions were modified as recommended before the formal implementation (see Appendix D).

Semi-structured Interviews. Interviews are used to discover “informants’ feelings, perceptions, and thoughts” (Holloway & Galvin, 2016, p. 88) while focusing on their essential experiences. Semi-structured interviews are those in which the interviewer begins with guiding questions, then follows the leads of the participants (Holloway & Galvin, 2016). In this study, semi-structured, one-to-one interviews were conducted using the video conferencing software Zoom (Zoom Video Communications, San Jose, CA, USA). Using the interview guide (see Appendix F), the interviews were conducted at the end of the Fall 2020 semester with three participants who expressed interest in being interviewed. The interviews were audio-recorded then transcribed verbatim for data analysis. These interviews were conducted to learn about CEs’ overall perspective on the study, the technology used, the applicability of VR experiences, and the feasibility of incorporating VR in faculty development.

Quantitative Data Collection

To generate quantifiable data, a cross-sectional survey incorporating demographic items and close-ended questions was utilized. Cross-sectional surveys are described as snapshots of the study sample as data is collected at one point in time (Lavrakas, 2008). For this study, the survey was completed after the participants' VR experience. The demographic items included gender, age, years of experience as a CE, and whether they previously facilitated challenging conversations with students. This portion of the survey was used to provide an overview of the characteristics of participating CEs teaching in the Fall 2020 semester.

Close-ended questions are made up of a question stem and a fixed number of responses from which participants choose an answer (Lavrakas, 2008). The Likert scale is used to symmetrically balance response categories, which makes them easy to summarize and analyze (Lavrakas, 2008). As there was no validated survey that aligns with the research questions, the survey designed by the staff at the simulation and visualization lab was, with permission, adapted for this study. The questions were reviewed with the open-ended questions of the survey by the previously mentioned reviewers to ensure readability and clarity. All feedback was incorporated, and the questions were modified as recommended before the formal implementation. The survey included nine Likert scale close-ended questions and was based on the research questions: the first five questions were used to answer the first sub-question of the study, and the latter four questions were used to answer the second sub-question (see Appendix D).

Data Analysis

Data analysis in mixed-methods studies is directly linked to the mixed-methods design chosen for the study (Onwuegbuzie & Combs, 2011). In keeping with the convergent approach, collected data were analyzed concurrently and separately, with equal priority. Then the findings

were integrated to draw interpretations. Data analysis was dependent on the type of data collected.

Qualitative Data Analysis

Both open-ended questions and transcribed individual interviews were analyzed for themes through thematic analysis. Thematic analysis has been described as a “method for identifying, analyzing, and reporting patterns within data” as it organizes rich data and captures valuable information (Braun & Clarke, 2006, p. 79). Thematic analysis encompasses six phases as detailed by Braun and Clarke (2006): (1) gaining familiarity with your data; (2) generating initial codes or labels; (3) searching for themes or main ideas; (4) reviewing themes or main ideas; (5) defining and naming themes or main ideas; and (6) producing the report.

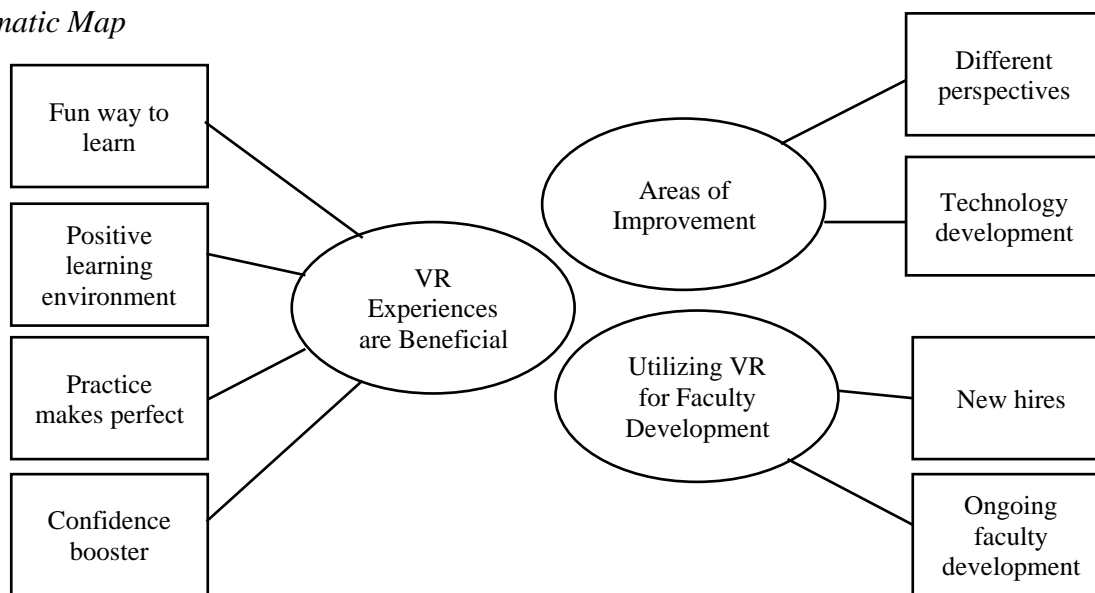
Survey: Thematic Analysis of Open-ended Questions. Participants’ responses from open-ended questions were reviewed to gain familiarity, to generate initial codes, and to discover concept and themes. An inductive thematic analysis approach was used to guide the coding process to ensure that emerging codes are data-driven rather than my preconceptions (Braun & Clarke, 2006). Identified themes were further reviewed, refined, then defined, while considering how different themes fit together and how each theme fits into the overall story about the data (Braun & Clarke, 2006).

Semi-structured Interviews. One-to-one recorded interviews were transcribed verbatim into a word file. I then reviewed the transcripts to become immersed in the data and gain awareness of the content, feeling, and tone of the responses. The inductive thematic analysis approach was used to generate initial codes and to discover concepts and themes. This approach ensured that the codes and themes were emerging from data rather than being forced into preconceived codes. Identified themes were further refined and defined, then they were

compared with the themes from the survey to identify common or unexpected themes. A thematic map consisting of different themes was generated to provide a visual representation of combined analyses (see Figure 5).

Figure 5

Thematic Map



Quantitative Data Analysis

The post-VR survey includes nine Likert scale close-ended questions that align with the research questions. As a Likert scale is an ordinal scale, the distance between responses is not measurable, making a frequency distribution more helpful to describe collected data (Sullivan & Artino Jr, 2013). Participants' responses were analyzed to generate a frequency table using the Microsoft Excel spreadsheet. This program was deemed appropriate to utilize as the number of participants was small. The number of responses for each of the choices for each question was presented as percentages and real numbers.

Integrating Findings: Triangulation Protocol

A separate analysis of data followed by the integration of findings was conducted with a triangulation protocol (O’Cathian et al., 2010). This process assesses whether data agree, complement one another, or contradict each other (O’Cathian et al., 2010). Disagreements between data do not indicate a failure in the study; rather, they may lead to new findings or a richer understanding of the research questions (O’Cathian et al., 2010). Therefore, qualitative and quantitative data were integrated to add corroboration to the findings or to discover areas for further study, should the outcomes contradict each other.

Trustworthiness

In mixed methods research, it is important to establish trustworthiness in data collection and analysis of information as it applies to both quantitative and qualitative research. With qualitative research, there is a need to build credibility, dependability, confirmability, and transferability (Holloway & Galvin, 2016). *Credibility* is the equivalent of internal validity in quantitative research and “is concerned with the aspect of truth value” (Korstjens & Moser, 2018, p. 121). *Dependability* can be compared to the quantitative equivalent of reliability and refers to the aspect of consistency and stability of data over time and conditions, and *confirmability* concerns the aspect of neutrality (Korstjens & Moser, 2018; Polit & Beck, 2016). Triangulation of data sources, data analysis, and interpretation was used to enhance the validity of the study (Polit & Beck, 2016). Data was gathered by means of different collection methods such as participant surveys and interviews to draw conclusions about whether data complemented one another or contrasted each other. Additionally, collected data were analyzed by me and my supervisor independently, then the themes and interpretations were compared to reduce the risk of biased decisions and to ensure the findings best represent the meaning of the

data (Holloway & Galvin, 2016; Korstjens & Moser, 2018; Polit & Beck, 2016). *Transferability* is concerned with the generalizability, and it is the researcher's responsibility to provide sufficient descriptive data so that the applicability of the study to other contexts or settings can be evaluated (Korstjens & Moser, 2018; Polit & Beck, 2016). The context encompassing CEs in a higher education institution could bear similarity to other cohorts of educators in a practical teaching environment, producing potential transferability to other settings. The demographic data acquired from the survey can be used by future researchers to determine similarities to particular contexts.

As a well-documented or validated survey that aligns with the research question was not available, an adapted survey was used for the study. To enhance validity of the instrument, the survey was provided to the reviewers to evaluate the readability and clarity of the survey, as well as the extent to which the survey measured the potential usability of VR to support faculty development in navigating challenging conversations.

Ethical Considerations

In addition to attaining approval from the Conjoint Health Research Ethics Board (REB20-1058) and permission from the Associate Dean of the Undergraduate Practice Education for the study, ethical considerations aimed to protect the participants included acquiring informed consent, conducting the SSQ, and maintaining confidentiality. The CEs were fully informed as to the purpose of the study activities, recordings, and the survey prior to the initiation of the study. All CEs completed the SSQ, which identified participants who may be susceptible to simulator sickness during the VR experience. To maintain confidentiality and anonymity, no identifiable information about participants was collected or kept with the research data. Video-recorded VR experiences were only intended for participants' viewing and were

deleted between participants to ensure confidentiality and anonymity. Audio-recorded interviews were deleted after transcription. All electronic research data and records were stored on a secure University of Calgary server and hardcopy data was stored in a locked cabinet. All data will be stored for five years and only the authorized personnel (researcher and supervisor) will have access to this data. After five years, all research data and records will be deleted or securely shredded.

All participants were informed that their responses will contribute to professional development and would not be a factor in their employment or performance review. Also, all participants were informed that a one-to-one interview was not an expectation; rather, it was additional participation that they chose to be involved in. The aforementioned considerations were to establish an understanding that there is no risk either way to their choosing to participate or not participate in the study. Participants were informed that the results of the study may be disseminated through publishing findings from the study, presentations, or conferences as a part of knowledge mobilization.

Researcher Bias

Bias is an “influence that produces a distortion or error,” which threatens a study’s validity and trustworthiness (Polit & Beck, 2016). It was for this purpose that all participants were recruited from the University of Calgary nursing program so that the researcher avoided interviewing peers. Peer interviewing may elicit misunderstandings as the researcher makes unwarranted assumptions instead of asking about the participant’s response (Holloway & Galvin, 2016). To minimize potential bias, the researcher asked additional questions using participants’ language and inquired about their thoughts and reactions during interviews. The selection of participants was free of bias as all CEs and their responses were included in the study.

As I have noted, being cognizant of difficulties that CEs may encounter during their teaching career and the need to support these educators to develop their capacity formed the underpinnings for the focus of this study. Consequently, I acknowledge potential bias towards desiring a successful outcome that would provide a means for enhancing CEs' proficiency in facilitating challenging conversations. I recognize being invested in one's research can have an impact on desiring for a successful outcome which can bias data collection and analysis. To avert this as much as possible, I read, re-read, and reflected on the data from the survey and interview transcripts to ensure that the data was being analyzed and understood accurately. I also checked with the supervisor to acquire her analysis of the data and gain her insights through the analysis process.

Study Limitations and Strengths

In progressing through the study, the challenges and shortcomings of conducting research became apparent due to several issues. While some were uncontrollable, others were unavoidable due to the circumstances in which the research occurred.

The main limitation of this study was the small number of CEs volunteering to participate. Originally, with a potential response rate of 50%, approximately 35 to 40 participants were anticipated. However, with the COVID-19 pandemic, CEs were either working remotely or were hesitant to participate in a study that required face-to-face interaction which increased their risk of exposure. Repeated efforts were made by inviting and reminding CEs through different methods (e.g., emails, online news through D2L, visiting team meetings), however, there was poor uptake from the CEs and the expected number of participants was not reached. Also, the study was limited specifically to educators teaching in the clinical environment as this is the

nature of the research population. While this research was focused on nursing CEs, there is potential to utilize the findings to support educators within the faculty and in other disciplines.

The VR experiences were limited to three scenarios for this study. Time and funding constraints made it unfeasible to design and program more scenarios, however this could be a future consideration. Also, it was decided to not observe CEs' performance during their VR experience to ensure a safe learning environment. The VR experience was intended to motivate participants to feel safe to try out different approaches and self-develop their capacities by reviewing their interactions; it was not intended for assessing their performance.

The degree of realism perceived in the virtual environment was another limitation of the study. As the program was in its beginning stage, participants may have found the virtual world and students unrealistic, possibly decreasing the sense of presence, or "being there" in participants' minds. However, realism by itself may not evoke emotions and reactions from participants; personalities and behaviors of virtual humans play a role in how participants perceive and interact with virtual humans (Zibrek et al., 2018). As scenarios include virtual students with different personalities and reactions, participants may have found the interactions adequately real.

Simulator sickness, which is shown to have a negative association with a sense of presence (Weech et al., 2019) was a possible limitation of the study. The distracting effects of simulator sickness suppress users' attention to the virtual environment, limiting the sense of presence (Weech et al., 2019). However, in this study, to prevent participants from experiencing sickness, all participants completed the SSQ prior to undergoing the VR experience and they were all unlikely to experience simulator sickness. As SSQ is not a perfect tool to identify individuals who may feel simulator sickness, Google Tilt Brush, while providing the opportunity

to become comfortable with VR, was also used as an additional method to screen for participants who may be at risk but did not get identified with the SSQ. As the scenarios did not require participants to move around and they could complete the whole study while sitting or standing, the VR experience was less likely to induce sickness (Qionghua et al., 2019). Also, all participants were encouraged to take breaks as needed and communicate with the researcher rather than persevering through the symptoms.

Lastly, as a mixed-methods research study, the quantitative data was limited to descriptive statistics. The majority of the data is of a qualitative nature. There was no well-documented survey that aligns with the research questions. As such, an adapted survey was used for this study. A validated survey specific for faculty development with respect to challenging conversations would be more appropriate if one had been available. With the validated survey, the effectiveness of VR would have been better supported as participants' perceptions of their ability to navigate challenging student conversations could be measured before and after their VR experience.

While there were limitations to the study, the study also had future-oriented strengths. Although there is increased interest in using VR for skills development, its effectiveness in developing communication skills is still in its beginning phase. Furthermore, many studies focus on students' skills development rather than on educators, revealing a lack of research related to the impact of VR experience on CEs. As such, this study fills the gap by adding new knowledge to the field. Additionally, studies have indicated that presence could be enhanced by using emotional content and by including social encounters (Coelho et al., 2006; Nichols et al., 2000). As this study focused on CEs interacting with their virtual students and managing both expected

and unexpected student reactions, such interactions would have strengthened the VR experience, allowing CEs to be more actively involved in their learning and skills development.

Summary

In an effort to gain insight into the usefulness of VR in faculty development, a mixed-methods study was conducted to determine the effects of VR experience on CEs' capabilities to navigate challenging conversations. Specifically, the study aimed to gain CEs' perspectives on the effectiveness of VR in facilitating faculty development in navigating these conversations. By utilizing a learning technology that fosters a constructivist and experiential learning environment, the study allowed consideration of the potential of an innovative strategy that may be beneficial for CEs' capacity development.

Chapter 4: Results

This chapter provides details on participant demographics and the major findings from the post-VR survey and interview data. Three major themes that align with the research questions arose from the data: (1) benefits of VR experience; (2) how VR could be utilized for faculty development; and (3) areas for improvement. Relevant sub-themes within the themes will be discussed.

Participant Demographics

Four CEs participated in the study. All participants were female and were 20-40 years old. Three of the participants have been teaching for five or fewer years, with two instructors having less than one year of teaching experience. One participant has been teaching for more than five years. All participants stated that they have facilitated challenging conversations with their clinical students during their experience as CEs. Of the four participants, three agreed to be interviewed.

Aligning with the research questions of the study, data analysis generated three major themes from the post-VR survey responses and interviews. Each theme will be discussed comprehensively by integrating relevant findings to examine the potential of VR experiences to develop CEs' capacity in facilitating challenging conversations. Subthemes for each major theme will be identified and discussed. Also, excerpts from participants' responses will be presented to exemplify these themes.

Theme One: VR Experiences are Beneficial

From the data gathered, participants expressed four aspects of VR experiences they found beneficial: (a) it is a fun way to learn, (b) provides a positive learning environment, (c) having to

practice encourages skill development, and (d) it increases confidence level. Each of the sub-themes will be further explored and informed by the data gathered.

Fun Way to Learn

Of the four participants' responses to the post-VR survey question, all revealed that they felt engaged and enjoyed learning through an immersive VR experience. The VR experience evoked "playful" feelings and emotions as participants navigated through conversations with virtual students, and it was revealed from the survey and interviews that going through different scenarios with different student reactions made the experience memorable:

- "I found it interesting to go through the different scenarios, kept it exciting" (Anonymous).
- "It was fun to experience VR and it was fun to consider those situations" (P1).
- "It was kind of fun to hear the students' reactions" (Anonymous).

Also, the participants enjoyed the novelty of the VR experience and the immersiveness it provided. One of the participants commented on the survey that "the VR equipment itself is extremely fascinating and [it was] fun to be immersed in." P3 appreciated having the "whole body experience" as they were able to "move around and make motions and hand expressions while talking." One participant revealed on the survey that the immersive nature of VR made the experience more realistic as they "felt like [they] were in the situation with a student."

Positive Learning Environment

From the data gathered, participants revealed that the VR experience provided a positive learning environment that was conducive for self-directed learning and where they felt safe.

Environment Conducive to Self-directed Learning. Participants indicated that the VR experience provided an environment conducive to self-directed learning. Of the responses to the

post-VR survey, three participants agreed that they learned something new about how they facilitate challenging conversations through their VR experience. Participants indicated that going through different scenarios gave them an opportunity to reflect and improve upon how they navigate through various types of interactions with students. Participants revealed that the VR experience elicited self-awareness, encouraging them to think about how they would respond in certain situations. P3 pointed out that she found the experience beneficial because it allowed her to “realize what [her] natural instincts or natural reactions” to each scenario were. Also, having the opportunity to review her recorded interaction allowed her to “take the time to stop and think” about how and what she could improve for future interactions. She also acknowledged that “seeing and hearing [her] own feedback forced [her] to hear the tone of [her] voice and the words that [she] used,” which prompted her to “rethink on what [she] could have said differently and maybe change.”

Safe Environment. All participants stated that they felt safe during their VR experience. Individual practice, where a person could review and repeat scenarios as needed, was appreciated as “it’s always nerve-wracking having someone watching [them]” (P2). Both P2 and P3 pointed out that they would not feel comfortable having someone watch them navigate through challenging conversations as they would feel “vulnerable,” “nervous,” and “self-conscious” due to “fear of being judged.” P3 shared feeling hesitant to have an audience as “you almost don’t want to show someone that you’re not competent, and it’s not that I don’t think I am competent but there’s always that fear.” Another participant acknowledged the importance of establishing a safe learning environment, especially for new CEs as they navigate through their new role but also for experienced educators (P3). These comments indicated that participants valued a

learning environment where they felt safe to make mistakes and make appropriate changes to develop their skills.

Practice Makes Perfect

From the perspectives of the CEs, the VR experience provided a valuable opportunity to practice both familiar and unfamiliar interactions with students. Navigating through an uncomfortable interaction where the student responded aggressively to CEs' feedback evoked feelings of nervousness and uneasiness. However, as participants continued to work through the difficult student interactions, they felt they could respond appropriately should they encounter such interactions in real life. P3 stated:

I've never had to deal with a confrontational student before, and I hope I don't have to – especially, not that third option – that sounds pretty brutal. But it was just good for me to be like oh, okay, so this is what I would say, or this is how I would respond.

Another participant acknowledged that "being able to practice those kinds of difficult situations and conversations [was] very valuable" and stated the experience would have influenced how the situation would have been handled had she come across students who reacted poorly (P2). In fact, all participants stated that the VR experience would help them to navigate similar situations in the future.

While participants felt like they benefited from practicing challenging situations, one participant recognized that the practice itself was valuable, whether the student was receptive to the feedback or not:

Regardless of if they are receptive or if they are not, I think it's good just to be able to practice that too and see kind of how it unfolds ... then you'd feel more confident in real life to apply those strategies. (P3)

Another participant pointed out that “you get better at doing things, the more you do them” and that VR experience gave her “a chance to refine” her skills as she practiced facilitating challenging conversations with different student reactions (P2). It was evident that participants found VR experience valuable for developing communication skills as they asked for more opportunities to practice other situations that require strong communication skills. This was shown in the post-VR survey as all four participants stated that they are interested in using immersive VR to practice other communication skills.

Confidence Booster

As the VR experience provided participants with opportunities to practice their skills, they acknowledged that the experience also had a positive effect on their confidence level. All participants agreed on the post-VR survey that the experience increased their confidence in addressing similar situations in the future. However, the experience increased participants’ confidence levels in two different ways. First, as participants reviewed their interaction with the virtual student, they were able to hear what they had said and how they may have sounded to the student. One participant stated in the survey that this experience increased her confidence as she “felt encouraged to discover that most of [her] feedback sounded nonconfrontational” and that she “felt like [she is] on the right track with how [she] gives students feedback.” This was also shown in the data where two of the participants either disagreed or felt neutral to making changes to how they facilitate challenging conversations in the future.

The second way the VR experience increased participants’ confidence level was through practice. As participants practiced navigating challenging conversations using immersive VR, they felt the practice “reinforced different ways that you can communicate,” which in turn allowed them to feel more comfortable and confident in a similar situation (P2). One of the

participants commented on the survey that the VR experience “helped [her] feel more confident in [her] abilities to address challenging situations in the clinical environment” and that “it was beneficial to practice how [she] reacts in these situations.” Another participant noted that the practice provided a “chance to refine what you would have to say or what you would say beforehand,” so a CE would be more comfortable and feel confident in a similar situation (P3). These comments were reflected by two of the participants who agreed that they plan to make changes to how they facilitate challenging conversations in the future.

Theme Two: Utilizing VR Experience for Faculty Development

From the data gathered, it was evident that participants felt the VR experience could be useful for faculty development as all strongly agreed that they would recommend the VR experience to other instructors. Participants indicated that the VR experience could be offered to support not only CEs who are new to the role but also experienced CEs as an ongoing faculty development session.

CEs New to the Role

Participants suggested through the survey and the interviews that incorporating the VR experience as a part of an orientation for new hires would be beneficial:

- “This was a great experience, and I could see it being incredibly valuable in mentoring new nursing instructors” (Anonymous).
- “I think this was such a valuable experience, especially for new instructors” (Anonymous).
- “Exploring difficult situations is so important as a new instructor. Sometimes you don’t know how you will react in a situation, so this provides an opportunity to improve your teaching skills” (Anonymous).

One participant stated that she wished “there was something like this available when [she] started teaching” (P2). Another pointed out that although new CEs may feel confident navigating through challenging situations that involve patients, they often need to take a different approach with students as the educator-student relationship is different from the nurse-patient relationship. As such, the participant thought that the VR experience would be valuable as a part of an orientation for new CEs as it would give them an opportunity to “enter into these challenging conversations that [they] don’t really know” and are “able to walk through [unfamiliar situations]” (P2). This comment was agreed upon by another participant who suggested that the VR experience could be a part of mandatory orientation for new CEs (P1). She stated the experience allowed her to be aware of how she would respond, and she thought this would be beneficial for new educators who have not yet encountered challenging situations in their teaching environment.

Ongoing Faculty Development

In addition to utilizing the VR experience for CEs who are new to their roles, participants suggested that the experience would be beneficial for experienced CEs. One participant pointed out that certain situations, such as encountering confrontational students, do not happen regularly (P2). In fact, all participants who were interviewed had not experienced confrontational responses from their students in their teaching experience. However, the participants acknowledged the need to be prepared for such situations and suggested that the VR experience could be used as a practice tool to bring awareness of how the CE would manage the situation. P2 also advocated for utilizing the VR experience as ongoing faculty development and stated it could be an activity completed by all CEs on an annual basis. She stated it would be helpful for experienced CEs as they may not be confident with challenging situations:

Even for seasoned instructors, just to be able to go through those exercises again – it kind of reinforces how to talk because if you hadn't had a confrontational situation in a long time, you wouldn't know really how to navigate that situation. So, I think that would be really valuable as a part of an annual faculty development session.

These comments demonstrate that participants felt the VR experience has the potential to prepare the CEs for challenging situations so they could be better equipped to manage the situation while competently supporting the students.

Participants also gave suggestions on how the VR experience could be incorporated into faculty development. The participant who advocated for the annual faculty development session suggested completing the VR experience individually first so CEs feel “comfortable [since] no one's going to watch them” then, having “a conversation as colleagues and go through the scenarios” as a group (P2). Another participant suggested proposing VR experience as “a micro-credential” or a certificate that is optional for current CEs to obtain (P1). She stated that it may be challenging to draw interest from CEs as it would require them to participate in this activity outside of their teaching time; the participant suggested it may be helpful to incorporate the activity into CEs' work hours so they can get compensated for the time.

Theme Three: Areas for Improvement

While most participants found the VR experience helpful for supporting their capabilities to navigate challenging conversations with students, they suggested how the experience could be improved upon to make it more meaningful: (1) having different perspectives, and (2) technology development.

Different Perspectives

While participants appreciated how completing the activity individually allows them to feel comfortable and safe, some thought it would be beneficial to have different perspectives on their performance. One participant thought it would have been “nice to have someone there to provide feedback after [to talk about] hey, this is really great what you did, but maybe I would go about it differently” (P2). Another participant suggested having “formal or informal feedback on ways to manage these situations” where an expert shares CEs’ strengths and weaknesses based on their performance would have been beneficial (P1). Both participants, however, agreed that having an audience could diminish feeling safe during the experience. As such, one participant suggested completing the activity individually, then discussing how they managed the situation in a group so they can still receive some form of feedback (P2). Another participant suggested adding informative “text scripts” or “recommendations and tips” at the end so CEs can reflect on their experience and make improvements (P1).

Technology Development

Another aspect of the VR experience that some participants thought could be improved was the technology itself. While a participant commented in the survey that the scenarios were “realistic examples of what could happen in clinical practice,” some participants thought interactions with virtual students could be more interactive to make the experience more realistic:

- “Making it a little bit more of a natural conversation with these virtual students maybe would help” (P1).
- “I wish the student was more reactive as this would make it more realistic” (Anonymous).

- “I wish there was a way to make it more interactive” (P3).

Participants suggested virtual students responding differently depending on CEs’ choice of words and phrases during their conversation would be beneficial. Another participant suggested virtual students factoring in CEs’ tone of voice so the conversation either gets “heated or everybody stays calm” would make the experience more realistic and engaging (P3).

Summary

In this chapter, three major themes, with several sub-themes, have been discussed. Data gathered from this study were examined and analyzed to inform the themes and subthemes, and the findings arose from participants’ responses to the survey questions and the interviews. To provide actual narratives of the participants and accurately reflect their perspectives, I used direct quotations from the survey and interviews.

With the first theme, I examined four aspects of the VR experience the participants found beneficial. I specifically explored the engaging nature of the VR experience, how the experience allows skill development through practice, and its positive effect on the learning environment and on participants’ confidence levels. With the second theme, I explored how the VR experience could be utilized for faculty development. I discussed how the VR session could be introduced and offered to both new hires and experienced CEs. With the third theme, I examined two aspects of the VR experience that could be improved upon to make it more meaningful and beneficial for the CEs.

Chapter 5: Discussion

This chapter includes the discussion of the three major themes that were identified in the previous chapter: (1) benefits of VR experience; (2) how VR could be utilized for faculty development; and (3) areas for improvement. For the purpose of this study, the population for the study only included clinical educators from the nursing program. While the study findings are limited to the small number of these participants and their perspectives, the potential exists for the findings to inform how the VR experience may be utilized to support educators within the faculty and in other disciplines.

The first two major themes answer the overarching research question for the study: *How does the use of VR support faculty development in navigating challenging conversations with students*. The sub-themes answer the sub-questions for the study, which were:

1. What are the perspectives of CEs on using VR experiences for self-directed learning?
2. How might VR experiences support CEs' capabilities to navigate challenging conversations with students?

The third major theme will provide additional information to better respond to these research questions.

Using VR Experience for Self-directed Learning

The most foundational definition of self-directed learning comes from Knowles (1975) who described it as a process in which individuals take the initiative in determining their own learning needs and goals, identifying learning resources and strategies, and evaluating learning outcomes with or without the help of others. In terms of faculty development initiatives, it is a means to acquire essential skills that are vital for effective teaching. It relies heavily on educators' ability to reflect and identify their personal areas of needed growth (Steinert & Mann,

2006; Towle & Cottrell, 1996). Also, it requires learning environments that are conducive for educators to be conscious of their learning and to make necessary decisions as they pursue continuing growth and development as educators (Steinert & Mann, 2006). Stubbe and Theunissen (2008) classified five core elements of self-directed learning as the following:

1. Individuals are in control of their own learning process;
2. Individuals utilize self-regulating learnings strategies such as setting goals, planning, self-monitoring, self-instruction, self-assessment, and problem-solving;
3. Individuals are able to reflect which includes self-assessment and self-evaluation on their performance and learning process;
4. Individuals are able to interact with their social environments, such as peers and mentors, to cooperate and collaborate during the learning process; and
5. Learning experience focuses on a real-life problem and it should be set in the real world or a virtual world that evokes the real world.

In this section, I discuss how the VR experience has the potential to create a learning environment that promotes self-directed learning. In addition, how the CEs may benefit from having different perspectives and more realistic interactions as a part of the experience are explored.

Learning Environment Conducive to Self-directed Learning

In Control of Own Learning. From the recounts of the study participants, the VR experience provided a positive learning environment that allowed them to become self-aware of how they facilitate challenging conversations with their students. Through the VR experience, the participants were able to identify their strengths and weaknesses as they were tasked with providing critical feedback on student performance as well as managing different student

reactions. Then, with an option to review their recorded interactions so they could approach the scenarios differently, the participants were able to self-evaluate their performance and reflect on their interactions with the virtual students. Without any audience watching their interactions or interjecting to provide feedback, the participants acknowledged feeling safe and comfortable during their experience. The participants were, therefore, encouraged to take an active role in their learning as they were alone in the experience and able to take control of their own learning process. By motivating the participants to exercise a degree of autonomy, it was hoped that they would learn how they approach challenging situations with students, stimulate their thinking, and develop their own ability in the future to effectively manage similar situations in their practice. The majority of the participants agreed that they learned something new about how they facilitate challenging conversations and acknowledged that the experience provided them with an opportunity to self-assess and come up with strategies that could be applied in their practice.

According to Liu et al. (2017), VR has the potential to promote autonomous learning as it allows individuals to “select [a] suitable learning environment based on their learning requirements, to take an unlimited number of repetition and practice, and to check learning outcomes by receiving feedback from environment” (p. 110). Checa et al. (2021) investigated whether VR technology can be used for autonomous learning as isolation and distance learning became prevalent during the COVID-19 pandemic. They noted that in addition to higher learning satisfaction, there was also a better understanding of the subject matter as the participants were better able to make connections between different concepts. The authors suggested such results were due to VR technology offering realistic experiences that allow individuals to actively learn through interactions and problem-solving; they also credited “a safe environment where mistakes can be corrected” (Checa et al., 2021, p. 4) as one of the advantageous aspects of VR.

While the designed program was deemed appropriate for this study, the virtual environment could have permitted the participants to have less prescribed interactions as the current design included a specified sequence. Percival (1996) criticized that education in the workplace often limits the degree of control permitted to learners as “it is generally the responsibility of organizational representatives, not learners, to determine learning objectives, instructional formats and techniques, and evaluation criteria” (p. 135). The author argued that when learners assume control of their learning, they experience an enhanced “sense of involvement in learning, as well as the relevance and meaningfulness of learning activities” (Percival, 1996, p. 135). According to Makransky and Petersen (2021), experiencing a sense of agency in an immersive environment is crucial as it enhances learning by instigating motivation and by prompting individuals to become active in their learning. The authors claimed that the most important predictor of agency is “users having control over their actions and [being] able to exert that control over parameters in the environment” (Makransky & Petersen, 2021, p. 943). Furthermore, low agency results when users follow a fixed narrative rather than engaging in immersive interactions. As one of the advantages of using VR is the ability to allow individuals to freely explore and manipulate their environment, the participants, therefore, could have been given more control over what and how they want to navigate through the simulated environment. With an increased degree of control, the participants may experience a greater sense of agency and empowerment, motivating them to assume responsibility for their learning process (Chen, 2010; Makransky & Petersen, 2021).

Promoting Application of Self-regulating Learning Strategies. Another aspect of self-directed learning is that individuals apply self-regulating learning strategies such as setting goals, planning, self-monitoring, self-instruction, self-assessment, and problem-solving (Stubbe &

Theunissen, 2008). From the responses of the participants, it was evident that the VR experience promoted them to actively think about how they may problem-solve and set their goals in relation to facilitating challenging conversations with students and how they plan to achieve these goals. The relationship between self-regulation and VR was also shown in a study by Chen and Hsu (2020). These authors implemented VR as an education tool and found that the VR environment had a positive influence on the study participants' self-regulation. The authors claimed that absorption and immersion offered by the VR environment allow the participants to become more emotionally engaged in learning situations, allowing them to cognitively process the learning materials and use self-regulating strategies.

In addition, a few authors postulate that a VR learning environment with an adaptive learning approach can complement and encourage self-regulation (Taylor et al., 2021). Adaptive learning focuses on an individual and can provide personalized learning as it assesses the user's skills and knowledge, learning needs, and learning process, to provide real-time updates and necessary tools to augment learning (Taylor et al., 2021; Vega et al., 2020). Within the VR environment, adaptive learning technology can therefore consider the user's goals, emotions, behaviors, and knowledge as their performance and interactions are monitored, leading them to learning opportunities that are optimized for their needs (Taylor et al., 2021; Vega et al., 2020). Consequently, as individuals advance through different scenarios, adaptive learning can facilitate as well as automate self-regulation. Also, by reviewing different scenarios and contents that they went through, the users are able to self-regulate their learning by monitoring their progress, setting new goals, and coming up with plans to make necessary improvements (Forsyth et al., 2016; Taylor et al., 2021).

Promoting Self-reflection. One of the key elements of self-directed learning is the ability to self-reflect in which individuals assess and evaluate their performance and learning process (Stubbe & Theunissen, 2008). Reflection allows for introspection into individuals' actions and the reasons for those actions in a specific situation, and it can occur in the midst of the action as well as in response to the situation (Saylor, 1990). Regardless, it is a “deliberate attempt to prepare for a future problem” (Saylor, 1990, p. 9) where individuals learn from their experience and possible consequences, allowing them to implement different strategies should they encounter similar situations in the future.

From the responses of the study participants, it was shown that the VR experience promoted self-reflection as it gave them an opportunity to look back on their interactions with the virtual students. Participants revealed that the VR experience itself began the process of them reflecting on how they navigated through different scenarios with challenging student reactions. Also, as they were able to watch and hear their recorded interactions, they had a chance to assess and evaluate their performance. The ability to review the recordings adds value to the whole experience as it is often difficult to accurately remember what had happened during the interaction. As such, by going through the recordings and objectively assessing their actions and emotions evoked during the VR experience, the participants were able to draw appropriate conclusions about their performance and determine how they may improve for future practice. This is consistent with results from a study by Stavroulia and Lanitis (2019) in which the authors found that VR experience, in comparison to learning in a classroom setting, has the potential to cultivate a higher level of reflection in individuals. The authors postulated that one of the ways that VR stimulates deeper reflection is through repeated experience; individuals are able to recall their own experiences and criticize their practice, prompting them to “maximize [their]

knowledge and understanding and be prepared for future situations” (Stavroulia & Lanitis, 2019, p. 20). Fertleman et al. (2018) also supported the view that VR provides a learning environment that encourages reflection. They stated that the VR experience allows individuals to develop greater self-awareness and modify their future actions as they take a “trial and error” approach to learn how to respond and act in various situations.

The benefits of using digital recordings and their effects on self-reflection were highlighted by numerous researchers (Brimble, 2008; Hansebo & Kihlgren, 2001; Hill et al., 2000; Strand et al., 2016; Watts et al., 2009). Strand et al. (2016) highlighted that digital recordings can be used as a tool to “heighten [participants’] awareness by capturing the moment and show them the complexity [of their actions]” (p. 2580). They stated that reviewing footage promotes individuals’ self-assessment and self-reflection as watching the playback enables them to acquire new knowledge and identify their strengths and weaknesses (Strand et al., 2016). Consequently, the authors argued that reviewing digital recordings can activate cognitive and emotional learning in individuals (Strand et al., 2016).

In addition to reviewing digital recordings, VR technology has the potential to offer other means to allow self-reflection of the users. For instance, participants’ movements during their VR experience can be tracked to assess their nonverbal communication, such as head nodding, eye contact, body orientation, gesture, and body language (Maloney et al., 2020). Also, by integrating artificial intelligence technologies such as natural language processing, acoustic and linguistic aspects of participants’ speech can be analyzed, allowing the participants to monitor the tone, phrases, and wordings they use during their interactions (DeSouza et al., 2021). Consequently, the participants can become better aware of how they communicate, both verbally and nonverbally, and make necessary adjustments for their future interactions.

In order to facilitate self-reflection, Saylor (1990) suggested two influential elements: (1) having adequate time to reflect, and (2) having a non-evaluative, safe environment. During this study, the participants were asked to come to campus to complete the VR experience, however, in reality, VR activities can be done at their convenient time and location. Consequently, the VR experience would allow individuals to spend as much time as they need to reflect on their performance and come up with strategies for future practice. Also, as the participants pointed out during the study, the individual practice of the VR experience established a safe learning environment where they felt safe to make mistakes and develop their skills without the fear of judgment. Although many researchers highlight the safe environment offered by VR, they often focus on keeping participants out of physical harm (Grassini & Laumann, 2020; Schwebel & McClure, 2010; Xu et al., 2014). However, some researchers are beginning to acknowledge and appreciate VR creating an emotionally safe learning environment that allows participants to not worry about making public and visible mistakes (Didehbani et al., 2016; Fertleman et al., 2018; Harris et al., 2002; Hickman & Akdere, 2018; Palmas et al., 2021). The results from this research also corroborate these perspectives as the study participants revealed that they valued feeling safe to assess their performance and try out different approaches as they develop their skills.

Interacting with Social Environments. Stubbe and Theunissen (2008) argued that individuals need to be able to interact with their social environments such as mentors and peers to cooperate and collaborate during the learning process. Percival (1996) pointed out that although “self-directed” seems to indicate that individuals are on their own, the actual meaning is that they are in control of their learning process and that they can seek varying degrees of assistance from others. For this study, the VR experience was designed for the participants to complete the activity by themselves. This was done to create a safe learning environment as well

as to illustrate how the program could be utilized by CEs if it was widely and easily available to them. From the recounts of the participants, it was evident that they appreciated the safe feeling the VR experience offered, however, a few participants pointed out that they felt that they would have benefited from receiving feedback on their performance. In order to receive meaningful feedback on their performance while maintaining a safe environment, the participants suggested having group discussions or including informative recommendations at the end of the experience. The participants thought these additions would be valuable to the whole experience as they believe feedback would allow them to further reflect on their strengths and weaknesses and how they could approach the situation differently in the future. This is in accordance with the literature that describes the importance of cooperating and collaborating with others and their positive effects on one's learning process (Clark & Dumas, 2015; Guldberg, 2008; Stone et al., 2013; Stubbe & Theunissen, 2008; Topping et al., 2017). A collaborative approach has been credited for promoting individuals to engage in meaningful and active conversations that encourage them to critically think about their actions and how they could modify their practice (Guldberg, 2008; Stone et al., 2013; Stubbe & Theunissen, 2008). Also, as individuals work with non-evaluative mentors or colleagues with whom they share mutual goals, their motivation to learn about their actions and attitude is enhanced (Clark & Dumas, 2015; Stubbe & Theunissen, 2008; Topping et al., 2017). As such, providing the CEs with an opportunity to discuss their VR experience with their colleagues, whom they can build non-evaluative relationships with, may benefit them as they develop their skills. Additionally, if they feel comfortable with going through different scenarios with their colleagues, they could be offered an option to role-play different roles together. This would be achievable using VR technology as it can provide a shared space for a group of individuals to support the collaboration and learning process (Chen,

2010; Greenwald et al., 2017; Muhammad Nur Affendy & Ajune Wanis, 2019). In addition to supporting individuals to collaboratively interact with each other, the shared virtual working space would also be beneficial as it allows remote collaboration (Greenwald et al., 2017; Muhammad Nur Affendy & Ajune Wanis, 2019).

Engaging CEs with Real-life Problems in a Virtual World. Stubbe and Theunissen (2008) argued that the learning experience should focus on a real-life problem and be set in the real world or a world that evokes the real world to promote self-directed learning. The authors revealed that it is important for individuals to find the learning environment meaningful and relevant (Stubbe & Theunissen, 2008). This is deemed important as such an environment motivates the individuals to make sense of their experience and become active participants in their learning process (Percival, 1996; Stubbe & Theunissen, 2008). To achieve this, Stubbe and Theunissen (2008) suggested presenting realistic situations or problems that make the individuals feel that they “need more information, knowledge, or communication to solve the problem” (p. 17). This creates a sense of urgency to learn, and consequently enhances the degree of engagement and prompts the individuals to take action in finding the solution to the problem (Percival, 1996; Stubbe & Theunissen, 2008).

From the responses of the participants, it was shown that the VR experience provided them with a learning opportunity that they could relate to and were interested in. The scenarios for the experience presented them with possible situations and student reactions that they may encounter in their practice. The participant responses revealed that most participants were particularly interested in scenarios that involved inappropriate student reactions. They acknowledged that they felt nervous about these challenging interactions as they had not encountered such situations in the real life. However, they recognized that there is a possibility

that they may need to deal with such situations in the future. As such, the participants were more motivated to work through the scenarios and come up with strategies that could be applied in their practice. These findings align with a study by Yang et al. (2020) where the authors investigated whether engaging in a simulated real-life scenario through VR could enhance the communicative ability of English as a foreign language learners. The authors used an immersive VR program that allowed the learners to practice and apply English by engaging and immersing themselves in a real-life simulated context. They found that there was a positive uptake among the participants as the VR experience offered a learning opportunity that they found relevant and interesting. Consequently, they were motivated and engaged in the learning task, leading to beneficial outcomes.

In addition to scenarios that are relevant to their practice, the virtual world itself enhanced the participants' engagement during the VR experience. While the novelty of the VR technology drew the participants' interest and evoked playful feelings and emotions, the results also showed that the immersiveness that VR offers made the learning environment more meaningful to the participants. As VR experiences allow individuals to interact with their physical environment there is a greater sense of empowerment felt by the individuals and they are more engaged in their learning process (Chen, 2010; Schlag & Tan, 2014; Vesisenaho et al., 2019). Also, Vesisenaho et al. (2019) pointed out that the immersive nature of VR induces emotional engagement in learning situations that enables the users to cognitively process learning materials more deeply. This was shown in this study as the participants pointed out that they appreciated the "whole body experience." Even though the VR experience for this study was designed to have limited interaction with the physical environment, the participants acknowledged that they were able to immerse themselves in the situation as they felt like they

were actually interacting with students. Consequently, they felt more motivated and engaged during the experience, causing them to be more invested in learning about how they navigate challenging conversations and how they could improve their practice. These findings align with studies that acknowledge the immersive nature of VR contributing to a higher sense of presence, more engagement, and better learning perceptions (Buttussi & Chittaro, 2018; Civelek et al., 2014; Cummings & Bailenson, 2016; Han, 2020; Liu et al., 2017).

For future studies however, the participants suggested that the experience could be more interactive, making it more realistic and immersive. For example, it was suggested that the experience would be more immersive if the virtual students could factor in participants' tone and choice of words or phrases to respond differently, making the interactions more lifelike. While some researchers have focused on improving visuals (e.g., resolution, detail, realism, sound quality) to make the experience more immersive and thereby strengthen participants' engagement in the experience (Hruby, 2019; Kern & Ellermeier, 2020; Liu et al., 2017), Cummings and Bailenson (2016) posited that for individuals to be emotionally and psychologically invested in the experience, focusing only on vision and sound may not be sufficient. Rather, they suggested variables such as familiarity, communication, and manipulation of virtual humans may be more beneficial (Cummings & Bailenson, 2016).

Supporting CEs' Capabilities to Navigate Challenging Conversations

From the interview and survey responses, the participants noted that the VR experience would be helpful for supporting their capabilities to navigate challenging conversations with students. In this section, I discuss how the VR experience offers practice opportunities and the positive effect on CEs' confidence levels in facilitating challenging conversations and navigating through difficult student reactions. I then explore how the VR experience could be used to

support and benefit both new and experienced CEs. The changes and improvements that could be made with the VR experience to further support CEs' capabilities are discussed throughout this section to provide additional depth.

Practicing Skills Development

From the participant responses, it was shown that the VR experience provided them with an opportunity to practice familiar and unfamiliar interactions with students. This opportunity to practice was deemed valuable as the participants not only learned something new about how they facilitate challenging conversations, but also made changes to how they would navigate these conversations in the future. For instance, one of the participants revealed that she applied what she had practiced during her VR experience to how she approached a situation that involved providing constructive feedback and navigating through students' emotional reactions. As VR technology became more accessible, there is increasing interest and research examining the usability of VR as an education and training tool (Jensen & Konradsen, 2018; Wu et al., 2020). In many studies, the researchers acknowledge how the VR experience offers individuals repeated practice opportunities that allow them to develop skills to achieve expertise and expert performance (Hart et al., 2013; Jensen & Konradsen, 2018; Wu et al., 2020). Furthermore, with the increasing availability of VR through lower-cost hardware, rental programs, and deployment at schools and libraries, users can have innumerable and flexible practice opportunities (Jensen & Konradsen, 2018; Wu et al., 2020).

Jensen and Konradsen (2018) reviewed the research on the use of immersive VR as an educational intervention. They found that VR led to improved learning performance and outcomes when used for psychomotor, cognitive, and affective skills acquisition. Also, in a meta-analysis by Wu et al. (2020), immersive VR led to improved learning performance when

compared to non-immersive learning approaches. The authors suggested the immersiveness of VR prompts the users to be more emotionally engaged in the experience, allowing them to be actively involved in their learning experience.

For acquiring interpersonal skills, Hart et al. (2013) claimed practicing social interactions through VR would be beneficial as it “provides environments that allow [the users] to practice and develop necessary skills in safe environments, while allowing for repeated interactions to further develop those skills” (p. 235). The use of virtual humans plays a vital role in promoting the users to practice and develop their interpersonal skills for the following:

- People react socially toward virtual humans, which allows them to effectively interact with the virtual agents;
- Social skills are fundamentally interactive in nature and virtual humans are designed to support this form of interactivity;
- There is a potential capability of virtual humans to be designed so they can recognize and appropriately respond to the user; and
- Virtual humans can be programmed to consistently present exact stimuli for the users and the characteristics such as race, gender, age, and culture can be manipulated (Hart et al., 2013).

According to Greene (2003), practice sessions are most effective in promoting skill development when they are “characterized by deliberate, focused efforts at monitoring and recognizing the behaviors of interest” (p. 83). As mentioned in previous sections, the VR experience was programmed so that the participants could review their recorded performance and repeat the scenarios until they felt comfortable with each situation. The aim of this design was to provide the participants with an opportunity to make focused efforts to monitor and

evaluate how they navigate challenging conversations. From the recounts of the participants, it was shown that this component of the VR experience prompted them to pay closer attention to their tone of voice and choice of words. Consequently, the participants revealed that these discoveries allowed them to recognize what modifications are necessary to be competent at facilitating challenging conversations with their students.

While it is important for individuals to engage in practice sessions where they make deliberate efforts to improve desired skills, different researchers have argued that timely feedback can further facilitate skill acquisition (Ericsson, 2008; Greene, 2003; Mitchell & Boyer, 2021; Welch & Carter, 2018). The researchers suggested that when individuals are provided with information about their performance, they can use the feedback as a guide and adjust their actions in their subsequent practice sessions (Ericsson, 2008; Greene, 2003; Mitchell & Boyer, 2021; Welch & Carter, 2018). The VR experience for this study did not include a feedback component to provide a learning environment that allowed the participants to feel safe making mistakes. However, it could be more beneficial for the CEs to receive timely, constructive feedback on their performance. As the study participants suggested, there are multiple ways for CEs to receive feedback. If the individuals prefer not to have an audience watching how they perform, the VR experience could remain as an individual activity, which then is followed by a group discussion where individuals can share how they performed and receive suggestions that could be applied to their practice. In the case where individuals are comfortable with others viewing their performance, either their recorded performance can be reviewed by their colleagues, or it could be viewed in real-time as VR technology can provide a shared space to support group collaboration.

There are, however, mixed thoughts on whether incorporating feedback after a VR experience improves individuals' performance. Strandbygaard et al. (2013) investigated the effects of feedback compared to no feedback on the participants' performance. They found that while expert feedback increased the efficiency of training by reducing the time and repetitions required to achieve a certain level of proficiency, it did not lead to a higher performance score. In fact, the participants who did not receive any feedback achieved a significantly higher performance score than the group who received feedback. The authors suggested that this was because these participants spent more time perfecting the skill, and this repeated practice was reflected in their higher performance scores (Strandbygaard et al. 2013). In contrast, Van Ginkel et al. (2019) showed that participants' competence in presentation skills significantly improved with feedback; the participants also were appreciative of the feedback they received and perceived them as "detailed and analytical" (p. 90). As such, future research could be conducted to observe whether receiving feedback further adds to the VR experience as CEs practice and develop their capacity in facilitating challenging conversations.

Boosts Confidence Levels

In addition to providing opportunities for skills development through practice, the VR experience also supported CEs' capabilities to navigate challenging conversations by enhancing their confidence levels. Perceived self-confidence is described as "the perception of one's ability to successfully complete a task" (Perry, 2011, p. 224), and it can have a positive effect on individuals' learning as it provides the basis for motivation, well-being, and personal accomplishments (Perry, 2011). From the recounts of the participants, it was revealed that all participants noted an increase in their self-confidence with respect to addressing similar student interactions in the future. Moreover, they claimed that the VR experience increased their

confidence level by making them feel reassured and encouraged. Specifically, when they discovered that they used supportive tones and words during the interactions, they were able to feel that they could confidently facilitate challenging conversations in their practice. These findings corroborated the results from other studies that have shown VR improving individuals' confidence (Fealy et al., 2019; Pulijala et al., 2018; Ward & Esposito, 2018).

As this study did not evaluate whether the participants' performance improved with the VR experience, it cannot be determined whether the participants' increased confidence had an effect on their actual performance. As there are researchers supporting the positive relationship (Al-Hebaish, 2012; Bandura, 1997; Bandura & Locke, 2003; Charag, 2021), as well as the negative relationship between self-confidence and performance (Campbell et al., 2004; Plohl & Musil, 2018; Vancouver et al., 2001; Woodman et al., 2010), it may be helpful to evaluate the effect the VR experience has on CEs' performance in future studies.

Utilizing VR Experience to Support Both New and Experienced

From the results of the study, it was shown that the participants acknowledged the VR experience as a useful training tool for both new and experienced CEs. For educators who are experts in their field of practice but have limited student interactions, the participants expressed that the VR experience could be a part of their orientation when they first get hired. Furthermore, the participants thought educators with years of student interactions would also benefit from undergoing the VR experience as one of their professional development sessions.

Orientation for New CEs. Through the survey and the interviews, the participants highly recommended the VR experience to be a part of orientation for newly hired CEs. Formalized orientation supports novice CEs as they transition into their educator role, but it is also helpful in retaining these educators (Baker, 2010). Researchers have shown that without

adequate orientation, novice CEs may not be successful in their educator role as they are unprepared to teach effectively or work with students (Roberts et al., 2013; Dunker & Manning, 2018). As such, it is imperative that novice CEs are offered orientation that prepares them to understand their new role and related responsibilities including, but not limited to, familiarizing themselves with teaching and evaluating strategies, providing student feedback, and dealing with challenging situations (Ross & Dunker, 2019).

In this study, the participants highlighted that undergoing the VR experience to practice facilitating challenging conversations and navigating through awkward or uncomfortable interactions would be beneficial for the new CEs. Although there is increased interest in using immersive VR for skills development, there is a lack of research related to the impact of VR experience on CEs. However, there is limited research indicating that simulation may be beneficial for preparing CEs in their role (Crocetti, 2014; Hunt et al., 2015; Krautscheid et al., 2008; Shellenbarger & Edwards, 2012). Hunt et al. (2015) observed CEs feeling more confident with providing feedback and dealing with unprofessional student behaviors after participating in a simulation-based orientation program. Crocetti's (2014) pilot study also showed CEs feeling more confident with assisting students after simulation. As VR experiences provide CEs with an opportunity to simulate situations that they are unsure of, it could be a beneficial exercise for new CEs as they get familiarized with their new role.

Ongoing Faculty Development. While the participants stated that the VR experience would be beneficial for new CEs, they also acknowledged that experienced CEs would benefit from the experience. The participants commented that certain situations from the VR experience, such as navigating through confrontational student reactions, do not happen regularly in their practice. Consequently, even though some CEs have years of teaching experience, they may feel

ill-equipped to manage such situations, and the participants acknowledged that the VR experience could be implemented as an ongoing faculty development program to prepare these CEs. Numerous researchers have shared a similar view as they recommended supporting CEs through training opportunities as a part of ongoing faculty development (Elliott, 2016; Hunt et al., 2016b; Huybrecht et al., 2011; Wells & McLoughlin, 2014). With a lack of confidence and being unprepared for negative student reactions, CEs are deemed less likely to successfully manage difficult situations involving students (Duffy, 2003; Elliott, 2016; Heaslip & Scammell, 2012; Hughes et al., 2019; Hunt et al., 2016a, 2016b). The VR experience provides CEs with an opportunity to prepare how they would manage these situations and become more confident as they practice different scenarios. Therefore, as the participants have suggested, the VR experience could be utilized as a training and preparation tool to support CEs.

Summary

In this chapter, I discussed the major findings from the research study, aligning them with the research questions and examining them through applicable literature. To address the first question, I discussed how the VR experience has the potential to create a learning environment that promotes self-directed learning. I explored how the experience encouraged the participants to become self-aware of their practice and take an active role in their learning. Moreover, I examined how the VR experience prompted the participants to problem-solve, monitor and assess their performance, and come up with goals and plans with respect to facilitating challenging conversations with students. I also discussed how the experience itself began the process of self-reflection as well as how the use of recorded interactions promoted further self-reflection by allowing the participants to assess and evaluate their performance. I explored potential benefits and different methods of incorporating feedback and group collaboration to

provide opportunities to discuss the experience and further the learning process. Lastly, I discussed how the VR experience can create a physical learning environment that is meaningful and relevant to individuals by providing real-life problems that trigger genuine interest in the topic.

To address the second question, I examined how the VR experience may support CEs' capabilities to navigate challenging conversations. First, I discussed how the VR experience can benefit CEs' skills development by providing them with opportunities to practice familiar and unfamiliar student interactions. I also explored how the VR experience enhanced the participants' confidence levels and made suggestions to conduct a study that evaluates whether this increased confidence level influences the participants' performance. Lastly, I discussed how the VR experience could be incorporated as a part of orientation and faculty development sessions to benefit both new and experienced CEs, respectively.

Chapter 6: Conclusion

In this chapter, I summarize the key findings in relation to the research aims and questions. I also discuss some implications of the research, followed by directions for future research studies.

The aim of this study was to determine the potential of utilizing VR experience to develop CEs' capacity in facilitating challenging conversations with their students. The overarching question for the study was: *How does the use of VR support faculty development in navigating challenging conversations with students?* The following sub-questions were also explored to guide the study:

- What are the perspectives of CEs on using VR experiences for self-directed learning?
- How might VR experiences support CEs' capabilities to navigate challenging conversations with students?

The results of this study uncovered three main themes:

1. CEs expressed different aspects of the VR experience benefiting their skills development. The CEs revealed how the experience evoked playful and positive feelings, promoting them to be actively engaged during the experience. Also, the VR experience provided a safe and positive learning environment that provided them with opportunities to practice possible student interactions, enhancing their confidence level in how they would navigate such interactions.
2. CEs suggested two different ways the VR experience could be utilized for faculty development. They highlighted that the ability to manage challenging conversations with students competently and confidently is vital for both new and experienced educators. As such, the CEs suggested the VR experience could be incorporated as a

part of orientation for the new hires, and current faculty could participate in the VR experience as an ongoing professional development session.

3. CEs also revealed how the VR experience could be improved upon to make it more meaningful. They shared that allowing CEs to receive feedback on their performance would further benefit their skills development. Also, the CEs suggested that increased interactivity of the VR program may enrich the overall experience.

The results of this study corroborate other studies that explore how the VR experience provides a learning environment that promotes self-directed learning. From the study, it was revealed that the VR experience motivates CEs to take control of their own learning process as they are prompted to undergo different scenarios available to them. Through the experience, it was evident that the CEs were prompted to apply self-regulating learning strategies such as problem-solving, setting goals, and assessing themselves. However, to engage CEs more and promote further autonomous learning, allowing them to control and manipulate their simulated environment was suggested.

One of the key elements of self-directed learning is self-reflection and this study showed how the VR experience promoted CEs to self-reflect on their performance. The experience itself began the process of self-reflection, then reviewing recorded interactions allowed them to continue reflecting on their performance and draw conclusions about how they may improve for future practice. Moreover, the features of the VR experience that encourage self-reflection were identified: (1) the VR experience allows individuals to have adequate time to reflect, and (2) the ability to establish a non-evaluative, safe learning environment.

In order to create a safe learning environment, the VR experience was designed so the individuals could complete the activity by themselves. While this aspect of the experience was

appreciated by the CEs, they also highlighted that the ability to interact with their social environments such as colleagues and mentors would benefit their learning process. It was pointed out that receiving meaningful feedback on their performance would allow them to further reflect on their interactions. To achieve this, incorporating a group discussion, whether it is done face-to-face or in a shared virtual working space, was suggested to allow individuals to collaborate.

Also, the VR promoting self-directed learning by providing a meaningful and relevant learning environment with real-life problems was noted in the study. Among the scenarios available to the CEs, it was evident that the one with inappropriate student reactions drew the most attention. The CEs claimed that they felt nervous about encountering such a situation and therefore were more motivated to work through these scenarios.

In addition to relatable scenarios, it was shown that the virtual world itself enhanced the CEs' engagement which further supported self-directed learning in CEs. The novelty of the technology drew CEs' interest and evoked playful feelings and emotions. Then, the whole-body experience which is made possible in the VR experience allowed the CEs to become more emotionally and cognitively engaged, causing them to be more invested in their learning. In order to enhance this experience, however, designing the program to be more interactive, realistic, and immersive was suggested.

From the perspectives of CEs, it was evident that the VR experience can support their capabilities to navigate challenging conversations in multiple ways. First, the VR experience provided them with an opportunity to practice familiar and unfamiliar interactions with students. Through an unlimited number of repetitions and practice, the CEs were able to become self-aware of how they would respond and react during challenging situations with their students.

Also, by reviewing their recorded interactions, the CEs were able to make focused efforts to monitor and evaluate how they navigate challenging conversations so they can make necessary changes for such interactions in their practice.

In addition to providing opportunities for skills development through practice, the VR experience also supported CEs by enhancing their confidence levels with respect to addressing similar interactions in the future. However, as the study did not focus on evaluating the CEs' performance after the VR experience, whether their increased self-confidence had an effect on their actual performance could not be determined.

Lastly, it was evident from the study that the CEs valued the VR experience and perceived it as a useful training tool for both new and experienced CEs. For educators who are new in their role and have limited student interactions, it was suggested the VR experience be incorporated into their orientation. Even for experienced CEs, certain scenarios in the VR experience, such as navigating through confrontational student reactions, may trigger feelings of discomfort and apprehension. As such, implementing the VR experience as an ongoing faculty development program to prepare these CEs for such a situation was suggested.

Implications of the Research

The implications of this study are divided into the implications for educators in the clinical setting, the classroom setting, and for faculty responsible for program development and CE support.

Clinical Educators

In a clinical teaching environment, CEs are expected to facilitate student learning by continuously providing meaningful and necessary feedback. As such, it is essential for CEs to be confident in providing such feedback to their students. Moreover, they need to be able to respond

appropriately to how their students react. While most students are receptive to CEs' feedback and are open to making adjustments, some students become emotional and confrontational. As was highlighted in the study, CEs often feel uncomfortable and unprepared for aggressive student reactions; however, they must be ready to manage these challenging situations as they may happen in their practice.

This study demonstrated the potential of utilizing VR for faculty development in gaining experience and capacity for feedback provision and managing challenging conversations with students. For CEs with minimal experience in student interaction, they can participate in the VR experience to practice and simulate how they would initiate providing feedback to students and how they would respond to expected and unexpected student reactions.

The study also showed that the VR experience would be beneficial for CEs who are deemed "experienced" in their role. Participants in this study identified the importance of exposing CEs to situations in which the student behaves inappropriately. Participants highlighted that aggressive student reactions are uncommon in practice; therefore, experienced CEs are often uncomfortable with managing such student behavior and are unaware of how they would deescalate the situation. Utilizing the VR experience to simulate such interaction, therefore, would be beneficial in preparing these CEs. Also, they could utilize the VR experience to self-evaluate and monitor how they provide feedback to their students. Specifically, the VR experience would allow them to reflect on their tone and the words that they use, stimulating their thinking on how to further improve their feedback provision and communication skills.

While the study focused on the use of VR for faculty development in the nursing faculty, VR for developing quality feedback delivery can be utilized by CEs in other faculties, such as

medicine, pharmacy, and education. As scenarios can be specifically created for their specific areas in education, CEs in different fields may benefit from participating in the VR experience.

Educators in the Classroom

Although the educators teaching in a classroom may not work as closely with students as CEs, they will at some point need to provide feedback to students and may encounter inappropriate student reactions. As such, it is imperative for instructors in all faculties to be confident in feedback provision as well as managing expected and unexpected student interactions. As this study showed the potential of VR supporting educators in facilitating challenging conversations and situations, it could also be utilized to inform other educators in the faculty.

As it was suggested for CEs, the VR experience could be incorporated as an orientation or a training session. Through the experience, educators teaching in the classroom setting can become familiarized with how they would provide feedback to students and how they would manage challenging situations should they occur. In order to maximize the benefit of using VR, scenarios could be created and structured to align with their needs.

Faculties

This study showed that CEs value gaining experience and developing capacity for navigating challenging conversations and managing potential student reactions during these conversations. Also, the study highlighted that even experienced CEs feel uncomfortable and anxious with students who react aggressively towards the CEs' feedback. Faculties must ensure that CEs are prepared for such situations in order to mitigate some of the challenges and stress related to teaching students. Faculties could do this through the use of VR to expose CEs to challenging situations so they could simulate varied interactions before they encounter such

interactions. As suggested by the CEs in this study, the VR experience could be incorporated into the orientation and professional development activities to encourage CE participation in their learning. When CEs understand the reasoning for using a particular technology and have clear instructions about how to do that, the uptake could be enhanced.

While the CEs acknowledged the usefulness of the VR experience in preparing them for challenging interactions with students, they also expressed that receiving feedback on their performance would further enhance their experience and learning. As such, faculties could purposefully incorporate an opportunity to offer and receive feedback on performance so CEs can develop a shared understanding of competent feedback provision. Moreover, as the CEs appreciated the safe learning space the VR experience provided, the learning environment created to foster collaboration and reflection should be non-judgmental and open to communication.

Directions for Future Research

In this research study I examined the potential of VR to develop CEs' capacity in facilitating challenging conversations. The CEs in this study were enthusiastic to participate in the VR experience to gain experience in providing feedback and navigating possible challenging student interactions. A study of this kind is timely as this evolving technology can be utilized to support and enhance CEs' professional development while accommodating distance learning which has become more prevalent due to the COVID-19 pandemic. It is essential for CEs to be confident and competent in providing feedback to their students even when it might evoke uncomfortable feelings. As such, it is imperative for CEs to be prepared for such interactions before they occur in their practice. The findings of this study suggest an innovative strategy as a

means to develop CEs' capacity in navigating challenging conversations. It also creates a foundation for more specific questions to be examined from the perspectives of CEs.

Important questions for future inquiry to explore include:

1. To what extent does the degree of interactivity influence CEs' learning experience during the VR?
2. To what extent does having CEs' speech (tone, phrases) analyzed during their VR experience contribute to their skills development?
3. To what extent does incorporating collaborative discussions into the VR experience contribute to skills development in CEs?
4. What are the perspectives of CEs on multi-user roleplaying using VR? How does multi-user roleplaying, compared to individual practice, affect the competence of CEs in facilitating challenging conversations?
5. How does the increased confidence level after the VR experience affect the competence of CEs in facilitating challenging conversations?
6. Does the VR experience contribute to the competence of CEs in facilitating challenging conversation?
7. How does the VR experience to develop CEs' capacity contribute to the quality of student learning?

Also, larger replication of studies exploring the potential usability of VR in developing CEs' capacity in facilitating challenging conversations would be beneficial since this study is limited by small sample size. Replication and a larger sample size would aid in confirming and reinforcing similar study findings.

Conclusion

My interest in examining the potential use of VR experience to enhance CEs' capacity to facilitate challenging student conversations began as I became cognizant of CEs being expected to competently navigate through such interactions without sufficient preparation. I became curious whether experiencing uncomfortable interactions beforehand through VR would offer CEs opportunities to develop and refine their communications skills. From the study, it was evident that the VR experience has a promising potential to be used as a training and preparation tool for CEs' skills development. The participants praised the VR experience for offering a safe and positive learning environment where users can actively learn through repeating uncomfortable situations, experimenting with different responses, and self-reflecting on their current practice. The participants also revealed that VR experiences led to enhanced confidence levels, which they considered important for both new and experienced educators. In addition, potential strategies to enhance the experience, such as incorporating feedback and increasing interactivity, were suggested, raising further questions that could be examined with additional studies.

Every day, educators are expected to provide a quality learning experience and environment for their students. However, without sufficient support and preparation, they may not be apt to provide such support to their students. While this study is at its beginning phase with a small number of participants, there is a potential for further research as others expand on this study or bring new perspectives. As research in teacher development moves forward, educators will no longer have to blindly navigate through challenging student interactions. Rather, they would feel prepared and well supported to encounter difficult situations that were once considered a rite of passage for educators.

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APPENDIX A: VR SCENARIOS

During your clinical teaching shift today, you have three students who require immediate feedback to address aspects of their performance. You have asked them to come into one of the office rooms and you are about to initiate a conversation with each of the students, one at a time. Please see below for descriptions of what needs to be addressed so you are familiar with the situation before you initiate the virtual reality experience.

During the experience, students will respond differently (receptive, manipulative, or aggressive), and you will need to respond accordingly. Your interactions with the virtual students will be recorded, and you will have an option to review the conversation. The recorded interactions are only for your review and will be deleted after each participant. You are also free to repeat the same experience as much as you would like during the allotted time.

Student A: The student broke sterility during the dressing change procedure but did not make any corrections. Student seemed very nervous throughout the procedure and did not seem to recognize the occurrence of the error when it happened, even when you requested the student restart the dressing change with new supplies.

Student B: The primary nurse of student B called you and stated that the student may have made up one of the patients' vital signs. One of the student's patients called for assistance and the nurse answered the call so the student could assist another patient. The patient stated that he was in a lot of pain and needed something right away. While checking previous documentation on vital signs and medication, the nurse noticed that the student had just recorded 2/10 for the pain level. As the nurse brought the analgesic to the patient, she inquired about what could have caused a sudden change in the pain level. The patient stated that the student did not ask about the pain. When the primary nurse asked the student, the student became evasive and told the nurse that the student was not sure what had happened.

Student C: While reading your students' documentations to ensure quality charting, you noticed that Student C's documentation on patient teaching includes unexpected details. You read previous documentations from other nurses and realized that the student had plagiarized one of the nurses' documentation.

** you have been noticing concerning behaviors from this student, such as swearing loudly when the student experienced difficulty during medication preparation.

APPENDIX B: CONSENT FORM



UNIVERSITY OF CALGARY CONSENT TO PARTICIPATE IN RESEARCH

TITLE: Using Immersive Virtual Reality to Develop the Skills of Facilitating Challenging Conversations

INVESTIGATORS: Dr. Ruth Swart (Supervisor); Hannah Ibbotson (Master's student)

Main contact information: hannah.ibbotson@ucalgary.ca (email); 403-680-2393 (cell)

INTRODUCTION

Dr. Ruth Swart and associates from the Faculty of Nursing and the Faculty of Chemical and Petroleum Engineering at the University of Calgary are conducting a research study.

This consent form is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, please ask. Take the time to read this carefully and to understand any accompanying information. You will receive a copy of this form for your records. Your participation in this research study is voluntary.

WHY IS THIS STUDY BEING DONE?

The purpose of this research study is to gain clinical educators' perspectives on the effectiveness of immersive virtual reality in facilitating faculty development in navigating challenging conversations with students.

HOW MANY PEOPLE WILL TAKE PART IN THIS STUDY?

About 40 people will take part in this study through the University of Calgary.

WHAT WILL HAPPEN IF I TAKE PART IN THIS STUDY?

If you volunteer to participate in this study, the researcher will ask you to do the following:

- Book a participation date and time.
- Visit the Energi Simulation/Frank and Sarah Meyer Collaboration Centre (CCIT 218) in the University of Calgary on your participation date and time.
- Complete the cybersickness screening tool to determine eligibility to participate.
- Immersive virtual reality experience – you will be facilitating challenging conversations with underperforming students. During these simulated interactions, students will respond to your feedback and you will be asked to continue the conversation. These interactions will be video recorded; however, you will be the only one who reviews the video.
- Complete the post-immersive virtual reality survey (demographic items, close- and open-ended questions).

- **OPTION FOR ADDITIONAL PARTICIPATION:** Book an interview date and time – an email will be sent if you indicate that you are interested in being interviewed (see page 5).
- Interview over Zoom – this interview will be recorded and used for data analysis.

HOW LONG WILL I BE IN THIS STUDY?

Your participation in this study will last one semester. Participation in this study will require up to 2 hours of your time. The virtual reality day will take a total of about 1 hour (30 minutes for the immersive virtual reality experience, 30 minutes to complete the survey). If you choose to participate in an interview, it will take about 1 hour.

The virtual reality day will be scheduled at the end of September to early October. The interview will occur at the end of the semester in December.

ARE THERE ANY POTENTIAL RISKS OR DISCOMFORTS THAT I CAN EXPECT FROM THIS STUDY?

You may experience cybersickness when experiencing virtual reality. Possible symptoms include nausea, disorientation, vertigo, motion sickness, general discomfort, headache, or anxiety. In addition, although unlikely, you may experience emotional discomfort and/or anxiety as you are facilitating challenging conversation with the virtual student.

All participants will be screened for the likelihood of experiencing cybersickness prior to getting introduced to the virtual reality equipment.

ARE THERE ANY POTENTIAL BENEFITS IF I PARTICIPATE?

There may or may not be direct benefit to you from participating in this study. However, this study may help the researchers learn more about using virtual reality as a faculty learning tool to develop clinical educators' capacity to navigate challenging conversations with students.

CAN I STOP BEING IN THE STUDY?

Yes. You can decide to stop at any time. Tell the researchers if you are thinking about stopping or decide to stop.

WITHDRAWAL OF STUDY DATA

Survey data collected during the study cannot be withdrawn once collected as there will be no personal identifiers. If you decide to be interviewed, you will be able to remove your interview data up until **one month** after your interview day.

WILL I BE PAID FOR PARTICIPATING, OR DO I HAVE TO PAY FOR ANYTHING?

You will not be paid for your participation in this research study. You will not be reimbursed for any out-of-pocket expenses, such as parking or transportation fees.

WILL INFORMATION ABOUT ME AND MY PARTICIPATION BE KEPT CONFIDENTIAL?

The researchers will do their best to make sure that your private information is kept confidential. Information about you will be handled as confidentially as possible, but there is always the potential for an unintended breach of privacy. The research team will handle data according to the Data Management Plan as outlined below:

- No identifiable information about you will be kept with the research data.
- All research data and records will be stored on a secure U of C server or in a locked cabinet.
- Video recorded virtual reality interactions will be deleted between participants.

HOW LONG WILL INFORMATION FROM THE STUDY BE KEPT?

The researchers intend to keep the research data and records for approximately **5** years. Data collected for this study may be shared with other researchers for future studies that are unknown at this time. Any data shared with other researchers, will not include your name or other personal identifying information.

Any future use of this research data is required to undergo review by a Research Ethics Board.

RESEARCHER CONFLICTS OF INTERESTS

There are no conflicts of interests.

CONTACT FOR FUTURE RESEARCH

University of Calgary researchers may contact me in the future to ask me to take part in other research studies.

YES

NO

IF I SUFFER A RESEARCH-RELATED INJURY, WILL I BE COMPENSATED?

It is important that you tell the researchers if you believe that you have been injured because of taking part in this study.

In the event that you suffer injury as a result of participating in this research, no compensation will be provided to you by the University of Calgary, Alberta Health Services, or the Researchers. However, you still have all your legal rights. Nothing said in this consent form alters your right to seek damages.

WHOM MAY I CONTACT IF I HAVE QUESTIONS ABOUT THIS STUDY?**The Research Team:**

You may contact Hannah Ibbotson at 403-680-2393 with any questions or concerns about the research or your participation in this study.

Conjoint Health Research Ethics Board (CHREB):

If you have any questions concerning your rights as a possible participant in this research, please contact the Chair, Conjoint Health Research Ethics Board, University of Calgary at 403-220-7990.

HOW CAN I FIND OUT ABOUT THE STUDY RESULTS?

Study results and summary will be provided on request.

WHAT ARE MY RIGHTS IF I TAKE PART IN THIS STUDY?

Taking part in this study is your choice. You can choose whether or not you want to participate. Whatever decision you make, there will be no penalty to you.

- You have a right to have all of your questions answered before deciding whether to take part.
- Your decision will not affect your employment.
- If you decide to take part, you may leave the study at any time.

HOW DO I INDICATE MY AGREEMENT TO PARTICIPATE?

Your signature on this form indicates that you have understood to your satisfaction the information regarding your participation in the research project and agree to take part in the study. In no way does this waive your legal rights nor release the investigators or involved institutions from their legal and professional responsibilities.

Optional participation: If you decide to participate in being interviewed, please review each of these options and choose Yes or No. You have a right to change your decision at any time:

I am interested in being interviewed: Yes No

I grant permission for my interview to be audio recorded: Yes No

I wish to remain anonymous for my interview data: Yes No

I wish to remain anonymous for my interview data, but you may refer to me by a pseudonym: Yes No

The pseudonym I choose for myself is: _____

You may quote me and use my name: Yes No

SIGNATURE OF STUDY PARTICIPANT

Name of Participant

Signature of Participant

Date

SIGNATURE OF PERSON OBTAINING CONSENT

Name of Person Obtaining Consent

Contact Number

Signature of Person Obtaining Consent

Date

SIGNATURE OF THE WITNESS

Name of Witness

Signature of Witness

Date

A signed copy of this consent form has been given to you to keep for your records and reference.

Long Train or Bus Trips																
Hammocks																
Elevators																
Cinerama																

Note. Designed by the Simulation and Visualization Research team at the University of Calgary, based on "Simulator Sickness Questionnaire: An Enhanced Method for Quantifying Simulator Sickness," by R. S. Kennedy, N. E. Lane, K. S. Berbaum, and M. G. Lilienthal, 1993, *The International Journal of Aviation Psychology*, 3, p. 203-220. Permission to use received from the team.

APPENDIX D: POST-VR SURVEY FORM

This survey is intended to gather a depiction of who the participant CEs are, feedback/comments, and any suggestions he/she may have regarding improving this program.

To maintain confidentiality and anonymity, please do not write any personal indicators (i.e., names, place of work, etc.). If you require clarification on any questions, please ask and more explanation will be provided. Also, you can decline answering any questions. Once you have completed this survey, please place it in the envelope.

Thank you very much for your time and effort!

Part A: Please answer the following:

- Gender: Female Male Prefer not to say
 - Age: 20-29 30-39 40-49 50+
 - Years of Experience as a Clinical Educator:
 - Less than a year 1-5 years 5+ years
 - Have you ever facilitated challenging conversations with your clinical students?
 - Yes No
-

Part B: Please circle a number to respond to each question.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I felt engaged during the immersive virtual reality experience.	1	2	3	4	5
2. I felt safe to experiment with different approaches for each situation.	1	2	3	4	5
3. I enjoyed learning through the immersive virtual reality experience.	1	2	3	4	5
4. I am interested in using immersive virtual reality to practice other communication skills.	1	2	3	4	5

5.	I would recommend this immersive virtual reality experience to other instructors.	1	2	3	4	5
6.	I learned something new about how I facilitate challenging conversations through this experience.	1	2	3	4	5
7.	I plan to make changes to how I facilitate challenging conversations in the future.	1	2	3	4	5
8.	I think this experience will help me navigate similar situations in the future.	1	2	3	4	5
9.	I think this experience increased my confidence in addressing similar situations in the future.	1	2	3	4	5

Part C: Please answer each question. If you need more room to answer, you can use the extra paper provided (please indicate which question you are answering).

1. Please provide your initial impression of the interactions you experienced.

2. What aspects of the experience did you like best and why?

6. If you would like to provide explanation to any of your answers from **Part A**, please do so below. Please indicate which answer (question number) you are expanding on.

Note. This survey was adapted from the survey designed by the Simulation and Visualization Research team at the University of Calgary. The questions were modified, with permission, to align with the research questions.

APPENDIX E: LETTER OF INITIAL CONTACT



Subject Line: Invitation to Participate in Research Study on the Use of Virtual Reality for Faculty Development
Dear Clinical Educator,

My name is Hannah Ibbotson and I am a graduate student in the Faculty of Nursing. My supervisor is Dr. Ruth Swart, and I am conducting a research study examining the use of virtual reality (VR) to support instructors in providing feedback to students.

There are potential risks involved in participating in this research, such as cybersickness, unlikely but possible emotional stress, and/or anxiety. If you require more information, please contact the student researcher. Participation is entirely voluntary. There is no remuneration for participating in this study.

For this research, you will be asked to participate in immersive virtual reality experience where you will be facilitating challenging conversations with virtual students. Data will then be collected in two ways: 1) Survey and 2) Zoom-interview. If you do not wish to take part, you are not obliged to. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Please note that the data reported and your contributions will be kept confidential.

The data collected from all participants in the study will be analyzed and used to inform the faculty, as well will be included in journal publications, presentations within the University of Calgary, and conference presentations.

If you would like more details about something mentioned here, or information not included here, please feel free to ask. Please take the time to read this carefully and to understand any accompanying information. If you would like to participate, please use the contact information below.

This study has been approved by the University of Calgary Conjoint Health Research Ethics Board.

Ethics ID: REB20-1058

Thank you.

Hannah Ibbotson

Master of Nursing student

Phone: 403-680-2393

Email: hannah.ibbotson@ucalgary.ca

APPENDIX F: GUIDING INTERVIEW QUESTIONS

Initial Questions

1. How long have you been a clinical educator and which term do you teach?
2. Have you encountered situations similar to the IVR experience during this teaching term?

Intermediate Questions:

1. (if YES to initial Q#2) Do you feel the IVR experience had an influence on how you navigated the interaction?
2. (if NO to initial Q#2) Do you feel the IVR experience would have influenced how you would navigate the conversation, if it did occur?
3. What are your thoughts on using IVR for self-learning?

Ending Questions

1. If this learning experience was readily available, would you use it?
2. How could the IVR experience be improved?
3. Is there anything you would like to ask me?